

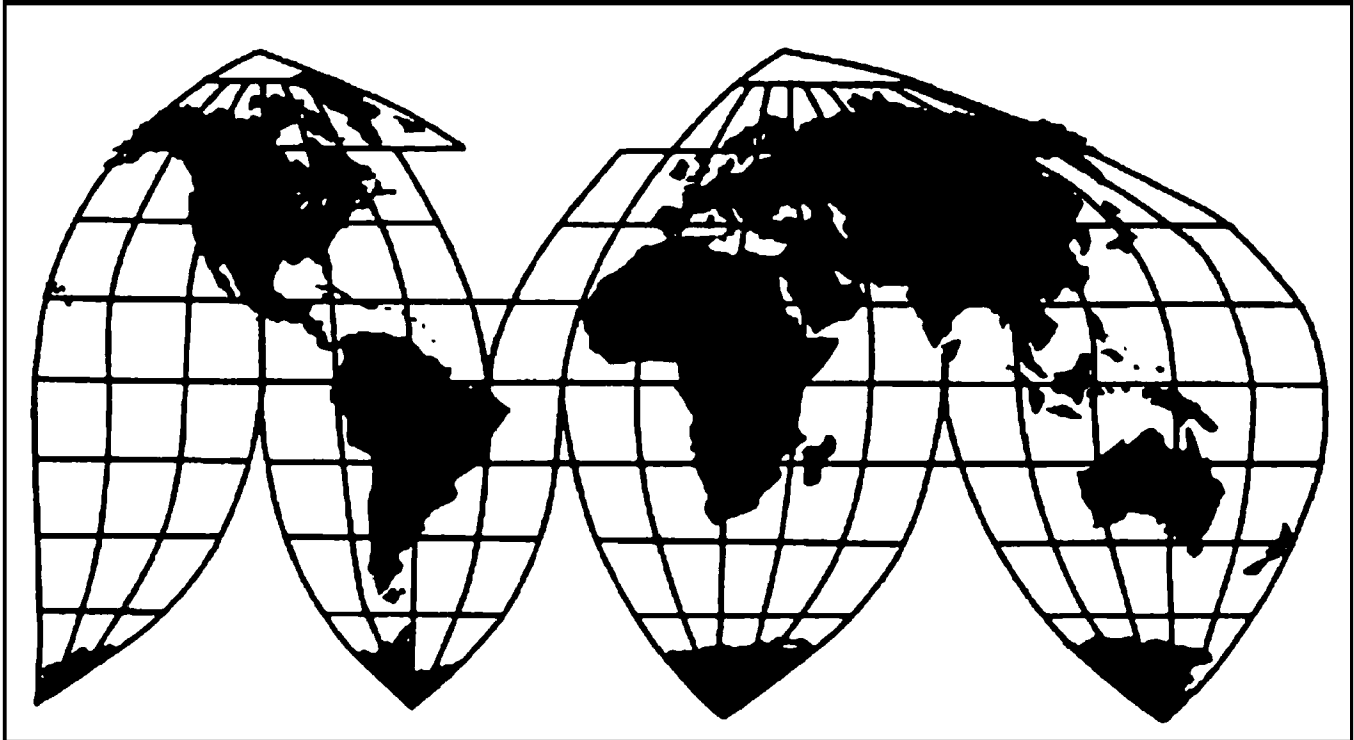
Thermal Paper from Germany, Japan, Korea, and Spain

Investigation Nos. 731-TA-1546-1549 (Final)

Publication 5237

November 2021

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Thermal Paper from Germany, Japan, Korea, and Spain

DETERMINATIONS

On the basis of the record¹ developed in the subject investigations, the United States International Trade Commission (“Commission”) determines, pursuant to the Tariff Act of 1930 (“the Act”), that an industry in the United States is materially injured by reason of imports of thermal paper from Germany, Japan, Korea, and Spain, provided for in subheadings 4811.90.80 and 4811.90.90 (statistical reporting numbers 4811.90.8030 and 4811.90.9030) of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce (“Commerce”) to be sold in the United States at less than fair value (“LTFV”).^{2 3}

BACKGROUND

The Commission instituted these investigations effective October 7, 2020, following receipt of petitions filed with the Commission and Commerce by Appvion Operations, Inc. (Appleton, Wisconsin) and Domtar Corporation (Fort Mill, South Carolina). The Commission scheduled the final phase of the investigations following notification of preliminary determinations by Commerce that imports of thermal paper from Germany, Japan, Korea, and Spain were being sold at LTFV within the meaning of section 733(b) of the Act (19 U.S.C. 1673b(b)). Notice of the scheduling of the final phase of the Commission’s investigations and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* of June 9, 2021 (86 FR 30627) and June 24, 2021

¹ The record is defined in § 207.2(f) of the Commission’s Rules of Practice and Procedure (19 CFR 207.2(f)).

² 86 FR 54152, 86 FR 54157, 86 FR 54154, and 86 FR 54162 (September 30, 2021).

³ The Commission also finds that imports subject to Commerce’s affirmative critical circumstances determinations are not likely to undermine seriously the remedial effect of the antidumping duty orders on Germany and Korea.

(86 FR 33358). In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, the Commission conducted its hearing through written testimony and video conference on September 21, 2021. All persons who requested the opportunity were permitted to participate.

CONTENTS

	Page
Determinations	1
Views of the Commission	3
Separate Views of Chair Jason E. Kearns Regarding the Domestic Like Product and Domestic Industry	61
Part I: Introduction	I-1
Background	I-1
Statutory criteria	I-2
Organization of report.....	I-3
Market summary	I-3
Summary data and data sources	I-5
Previous and related investigations.....	I-5
Nature and extent of sales at LTFV	I-7
Sales at LTFV	I-7
The subject merchandise.....	I-8
Commerce’s scope.....	I-8
Tariff treatment	I-9
The product	I-9
Description and applications	I-9
Manufacturing processes.....	I-10
Domestic like product issues	I-12

CONTENTS

	Page
Part II: Conditions of competition in the U.S. market.....	II-1
U.S. market characteristics.....	II-1
U.S. purchasers.....	II-2
Channels of distribution	II-3
Geographic distribution.....	II-5
Supply and demand considerations.....	II-6
U.S. supply	II-6
U.S. demand	II-16
Substitutability issues.....	II-21
Factors affecting purchasing decisions	II-22
Purchase factor comparisons of domestic products, subject imports, and nonsubject imports	II-28
Comparison of U.S.-produced and imported thermal paper	II-38
Elasticity estimates.....	II-48
U.S. supply elasticity	II-48
U.S. demand elasticity	II-49
Substitution elasticity	II-49
Part III: U.S. producers' production, shipments, and employment.....	III-1
U.S. producers.....	III-2
U.S. production, capacity, and capacity utilization.....	III-12
Alternative products.....	III-20
U.S. producers' U.S. shipments and exports.....	III-22
U.S. producers' inventories	III-26
U.S. producers' purchases	III-29
U.S. employment, wages, and productivity.....	III-31

CONTENTS

	Page
Part IV: U.S. imports, apparent U.S. consumption, and market shares.....	IV-1
U.S. importers.....	IV-1
U.S. imports.....	IV-5
Critical circumstances.....	IV-14
Negligibility.....	IV-23
Cumulation considerations.....	IV-25
Fungibility	IV-25
Geographical markets.....	IV-33
Presence in the market.....	IV-35
Apparent U.S. consumption and U.S. market shares.....	IV-38
Part V: Pricing data	V-1
Factors affecting prices.....	V-1
Raw material costs.....	V-1
Transportation costs to the U.S. market.....	V-5
U.S. inland transportation costs.....	V-6
Pricing practices	V-6
Pricing methods.....	V-6
Sales terms and discounts	V-9
Price leadership	V-9
Price data	V-10
Price trends.....	V-29
Price comparisons.....	V-31
Lost sales and lost revenue.....	V-33
LW jumbo thermal paper.....	V-34
LW converted thermal paper.....	V-42
HW jumbo thermal paper.....	V-46

CONTENTS

	Page
Part VI: Financial experience of U.S. producers.....	VI-1
Background	VI-1
Operations on thermal paper	VI-2
Net sales	VI-31
Cost of goods sold and gross profit or loss	VI-32
COGS.....	VI-37
Gross profit or loss.....	VI-37
SG&A expenses and operating income or loss.....	VI-38
All other expenses and net income or loss	VI-40
Variance analysis	VI-41
Capital expenditures and research and development expenses	VI-41
Assets and return on assets.....	VI-46
Capital and investment.....	VI-49

CONTENTS

	Page
Part VII: Threat considerations and information on nonsubject countries	VII-1
The industry in Germany	VII-2
Changes in operations	VII-5
Operations on thermal paper	VII-6
Alternative products	VII-11
Exports.....	VII-11
The industry in Japan.....	VII-13
Changes in operations	VII-15
Operations on thermal paper	VII-15
Alternative products	VII-20
Exports.....	VII-20
The industry in Korea	VII-22
Changes in operations	VII-23
Operations on thermal paper	VII-23
Alternative products	VII-28
Exports.....	VII-28
The industry in Spain	VII-30
Changes in operations	VII-32
Operations on thermal paper	VII-32
Alternative products	VII-37
Exports.....	VII-38
Subject countries combined	VII-39
U.S. inventories of imported merchandise	VII-45
U.S. importers' outstanding orders	VII-49
Antidumping or countervailing duty orders in third-country markets.....	VII-50
Information on nonsubject countries	VII-50

CONTENTS

	Page
Appendixes	
A. Federal Register notices	A-1
B. List of hearing witnesses	B-1
C. Summary data	C-1
D. U.S. producers', importers', and purchasers' responses to the comparability of lightweight and heavyweight jumbo thermal paper, and of lightweight and heavyweight converted thermal paper	D-1
E. U.S. producers', importers', and purchasers' responses regarding semifinished factors	E-1
F. U.S. producers' and importers' U.S. shipments of thermal paper by heavy and light basis weight	F-1
G. Data regarding U.S. shipments, employment, apparent consumption, and market shares for all in-scope thermal paper	G-1
H. Data regarding U.S. shipments, employment, apparent consumption, and market shares for all in-scope thermal paper and heavyweight converted thermal paper	H-1
J. Data regarding imports, apparent U.S. consumption, and market shares for lightweight jumbo thermal paper	J-1
K. Data regarding imports, apparent U.S. consumption, and market shares for lightweight converted thermal paper	K-1
L. Data regarding imports, apparent U.S. consumption, and market shares for all jumbo thermal paper	L-1
M. All scope thermal paper financial data	M-1
N. All lightweight and heavyweight thermal paper financial data	N-1
O. Lightweight jumbo and converted thermal paper financial data	O-1
P. All jumbo thermal paper financial data	P-1

Note.—Information that would reveal confidential operations of individual concerns may not be published. Such information is identified by brackets in confidential reports and is deleted and replaced with asterisks (***) in public reports.

Views of the Commission

Based on the record in the final phase of these investigations, we determine that an industry in the United States is materially injured by reason of imports of thermal paper from Germany, Japan, Korea, and Spain found by the U.S. Department of Commerce (“Commerce”) to be sold in the United States at less than fair value. We also find that critical circumstances do not exist with respect to imports of thermal paper from Germany and Korea that are subject to Commerce’s final affirmative critical circumstances determinations.

I. Background

The petitions in the antidumping duty investigations of imports of thermal paper from Germany, Japan, Korea, and Spain were filed on October 7, 2020, by Appvion Operations, Inc. (“Appvion”) and Domtar Corporation (“Domtar”), domestic producers of jumbo rolls of thermal paper. Petitioners appeared at the hearing accompanied by counsel and submitted prehearing and posthearing briefs and final comments.¹

A number of respondent entities participated in the final phase investigations: Papierfabrik August Koehler SE (“Koehler”), a producer of jumbo rolls of thermal paper from Germany; Hansol Paper Co. Ltd. and Hansol Americas, Inc. (collectively “Hansol”), a producer and exporter of jumbo rolls of thermal paper from Korea and its affiliated U.S. importer; and Torraspapel S.A. (“Torraspapel”), a producer and exporter of jumbo rolls of thermal paper from Spain. Koehler, Hansol, and Torraspapel appeared at the hearing accompanied by counsel and submitted prehearing and posthearing briefs. Koehler and Hansol also filed final comments.

U.S. industry data are based on the questionnaire responses from 11 firms believed to account for 50 to 75 percent of domestic production of thermal paper in 2020.² U.S. import data are based on official Commerce import statistics over the January 2018 to March 2021 period of investigation (“POI”) and from questionnaire responses of 11 U.S. importers, which are estimated to account for *** percent of U.S. imports of thermal paper from Germany in 2020, *** percent of U.S. imports from Japan in 2020, *** percent of U.S. imports from Korea

¹ In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, the Commission conducted its hearing through videoconference held on September 21, 2021, as set forth in procedures provided to the parties on September 7, 2021. *Thermal Paper from Germany, Japan, Korea, and Spain; Scheduling of the Final Phase of Antidumping Duty Investigations*, 86 Fed. Reg. 30,627 (June 9, 2021).

² Confidential Staff Report, Memorandum INV-TT-115 (Oct. 14, 2021), as amended by memoranda INV-TT-117 (Oct. 10, 2021) and INV-TT-119 (Oct. 21, 2021) (“CR”); and *Thermal Paper from Germany, Japan, Korea, and Spain*, Inv. Nos. 731-TA-1546-1549 (Final), USITC Pub. 5237 (Nov. 2021) (“PR”) at I-5.

in 2020, and *** U.S. imports from Spain in 2020.³ Data concerning the subject industries is based on questionnaire responses from two producers in Germany, whose exports accounted for the majority of U.S. imports from Germany; two producers in Japan, whose exports accounted for *** percent of U.S. imports from Japan; one producer in Korea, believed to be the sole exporter of thermal paper from Korea; and one firm in Spain, believed to be the sole exporter of thermal paper from Spain in 2020.⁴

II. Domestic Like Product

A. In General

In determining whether an industry in the United States is materially injured or threatened with material injury by reason of imports of subject merchandise, the Commission first defines the “domestic like product” and the “industry.”⁵ Section 771(4)(A) of the Tariff Act of 1930, as amended (“the Tariff Act”), defines the relevant domestic industry as the “producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product.”⁶ In turn, the Tariff Act defines “domestic like product” as “a product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation.”⁷

By statute, the Commission’s “domestic like product” analysis begins with the “article subject to an investigation,” *i.e.*, the subject merchandise as determined by Commerce.⁸ Therefore, Commerce’s determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value is “necessarily the starting point of the Commission’s like product analysis.”⁹ The Commission then defines the domestic like product

³ CR/PR at IV-1.

⁴ CR/PR at VII-2-3, VII-13-14, VII-22, VII-30. One firm from Japan, Oji Imaging Media Co., Ltd. (“Oji”), submitted a questionnaire in the final phase of these investigations. In addition, staff constructed data for another firm, Nippon Paper Industries Co., Ltd (“Nippon Paper”), based on its preliminary phase response and ***. *Id.* at VII-13-14.

⁵ 19 U.S.C. § 1677(4)(A).

⁶ 19 U.S.C. § 1677(4)(A).

⁷ 19 U.S.C. § 1677(10).

⁸ 19 U.S.C. § 1677(10). The Commission must accept Commerce’s determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value. *See, e.g., USEC, Inc. v. United States*, 34 Fed. App’x 725, 730 (Fed. Cir. 2002) (“The ITC may not modify the class or kind of imported merchandise examined by Commerce.”); *Algoma Steel Corp. v. United States*, 688 F. Supp. 639, 644 (Ct. Int’l Trade 1988), *aff’d*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

⁹ *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 (Fed. Cir. 2007); *see also Hitachi Metals, Ltd. v.* (Continued...)

in light of the imported articles Commerce has identified.¹⁰ The decision regarding the appropriate domestic like product(s) in an investigation is a factual determination, and the Commission has applied the statutory standard of “like” or “most similar in characteristics and uses” on a case-by-case basis.¹¹ No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.¹² The Commission looks for clear dividing lines among possible like products and disregards minor variations.¹³

B. Product Description

Commerce defined the scope of the imported merchandise under investigation as follows:

{T}hermal paper in the form of “jumbo rolls” and certain “converted rolls.” The scope covers jumbo rolls and converted rolls of thermal paper with or without a base coat (typically made of clay, latex, and/or plastic pigments, and/or like materials) on

United States, Case No. 19-1289, slip op. at 8-9 (Fed. Cir. Feb. 7, 2020) (the statute requires the Commission to start with Commerce’s subject merchandise in reaching its own like product determination).

¹⁰ *Cleo*, 501 F.3d at 1298 n.1 (“Commerce’s {scope} finding does not control the Commission’s {like product} determination.”); *Hosiden Corp. v. Advanced Display Mfrs.*, 85 F.3d 1561, 1568 (Fed. Cir. 1996) (the Commission may find a single like product corresponding to several different classes or kinds defined by Commerce); *Torrington Co. v. United States*, 747 F. Supp. 744, 748–52 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991) (affirming the Commission’s determination defining six like products in investigations where Commerce found five classes or kinds).

¹¹ *See, e.g., Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Department of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int’l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Torrington Co. v. United States*, 747 F. Supp. 744, 749 n.3 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991) (“every like product determination ‘must be made on the particular record at issue’ and the ‘unique facts of each case’”). The Commission generally considers a number of factors, including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. *See Nippon*, 19 CIT at 455 n.4; *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996).

¹² *See, e.g., S. Rep. No. 96-249 at 90-91 (1979).*

¹³ *Nippon*, 19 CIT at 455; *Torrington*, 747 F. Supp. at 748-49; *see also S. Rep. No. 96-249 at 90-91* (Congress has indicated that the like product standard should not be interpreted in “such a narrow fashion as to permit minor differences in physical characteristics or uses to lead to the conclusion that the product and article are not ‘like’ each other, nor should the definition of ‘like product’ be interpreted in such a fashion as to prevent consideration of an industry adversely affected by the imports under consideration.”).

one or both sides; with thermal active coating(s) (typically made of sensitizer, dye, and coreactant, and/or like materials) on one or both sides; with or without a top coat (typically made of pigments, polyvinyl alcohol, and/or like materials), and without an adhesive backing. Jumbo rolls are defined as rolls with an actual width of 4.5 inches or more, an actual weight of 65 pounds or more, and an actual diameter of 20 inches or more (jumbo rolls). All jumbo rolls are included in the scope regardless of the basis weight of the paper. Also included in the scope are “converted rolls” with an actual width of less than 4.5 inches, and with an actual basis weight of 70 grams per square meter (gsm) or less. The scope of these investigations covers thermal paper that is converted into rolls with an actual width of less than 4.5 inches and with an actual basis weight of 70 gsm or less in third countries from jumbo rolls produced in the subject countries.

The merchandise subject to this investigation may be classified in the Harmonized Tariff Schedule of the United States (HTSUS) under subheadings 4811.90.8030 and 4811.90.9030. Although HTSUS subheadings are provided for convenience and customs purposes, the written description of the scope of this investigation is dispositive.¹⁴

Thermal paper is a type of paper that is coated with chemicals that react to form images when exposed to heat, allowing it to be used in special printers that create an image without ribbons or other consumables (other than the paper itself). When imaging, the thermal paper containing the dye is passed between the thermal print head and the platen roll in the printer. The thermal head consists of tiny heating elements, and as the paper passes under the head, certain heater elements activate, where the heat is in contact with the paper, causing the dye

¹⁴ *Thermal Paper from Spain: Final Determination of Sales at Less Than Fair Value*, 86 Fed. Reg. 54,162, 54,163 (Sep. 30, 2021); *Thermal Paper from Germany: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, in Part, 86 Fed. Reg. 54,152, 54,154 (Sep. 30, 2021); *Thermal Paper from the Republic of Korea: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances*, 86 Fed. Reg. 54,154, 54,156 (Sep. 30, 2021); and *Thermal Paper From Japan: Final Affirmative Determination of Sales at Less Than Fair Value*, 86 Fed. Reg. 54,157, 54,159 (Sep. 30, 2021).

to produce an image. Thermal paper comes in a variety of basis weights measured in grams per square meter (“gsm”) and in a variety of calipers (thicknesses).¹⁵

There are four primary stages in the production of thermal paper: 1) the production of pulp; 2) the production of base paper; 3) coating, which is the process that gives the paper its essential thermal properties; and 4) converting, which entails slitting the jumbo rolls to the desired width and length and otherwise converting the jumbo rolls into final form, depending on end-use customer needs.¹⁶ The third step yields a “jumbo” roll, while the fourth step yields a converted roll. The scope of these investigations includes all jumbo rolls regardless of basis weight and width but only converted (cut) rolls of a basis weight of 70 gsm or less and with a width of less than 4.5 inches.¹⁷

C. Party Arguments

Petitioners’ Arguments. Petitioners argue for a single domestic like product coextensive with the scope.¹⁸ First, they seek to have the Commission apply the six-factor test to analyze jumbo rolls corresponding to the scope and to find that all jumbo rolls are part of a single domestic like product. Second, Petitioners seek to have the Commission apply the semi-finished product test to analyze whether the in-scope converted lightweight thermal paper (“LWTP”) is part of the same domestic like product as all jumbo rolls.¹⁹ Petitioners acknowledge that the scope is the starting point of any domestic like product analysis but assert that this does not preclude the Commission from applying a bifurcated approach to analyzing the domestic like product, which they maintain is consistent with prior Commission determinations.²⁰ Petitioners argue against expanding the domestic like product, focusing on differences between point of sale (“POS”) and non-POS thermal paper, and argue that the Commission’s practice is generally not to expand the domestic like product to include out-of-

¹⁵ CR/PR at I-9.

¹⁶ CR/PR at I-10-11.

¹⁷ CR/PR at I-8. In contrast, the scope excludes converted (cut) jumbo rolls of a basis weight greater than 70 gsm. *Id.*

¹⁸ Petitioners’ Posthearing Br., Responses to Commission Questions at 2-33; Petitioners’ Prehearing Br. at 9-31.

¹⁹ Petitioners’ Posthearing Br., Responses to Commission Questions at 3-5; Petitioners’ Prehearing Br. at 9-31.

²⁰ Petitioners’ Posthearing Br., Responses to Commission Questions at 3-6. We recognize that in its preliminary determinations the Commission explained that Petitioners’ proposed analysis of assessing a subset of the scope was “insufficient to evaluate whether clear dividing lines exist between articles within the scope.” See *Confidential Preliminary Views*, EDIS Doc. No. 727149 at 13. In the final phase of these investigations, we have reconsidered this approach in light of additional arguments from the parties and development of the factual record.

scope downstream products.²¹ Petitioners contend that after applying the traditional six factors to all jumbo rolls and then applying the semi-finished analysis to LWTP jumbo rolls and LWTP converted paper, the Commission should conclude that there is a single domestic like product coextensive with the scope.²²

Respondents' Arguments. Hansol and Koehler argue that the Commission should expand the domestic like product to include converted heavyweight thermal paper ("HWTP").²³ Citing *Certain Wax and Wax/Resin Thermal Transfer Ribbons from France and Japan*, they argue that the Commission should adopt the same approach as it did in those investigations, in which the Commission applied the six-factor test to expand the domestic like product to include out-of-scope products that were on the same level of processing as the downstream in-scope products.^{24 25}

D. Analysis²⁶

1. Whether Lightweight and Heavyweight Jumbo Rolls Should Be Separate Domestic Like Products

As discussed above, the scope in these investigations covers jumbo rolls of thermal paper in all weights and certain converted rolls of thermal paper with a basis weight of 70 gsm or less. For the purposes of this analysis, we refer to thermal paper with a basis weight of 70 gsm or less as "lightweight" or "LWTP" and thermal paper with a basis weight greater than 70

²¹ Petitioners' Posthearing Br., Exhibit 1 at 6, Exhibit 7 at 1-3.

²² Petitioners' Posthearing Br., Responses to Commission Questions at 2-33; Petitioners' Prehearing Br. at 9-31.

²³ Hansol's Posthearing Br. at 2-3, Responses to Commission Questions at 1-10; Koehler's Prehearing Br. at 5-6; Koehler's Posthearing Br. at 3-4, Responses to Commission Questions at 1-6.

²⁴ Hansol's Posthearing Br. at 2-3, Responses to Commission Questions at 1-10; Koehler's Posthearing Br., Responses to Commission Questions at 5-7.

²⁵ In its prehearing brief, Torraspapel states that it does not take a position on whether LWTP and HWTP paper should be considered part of a single domestic like product or whether converted HWTP should be included in the domestic like product. Torraspapel's Prehearing Br. at 3. In its posthearing brief, Torraspapel asserts that jumbo rolls of LWTP and HWTP can be used for the same end uses, and that converted paper, whether LWTP or HWTP, differ from jumbo rolls in terms of processing, end uses, and end users, although it does not propose any specific domestic like product definition or definitions. Torraspapel's Posthearing Br. at 2.

²⁶ Chair Kearns does not join the remainder of the discussion of the domestic like product. See his Separate Views defining a single domestic like product coextensive with the scope, and that does not include out-of-scope HW converted paper.

gsm as “heavyweight” or “HWTP.” These definitions are derived from the distinction included at Petitioners’ initiative in the scope definition,²⁷ that is, the basis weight of the thermal paper.

The present analysis focuses on whether there is a distinction between jumbo rolls with a basis weight of 70 gsm or less and jumbo rolls with a basis weight of more than 70 gsm. All parties agree that there is not a clear dividing line between LWTP and HWTP jumbo rolls. As explained below, based on the record in the final phase of these investigations, we find that, on balance, there is not a clear dividing line between the LWTP and HWTP jumbo rolls that would warrant defining them to be separate domestic like products. We provide our analysis below based on the traditional domestic like product factors as lightweight and heavyweight jumbo rolls are at the same stage of processing.

Physical Characteristics and Uses. As described above, all thermal paper shares certain characteristics in that, regardless of weight, it is paper coated with chemicals that react to form images when exposed to heat.²⁸ The majority of U.S. producers and purchasers reported that LWTP and HWTP jumbo rolls were at least somewhat comparable in terms of physical characteristics, although the majority of importers reported that they were never comparable.²⁹ Such mixed responses from market participants are not unexpected when dealing with a continuum of products where the differences in physical characteristics increase at either end of the spectrum.³⁰

Indeed, the record in the final phase of these investigations establishes that thermal paper products represent a continuum of products with considerable overlap in end uses. Specifically, the record shows that both LWTP and HWTP are used in POS applications, the basis weight of which tends to range from 44 to 75 gsm.³¹ In support of their argument that LWTP and HWTP jumbo rolls are part of a continuum of thermal paper products, Petitioners presented evidence of POS receipts from the same restaurant that were purportedly made from LWTP and HWTP paper as well as receipts for car rentals also purportedly made from

²⁷ See Petitions, Vol. I, at 7-8; Supplement to Petition at Supplement at Exhibit I-2. As indicated above, Commerce accepted Petitioners’ proposal to use a different basis weight cutoff for converted rolls than for jumbo rolls.

²⁸ CR/PR at I-8-11.

²⁹ CR/PR at Appendix D at Table D-1.

³⁰ See, e.g., CR/PR at Appendix D at D-4 (***) ; see also *id.* at D-8 (***) ; (***) . See also *Outboard Engines from Japan*, Inv. No. 731-TA-1069 (Preliminary), USITC Pub. 3673 (March 2004) at 8 n.40 (finding that “{a} lack of interchangeability between products at either end of a continuum is not inconsistent with a finding of a single domestic like product when the products are all part of a continuum.”).

³¹ See CR/PR at I-9; CR/PR at Appendix D at D-4-5, D-8-9, D-14; see also Petitioners’ Prehearing Br. at 19-21, Exhibit 2; Petitioners’ Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 6-7. Other evidence suggests that the basis weight for POS applications ranges even higher (up to 80 gsm). See Petitioners’ Posthearing Br. at Exhibit 13 (Burns Declaration) at para. 2.

LWTP and HWTP.³² In the same vein, although thermal labels are often made with HWTP, the record indicates that LWTP is also used in these applications, with basis weights typically ranging from the high end of LWTP, 70 gsm, to 85 gsm, but even being as low as 55 gsm.³³ Again, Petitioners presented evidence depicting labels produced from both LWTP and HWTP.³⁴ Similarly, although HWTP, with basis weights typically ranging from 80 to 220 gsm, is used to produce a variety of tickets, tags, and medical applications,³⁵ LWTP is also used for these applications, as again demonstrated by Petitioners at the hearing.³⁶ Thus, the record in the final phase of these investigations shows that the 70 gsm basis weight that Petitioners employ to distinguish certain LWTP in the scope does not represent a clear dividing line in terms of end uses of thermal paper products.³⁷ Rather, even along the continuum in which LWTP may be used more frequently for certain applications while HWTP may be more frequently used in others, LWTP and HWTP are both used in overlapping end uses. In sum, the record in the final phase of these investigations shows that all thermal paper shares the essential physical characteristic of being paper coated with chemicals that react to form images when exposed to heat and that there is no clear dividing line between end uses of LWTP and HWTP.

Manufacturing Facilities, Production Processes and Employees. As described above, there are four primary stages in the production of thermal paper: pulp production, base paper production, coating, and converting.³⁸ There are four U.S. jumbo roll producers: Domtar, Appvion, Kanzaki, and Ricoh. Domtar is the only integrated U.S. producer that produces pulp and base paper and coats the paper; Appvion, Kanzaki, and Ricoh purchase the base paper that they coat to make thermal paper in jumbo rolls.³⁹ The record in the final phase of these investigations indicates that there is overlap in terms of the manufacturing facilities, production

³² Petitioners' Posthearing Br., Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 1, 4.

³³ CR/PR at I-9-10; Hearing Tr. at 44 (Hefner); *see also* Petitioners' Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 6-7.

³⁴ Petitioners' Posthearing Br., Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 5, 6.

³⁵ CR/PR at I-9, Appendix D at D-4-5, D-8; *see also* Petitioners' Prehearing Br. at 19-22, Exhibit 2, 3; Petitioners' Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 8-10.

³⁶ *See* slides accompanying hearing testimony of Stephen Hefner at 2, 3 at Petitioners' Posthearing Br., Exhibit 8. *See also* Hearing Tr. at 275-276 (Han, DeBusk); CR/PR at Appendix D at D-4-5, D-8; Petitioners' Prehearing Br. at 19-22, Exhibits 2, 3.

³⁷ *See, e.g.*, CR/PR at Appendix D at D-4-5, D-8-9, D-14. We note that, despite selecting 70 gsm as the line to define LWTP and HWTP, Petitioners acknowledge that the "70 gsm is not a bright line physical characteristic that divides any two categories of thermal paper." Petitioners' Prehearing Br. at 18-19. *See also* Hearing Tr. at 42-46 (Hefner).

³⁸ CR/PR at I-10-11.

³⁹ CR/PR at VI-1.

processes, and employees of producers of LWTP and HWTP jumbo rolls. According to Petitioners, domestic producers Domtar, Appvion, and Kanzaki, produce thermal paper jumbo rolls in various basis weights both above and below 70 gsm, using the same production processes and production employees.⁴⁰ In fact, domestic producers Domtar and Appvion make certain thermal paper products that are produced and marketed with manufacturing tolerances that result in the same products potentially falling either above or below 70 gsm, such that the same production process could in some instances be producing either LWTP or HWTP.⁴¹ Additionally, although responses from importers and purchasers were mixed, five of six responding U.S. producers reported that the manufacturing process for LWTP and HWTP jumbo rolls is always comparable.⁴²

Channels of Distribution. All jumbo rolls are sold through the same channels of distribution, with *** percent of domestically produced LWTP jumbo rolls and *** percent of domestically produced HWTP jumbo rolls sold to converters.⁴³ The record also indicates that domestic producers sell LWTP and HWTP jumbo rolls to overlapping customers.⁴⁴

Interchangeability. As described above, the record in the final phase of these investigations indicates that LWTP and HWTP can be used interchangeably in many of the same end-use applications.⁴⁵ Market participant responses were mixed in terms of the degree to which LWTP and HWTP jumbo rolls could be used interchangeably.⁴⁶ Again, however, this is not unexpected for a continuum of products, and some market participants emphasized that the degree of interchangeability increases in the mid-weight range of the spectrum.⁴⁷

⁴⁰ Petitioners' Prehearing Br. at 25; *see also* CR/PR at Appendix D at D-5-6.

⁴¹ Petitioners' Prehearing Br. at 18-19.

⁴² CR/PR at Appendix D, Table D-1.

⁴³ CR/PR at II-3 and Tables II-1-2.

⁴⁴ Petitioners' Prehearing Br. at 23-24; Hearing Tr. at 274-276 (Endsley, Han, DeBusk).

⁴⁵ As Petitioners explain:

An end user's decision will be based on its own unique choices, based on the desired appearance of the product and on overall cost. If the purchaser wants a thicker, sturdier product, and does not mind the additional cost, the purchaser may select a product with a basis weight over 70 gsm. On the other hand, if cost is a primary consideration and aesthetics are less important, then the purchaser may choose a product with a basis weight of less than 70 gsm. The key point is that there is no clear dividing line: it is simply a question of consumer preference.

Petitioners' Prehearing Br. at 21-22 & Exhibit 3.

⁴⁶ CR/PR at Appendix D, Table D-1.

⁴⁷ CR/PR at Appendix D at D-4-5, D-8, D-14.

We note that a lack of interchangeability between products within a grouping is not inconsistent with a finding of a single domestic like product when the products are part of a continuum and all share the general characteristics of that group.⁴⁸

Producer and Customer Perceptions. According to Petitioners, LWTP and HWTP jumbo rolls are generally considered to be part of the same product category, and they are marketed and sold by domestic producers in the same manner.⁴⁹ The majority of U.S. producers and purchasers reported that LWTP and HWTP jumbo rolls were at least sometimes comparable in terms of producer and customer perceptions, although the majority of importers reported that they were never comparable.⁵⁰ We observe, however, that in narrative responses several market participants focus on the end use, particularly POS applications, in explaining differences in customer perceptions.⁵¹ As discussed above, the record in the final phase of these investigations indicates that LWTP is used in applications frequently served by HWTP such as labels and tickets, while HWTP is sometimes used in POS applications.⁵²

Price. According to Petitioners, thermal paper has different price points, which tend to increase along the continuum of products as basis weight and caliper increase.⁵³ Market participants corroborate this, reporting that HWTP tends to be more expensive than LWTP.⁵⁴

Conclusion. Based on the record in the final phase of these investigations, we find that there is not a clear dividing line between LWTP and HWTP jumbo rolls that would warrant defining them to be separate domestic like products. All thermal paper products share the same essential physical characteristics in that, regardless of weight, it is paper coated with chemicals that react to form images when exposed to heat. Thermal paper products of different weights represent a continuum of products with no clear dividing line based on the 70 gsm basis weight relied upon by Petitioners to distinguish certain in-scope LWTP. Indeed, Petitioners themselves do not assert that the 70 gsm constitutes a clear dividing line among thermal paper products.⁵⁵ Thermal paper products both above and below 70 gsm are used in the same end-use applications. Although thermal paper products may not be interchangeable in all applications, particularly at opposite ends of the spectrum of products, this is not

⁴⁸ See, e.g., *Certain Seamless Carbon and Alloy Steel Standard, Line, and Pressure Pipe from China*, Inv. Nos. 701-TA-469 and 731-TA-1168 (Final), USITC Pub. 4190 at 8 n.45 (Nov. 2010); *Outboard Engines from Japan*, Inv. No. 731-TA-1069 (Preliminary), USITC Pub. 3673 (March 2004) at 8 n.40.

⁴⁹ Petitioners' Prehearing Br. at 24.

⁵⁰ CR/PR at Appendix D, Table D-1.

⁵¹ CR/PR at Appendix D at D-11-12, D-17.

⁵² CR/PR at Appendix D at D-11-12. In explaining that ***.

⁵³ Petitioners' Prehearing Br. at 26.

⁵⁴ CR/PR at Appendix D at D-6-7, D-12-13, D-17-18.

⁵⁵ Petitioners' Prehearing Br. at 13-14.

inconsistent with a finding of a single domestic like product where, as here, all products share the same essential thermal properties and are part of a continuum. Additionally, both LWTP and HWTP jumbo rolls are manufactured by the same producers and sold through the same channels of distribution to overlapping customers. Consequently, and in the absence of party argument to the contrary, we find that LWTP jumbo rolls and HWTP jumbo rolls are part of the same domestic like product.

2. Whether Converted LWTP Should Be Defined as a Separate Domestic Like Product

Having found that there is not a clear dividing line between LWTP and HWTP jumbo rolls at the same level of processing that would warrant defining them to be separate domestic like products, we next analyze whether in-scope converted LWTP (“converted LWTP”) should be defined as a separate domestic like product. To do so, we apply the semi-finished product analysis to evaluate whether there is a clear dividing line that would warrant defining converted LWTP to be a separate domestic like product.⁵⁶ Because the upstream and downstream products within the scope are not coterminous, we focus our analysis on comparing jumbo rolls that are the upstream product for the in-scope downstream product, *i.e.*, jumbo rolls that are the same basis weight as in-scope downstream product.⁵⁷ No party specifically argues that converted LWTP should be defined as a separate domestic like product based on the semi-finished products analysis. As explained below, based on the record in the final phase of these investigations, we find that there is not a clear dividing line between LWTP jumbo rolls and converted LWTP that would warrant defining converted LWTP to be a separate domestic like product.

Dedication for Use. The vast majority of market participants report that there is no separate use for LWTP jumbo rolls other than the production of in-scope converted LWTP products.⁵⁸ We recognize that the in-scope converted LWTP is limited in size to a width of less than 4.5 inches. Accordingly, not all upstream LWTP jumbo rolls are necessarily dedicated to

⁵⁶ In a semifinished product analysis, the Commission currently examines: 1) whether the upstream article is dedicated to the production of the downstream article or has independent uses; 2) whether there are perceived to be separate markets for the upstream and downstream articles; 3) differences in the physical characteristics and functions of the upstream and downstream articles; 4) differences in the costs or value of the vertically differentiated articles; and 5) significance and extent of the processes used to transform the upstream into the downstream articles. *See, e.g., Glycine from India, Japan, and Korea*, Inv. Nos. 731-TA-1111-1113 (Preliminary), USITC Pub. No. 3921 at 7 (May 2007).

⁵⁷ *See, e.g., Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082 and 1083 (Preliminary), USITC Pub. 3705 (July 2004) at 6-10.

⁵⁸ CR/PR at Appendix E, Table E-1.

the production of in-scope converted LWTP; however, the record indicates that the market for converted LWTP with a width of greater than 4.5 is limited.⁵⁹

Separate Markets. As discussed above, jumbo roll producers do not engage in converting operations, which are essential to transform the product into a usable form for end users.⁶⁰ Accordingly, there is generally one market for the upstream LWTP jumbo rolls in sales to converters, and there is a distinct market for the downstream converted LWTP products, which converters prepare for sale to end users.⁶¹

Differences in Physical Characteristics and Functions of the Upstream and Downstream Articles. The record indicates that the principal difference between LWTP jumbo rolls and LWTP converted rolls is size, although some market participants also report other differences such as printing.⁶² There is no dispute that the essential characteristics of thermal paper that enable it to form an image when exposed to heat are imparted by the coating process and are not affected by the conversion process.

Differences in Value. Most market participants report that the conversion process adds value, although the reported differences in costs and value between the finished and unfinished products ranged from “small mark-ups” and “not significant” to as much as a 30 percent increase for blank converted rolls and a 50-60 percent increase for printed converted rolls.⁶³ The record shows that the average value added to LWTP jumbo rolls by converters using domestically purchased or imported jumbo rolls ranged from *** to *** percent between 2018-2020, which was lower than the average value added by jumbo roll producers in this period.⁶⁴

Extent of Processes Used to Transform Upstream Product into Downstream Product. The process to convert LWTP jumbo rolls for end use generally involves feeding jumbo rolls into a slitter/rewinder machine, where they are cut to the proper size and then rewound into the finished product. The product is then packaged for sale to distributors or end users.⁶⁵ The majority of importers and purchasers reported that the converting process is intensive, whereas U.S. producers were split evenly in reporting that it was and was not intensive.⁶⁶ A

⁵⁹ See, e.g., CR/PR at E-11.

⁶⁰ See, e.g., CR/PR at Appendix E at E-11 (***; ***); E-4 (***); E-11 (***).

⁶¹ See, e.g., CR/PR at Appendix E at E-4, E-6-7, E-11.

⁶² CR/PR at I-11 n.27; Appendix E at E-4, E-7-8, E-12.

⁶³ CR/PR at Appendix E at E-4, E-8-9, E-12-13.

⁶⁴ CR/PR at Table III-6. The value added in the United States by jumbo roll producers ranged from *** to *** percent during the 2018-2020 period. *Id.*

⁶⁵ CR/PR at I-10-11.

⁶⁶ CR/PR at Appendix E at Table E-1.

number of market participants describe the process to be capital intensive, requiring specialized machinery.⁶⁷

Conclusion. Based on the record in the final phase of these investigations, we find that application of the semi-finished products like product analysis supports including LWTP jumbo rolls and LWTP converted rolls in the same domestic like product. All LWTP jumbo rolls are converted into smaller rolls because end users can only use converted rolls for their intended applications, and the record indicates that most LWTP jumbo rolls are dedicated to the production of in-scope converted LWTP. While the conversion process adds value to the product and some parties reported that they viewed the conversion process to be somewhat capital intensive, the conversion process does not change the essential chemical characteristics of thermal paper. It is the coating process that imparts to thermal paper its ability to display images when heated by a thermal printer. The conversion process for LWTP primarily resizes the product to an appropriate size for end use. Consequently, and in the absence of party argument to the contrary, we find that LWTP jumbo rolls and LWTP converted rolls are part of the same domestic like product.

3. Whether the Domestic Like Product Should Be Expanded to Include Converted HWTP

We next address whether the domestic like product should be expanded to include out-of-scope converted HWTP. We apply the traditional six-factor test to the in-scope products that are at the same level of processing as the out-of-scope products at issue.⁶⁸ Accordingly,

⁶⁷ CR/PR at Appendix E at E-4-5, E-9-10, E-13-14.

⁶⁸ While out-of-scope converted HWTP is a downstream product to in-scope HWTP jumbo rolls, it also is at the same level of processing as in-scope converted LWTP. We recognize that “the Commission generally does not expand or broaden the definition of the domestic like product to include downstream articles when the scope does not encompass a corresponding subject product.” However, when an out-of-scope further processed product is on the same level of processing as an in-scope downstream product, the Commission has previously applied the traditional six-factor test in analyzing whether to include this further processed product in the definition of the domestic like product. *Compare Aluminum Foil from China*, Inv. Nos. 701-TA-570 and 731-TA-1346 (Final), USITC Pub. 4771 (Apr. 2018) with *Certain Wax and Wax/Resin Thermal Transfer Ribbons from France and Japan*, Inv. Nos. 731-TA-1039-1040 (Final) (Remand), USITC Pub. 3854 (Apr. 2006).

In *Certain Wax and Wax/Resin Thermal Transfer Ribbons from France and Japan*, the Commission explained that “a key downstream product (finished bar code TTR) is within the scope as proposed by petitioner and defined by Commerce. Finished bar code TTR is at the same level of processing as finished fax TTR, which was not included in the scope of the investigations. Our conclusion that jumbo rolls and finished bar code TTR belong in the same like product, as advocated by petitioner itself, makes it possible to consider whether to expand the domestic like product definition beyond the scope to include finished fax TTR by performing a six-factor like product analysis.” USITC Pub. 3854 at 4. (Continued...)

we consider whether these factors establish a clear dividing line between converted LWTP and converted HWTP. Respondents argue that the Commission should expand the domestic like product to include converted HWTP. Petitioners, on the other hand, contest expanding the domestic like product to include these additional products. They contend that “[t]he default position for the Commission has typically been that there is one domestic like product, coextensive with the scope...” and further claim that recent determinations show “a progression towards focusing on {Commerce’s} scope as the starting point of the analysis.”⁶⁹ Contrary to Petitioners’ characterization of recent determinations, Commerce’s determination as to the scope of the imported merchandise that is subsidized and/or sold at less than fair value has always been “necessarily the starting point of the Commission’s like product analysis” by statute.⁷⁰ As discussed above, the Commission defines the domestic like product in light of the imported articles Commerce has identified; as such, the Commission’s analysis begins with the scope as defined by Commerce. While in many investigations, the Commission defines the domestic like product co-extensive with the scope, the Commission may and has defined the domestic like product to include out-of-scope products.⁷¹ Petitioners also focus their arguments primarily on end-use distinctions between POS and non-POS products, generally without regard to the underlying basis weights, arguing that there are clear dividing lines

The Commission determined to “consider this issue by comparing finished fax TTR to that portion of the like product at the same stage of processing: finished bar code TTR. Such an approach is consistent with our general practice of not applying a semi-finished analysis to consider whether to expand a like product definition to include a downstream product outside the scope of an investigation.” *Id.* at 5.

Similarly, here, converted LWTP along with LWTP and HWTP jumbo rolls are in the scope as proposed by Petitioners and defined by Commerce. Like in *Certain Wax and Wax/Resin Thermal Transfer Ribbons from France and Japan*, the question here is not whether to expand the domestic like product to include downstream products when there are none included in the scope, but rather, when the scope already includes one downstream product (converted LWTP), whether the domestic like product should be expanded to include another downstream product (converted HWTP). Converted LWTP is at the same level of processing as converted HWTP. It is therefore appropriate for the Commission to consider whether to expand the domestic like product definition beyond the scope to include converted HWTP by performing a six-factor like product analysis.

⁶⁹ Petitioners’ Posthearing Br., Responses to Commission Questions at 4, 10.

⁷⁰ See *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 (Fed. Cir. 2007); see also *Hitachi Metals, Ltd. v. United States*, Case No. 19-1289, slip op. at 8-9 (Fed. Cir. Feb. 7, 2020) (the statute requires the Commission to start with Commerce’s subject merchandise in reaching its own like product determination).

⁷¹ See, e.g., *Tapered Roller Bearings from Korea*, Inv. No. 731-TA-1380 (Final), USITC Pub. 4806 at 8-10 (Aug. 2018); see also *Cleo*, 501 F.3d at 1298 n.1 (“Commerce’s {scope} finding does not control the Commission’s {like product} determination.”); *Hosiden Corp. v. Advanced Display Mfrs.*, 85 F.3d 1561, 1568 (Fed. Cir. 1996); *Torrington Co. v. United States*, 747 F. Supp. 744, 748-52 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991).

between converted POS rolls and all other converted products, including those converted from HWTP, which it groups as “non-POS rolls.”⁷² As described in greater detail below, Petitioners’ arguments focusing on different end uses of POS rolls and non-POS rolls fail to address the record evidence establishing that the end uses for LWTP and HWTP overlap in both POS and non-POS applications, the same evidence discussed in our analysis of the six-factor test for LWTP and HWTP jumbo rolls and that Petitioners rely on to argue that LW and HW jumbo rolls should be included in a single domestic like product.

Physical Characteristics and Uses. As with jumbo rolls, all converted thermal paper products share the essential characteristics in that, regardless of weight, they are paper coated with chemicals that react to form images when exposed to heat.⁷³ The majority of U.S. producers and purchasers reported that converted LWTP and converted HWTP were at least sometimes comparable in terms of physical characteristics, although the majority of importers reported that they were never comparable.⁷⁴ Again, mixed responses from market participants regarding the comparability of physical characteristics are not unexpected when dealing with a continuum of products.⁷⁵

As discussed above regarding jumbo rolls, the record in the final phase of these investigations establishes that thermal paper products represent a continuum of products with considerable overlap in end uses.⁷⁶ Specifically, the record shows that both LWTP and HWTP

⁷² Petitioners’ Posthearing Br., Exhibit 7 at 1. To the extent that Petitioners are attempting to reframe the domestic like product analysis to one other than that for which the Commission collected data, any such efforts are misplaced. The Commission collected data for converted LWTP and HWTP products based on the delineation in the scope, with LWTP having a basis weight of 70 gsm or less and HWTP having a basis weight above 70 gsm. Petitioners did not request that the Commission collect data to analyze converted POS rolls and all other converted products, including those converted from HWTP. Rather, in their comments on the draft questionnaires, Petitioners only requested that the Commission keep data pertaining to converted HWTP segregated, which the Commission did. See Petitioners’ February 19, 2021 Comments on Draft Questionnaires at 2-3.

⁷³ CR/PR at I-8-10.

⁷⁴ CR/PR at Appendix D at Table D-5.

⁷⁵ See, e.g., CR/PR at Appendix D at D-24 (***)

⁷⁶ Because unfinished jumbo rolls cannot be used by an end user until they are finished, *i.e.*, converted, the end uses of thermal paper jumbo rolls are the same end uses of converted thermal paper rolls. As such, we consider the evidence regarding the end uses of jumbo rolls to be probative of the end uses for converted thermal paper as well.

are used in POS applications⁷⁷ and thermal labels,⁷⁸ as well as a variety of other uses, including tickets, tags, and medical applications.⁷⁹ Along the continuum, LWTP and HWTP are used in overlapping end uses, depending on the end user's particular preference. Thus, all thermal paper shares the essential physical characteristic of being paper coated with chemicals that react to form images when exposed to heat with no clear dividing line between LWTP and HWTP end uses.

Petitioners' argument that focuses on differences between POS and non-POS thermal paper is therefore inapposite.⁸⁰ Indeed, witnesses for Petitioners confirmed at the hearing that the distinction between POS and non-POS products does not equate to a meaningful distinction between LWTP and HWTP.⁸¹ Petitioners do not account for the record evidence, much of which was provided by them, that HWTP is used in POS applications and LWTP is used in non-POS products. Additionally, although Petitioners also cite the mixed responses of market participants regarding the comparability of the physical characteristics of converted LWTP and converted HWTP,⁸² as discussed above, such responses are not unexpected with respect to a continuum of products.

Manufacturing Facilities, Production Processes and Employees. As described above, converting the jumbo rolls is the last of the four primary stages in the production of thermal

⁷⁷ See CR/PR Appendix D at D-4-5, D-20, D-23-24. -See also CR/PR at I-9; CR/PR at Appendix D at D-4-5, D-8-9, D-14; see also Petitioners' Prehearing Br. at 19-21, Exhibit 2; Petitioners' Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 6-7; Petitioners' Posthearing Br., Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 1, 4; Hearing Tr. at 43-45, 157-58 (Hefner). We also note that both LWTP and HWTP used in POS applications can be pre-printed on the reverse side other than the side that will be used for thermal imaging. See, e.g., Petitioners' Postconference Br. at Exhibit 7, Attachment B at para. 4; CR/PR at D-23.

⁷⁸ See CR/PR at I-9; CR/PR at Appendix D at D-4-5, D-9; Petitioners' Prehearing Br. at 19-22, Exhibit 2, 3; Petitioners' Posthearing Br., Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 5, 6; Petitioners' Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 6-7.

⁷⁹ See CR at I-9; CR/PR at Appendix D at D-4-5; Petitioners' Posthearing Br., Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 2, 3; see also Petitioners' Prehearing Br. at 19-22, Exhibits 2, 3; see also Petitioners' Postconference Br. at 7 & Exhibit 36 (Hefner Declaration) at paras. 8-10.

⁸⁰ Petitioners' Posthearing Br., Exhibit 7 at 1-3.

⁸¹ Tr. at 159 (Hefner) ("As I mentioned in my testimony, if you go back to the previous case, there was pretty much a bright line. It's all blurred now, and . . . it's a moving target that continues to evolve, and it continues to move toward lightweight opportunities where heavyweight used to be used."); 159 (Byer) ("If you look at the various industry reports, for example, this is not terminology that they use. They do discuss basis weights, but they're not lining things up into the lightweight and heavyweight category. There's no industry standard here.").

⁸² Petitioners' Posthearing Br., Exhibit 7 at 3.

paper products.⁸³ Converting involves slitting the jumbo thermal paper rolls into the desired width and length to convert the jumbo roll into the final form of the products, depending on end-use customer needs.⁸⁴ As discussed above, domestic jumbo roll producers generally do not engage in converting operations; rather, they sell jumbo rolls to converters.⁸⁵ The seven independent U.S. converters are Iconex, Indoor Media, Integrity, Liberty, Maxwell, NCCO, and PCC Paper.⁸⁶ Six (Maxwell, Iconex, Liberty, PCC, Integrity, and Indoor Media) of the seven independent converters convert both LWTP and HWTP. All responding U.S. producers and purchasers and the majority of importers report that the manufacturing processes to produce converted LWTP and converted HWTP are at least sometimes comparable.⁸⁷

Petitioners again focus their argument against expansion of the domestic like product on purported differences between the manufacturing processes of POS and non-POS products.⁸⁸ Highlighting any such distinction, however, is of limited value to our analysis given the record evidence that both LWTP and HWTP are used in POS and non-POS applications. In particular, Petitioners emphasize that Iconex has separate production facilities for POS paper and labels.⁸⁹ We observe, however, that Iconex confirmed that, although the vast majority of its POS production is LWTP, it also can and does produce HWTP POS paper in that facility.⁹⁰ Additionally, ***.⁹¹

Petitioners also assert that, in contrast to POS products, converting non-POS thermal paper requires more complex machinery.⁹² We observe, however, that most of the non-POS products that Petitioners discuss include the high range of LWTP as defined in the scope as well as HWTP: liner-less labels (ranging from 70 gsm to 85 gsm); labels with release liners (ranging from 70 gsm to 85 gsm); and entertainment, sporting, and theme park tickets (ranging from 70 gsm to 140 gsm).⁹³ The lack of clarity among domestic producers as to whether 70 gsm paper should be considered LWTP, which is consistent with the scope, or HWTP, as these examples

⁸³ CR/PR at I-11.

⁸⁴ CR/PR at I-11.

⁸⁵ Ricoh produces jumbo rolls and engages in conversion operations, however the vast majority of Ricoh's converted thermal paper is internally consumed to produce downstream products such as label stock and other laminated materials. See Ricoh's U.S. producer's questionnaire response at 17, 23, 27, and 103.

⁸⁶ CR/PR at VI-1.

⁸⁷ CR/PR at Appendix D, Table D-5.

⁸⁸ Petitioners' Posthearing Br., Exhibit 7 at 4-7.

⁸⁹ Petitioners' Posthearing Br., Exhibit 7 at 4-5.

⁹⁰ Hearing Tr. at 156-57 (Burns).

⁹¹ CR/PR at Appendix D at D-21.

⁹² Petitioners' Posthearing Br., Exhibit 7 at 5-7.

⁹³ Petitioners' Posthearing Br., Exhibit 7, Attachment B at 2-4.

suggest, reinforces that 70 gsm is not, in fact, a clear dividing line, and this evidence corroborates our finding that thermal paper represents a continuum of products.

Channels of Distribution. The record indicates that both converted LWTP and converted HWTP are sold through the same channels of distribution – to distributors and end users.⁹⁴ The majority of responding U.S. producers and purchasers report that the channels of distribution for converted LWTP and converted HWTP are always comparable, while the majority of importers reported that they were never comparable.⁹⁵ Petitioners' assertion, without more, that converted POS and non-POS products are not sold through the same channels of distribution continues to be inapposite to our analysis.

Interchangeability. As described above, the record in the final phase of these investigations indicates that LWTP and HWTP can be used interchangeably in many of the same end-use applications, depending on customer preference.⁹⁶ Most U.S. producers and most purchasers reported that converted LWTP and converted HWTP are at least sometimes interchangeable, although most importers reported that they were never interchangeable.⁹⁷ Several market participants corroborated Petitioners' explanation, discussed above, that interchangeability depends on customer preference.⁹⁸

Petitioners argue that converted POS rolls are not interchangeable with non-POS converted products,⁹⁹ which for the reasons explained above, is not pertinent to our analysis here. They also emphasize the mixed responses from market participants regarding interchangeability.¹⁰⁰ However, this is not unexpected for a continuum of products. We reiterate that a lack of interchangeability between certain products within a grouping is not inconsistent with a finding of a single domestic like product when the products are part of a continuum and all share the general characteristics of that group, such as here, where all thermal paper share the essential characteristic of being paper coated with chemicals that react to heat to produce an image.¹⁰¹

⁹⁴ CR/PR at Table II-1; Appendix D at D-21, D-28.

⁹⁵ CR/PR at Appendix D, Table D-5.

⁹⁶ We again note that, because jumbo rolls cannot be used by an end user until they are finished, *i.e.*, converted, we consider the evidence regarding the interchangeability of LWTP and HWTP in the end uses of jumbo rolls to be probative regarding the interchangeability in the end uses of converted thermal paper as well.

⁹⁷ CR/PR at Appendix D, Table D-5.

⁹⁸ CR/PR at Appendix D at D-20-21, D-24-25, D-27-28.

⁹⁹ Petitioners' Posthearing Br., Exhibit 7 at 3.

¹⁰⁰ Petitioners' Posthearing Br., Exhibit 7 at 3.

¹⁰¹ *See, e.g., Certain Seamless Carbon and Alloy Steel Standard, Line, and Pressure Pipe from China*, Inv. Nos. 701-TA-469 and 731-TA-1168 (Final), USITC Pub. 4190 at 8 n. 45 (Nov. 2010); *Outboard Engines from Japan*, Inv. No. 731-TA-1069 (Preliminary), USITC Pub. 3673 (March 2004) at 8, n. 40.

Producer and Customer Perceptions. The majority of U.S. producers and importers reported that perceptions of converted LWTP and converted HWTP are never comparable, although the majority of purchasers reported perceptions of the two to be at least sometimes comparable.¹⁰² A number of producers and purchasers emphasized that HWTP is perceived to be a “premium” product.¹⁰³

Price. The majority of responding U.S. producers, importers, and purchasers report that the prices for converted LWTP and converted HWTP are never comparable, with most specifying that HWTP is more expensive than LWTP.¹⁰⁴ Petitioners argue that this reflects the difference between the complexity to produce POS and non-POS products; however, this argument fails to account for the overlap in end uses, as discussed above and emphasized by Petitioners with regard to jumbo rolls.

Conclusion. Based on the record in the final phase of these investigations, we find that the evidence supports expanding the definition of the domestic like product and that there is not a clear dividing line between in-scope converted LWTP and out-of-scope converted HWTP. As with jumbo rolls, all converted thermal paper products share the same essential physical characteristic in that, regardless of basis weight, it is paper coated with chemicals that react to form images when exposed to heat. Converted LWTP and converted HWTP represent a continuum of products with no clear dividing line based on the 70 gsm basis weight relied upon by Petitioners to distinguish in-scope converted LWTP. Converted thermal paper products both above and below 70 gsm are used in many of the same end-use applications, and although converted thermal paper of different weights may not be interchangeable in all applications, particularly at opposite ends of the spectrum of products, this is not inconsistent with a finding of a single domestic like product where, as here, all products share the same essential thermal properties and are part of a continuum. Most manufacturing facilities produce both converted LWTP and HWTP using production processes that are at least somewhat comparable. Both converted LWTP and converted HWTP are sold through the same channels of distribution. Although the record indicates that market participants report a distinction between converted LWTP and converted HWTP in terms of price and perceptions, we find that, on balance, this does not warrant finding a clear dividing line between the two in light of the other record evidence. Consequently, we find that converted LWTP and converted HWTP are part of the same domestic like product.

¹⁰² CR/PR at Appendix D, Table D-5.

¹⁰³ CR/PR at Appendix D at D-21, D-29.

¹⁰⁴ CR/PR at Appendix D at D-21, D-25-26, D-29.

Thus, we define a single domestic like product including all jumbo rolls of thermal paper, in-scope converted LWTP, and out-of-scope converted HWTP.

III. Domestic Industry

The domestic industry is defined as the domestic “producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product.”¹⁰⁵ In defining the domestic industry, the Commission’s general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

These investigations raise two domestic industry issues. The first concerns what processing activities are sufficient to constitute domestic production. The second concerns whether appropriate circumstances exist to exclude any domestic producers from the pertinent domestic industry pursuant to the related parties provision.

A. Party Arguments

Petitioners’ Arguments. Petitioners argue that the Commission should define the domestic industry to include all domestic producers of jumbo rolls and converters of LWTP jumbo rolls.¹⁰⁶ They take no position regarding whether converters of LWTP jumbo rolls should be excluded from the domestic industry due to their purchases of subject imports.¹⁰⁷ They submit that, although domestic producer *** is subject to exclusion as a related party, appropriate circumstances do not exist to exclude it from the domestic industry.¹⁰⁸

Respondents’ Arguments. Hansol and Koehler argue that the Commission should define the domestic industry to include all domestic producers and converters of LWTP and HWTP jumbo rolls.¹⁰⁹

¹⁰⁵ 19 U.S.C. § 1677(4)(A).

¹⁰⁶ Petitioners’ Prehearing Br. at 32; Petitioners’ Posthearing Br., Responses to Commission Questions at 20.

¹⁰⁷ Petitioners’ Posthearing Br., Responses to Commission Questions at 22.

¹⁰⁸ Petitioners’ Prehearing Br. at 32 n.76.

¹⁰⁹ Hansol’s Prehearing Br. at 11-13; Koehler’s Posthearing Br., Responses to Commission Questions at 7-8.

B. Sufficient Production-Related Activities¹¹⁰

In deciding whether a firm qualifies as a domestic producer of the domestic like product, the Commission generally analyzes the overall nature of a firm's U.S. production-related activities, although production-related activity at minimum levels could be insufficient to constitute domestic production.¹¹¹

In the preliminary determinations, the Commission considered whether converters of LWTP jumbo rolls engaged in sufficient production-related activities to be considered domestic producers. It concluded, on balance, that conversion of LWTP jumbo rolls constituted sufficient activity to be considered domestic production.¹¹²

Given our domestic like product definition in the final phase of these investigations, we analyze below whether converters of LWTP and HWTP jumbo rolls engage in sufficient production-related activities to be considered producers of the domestic like product.

Capital Investment. Responding converters identified aggregate annual capital investments ranging from \$*** to \$*** from 2018 to 2020, and total capital investments of \$***.¹¹³ Responding producers of jumbo rolls reported annual capital investments ranging from \$*** to \$*** from 2018 to 2020, and total capital investments of \$***.¹¹⁴

Technical Expertise. The record indicates that finishing operations to convert jumbo thermal paper rolls into converted rolls requires a high degree of technical expertise, with conversion of POS rolls being the least complex and conversion of adhesive labels being the

¹¹⁰ Because he defines the domestic like product differently, Chair Kearns does not join this discussion of the domestic industry. See his Separate Views defining the domestic industry as producers of LW jumbo rolls, HW jumbo rolls, and LW converted paper, and that does not include producers of out-of-scope HW converted paper.

¹¹¹ The Commission generally considers six factors: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product. No single factor is determinative and the Commission may consider any other factors it deems relevant in light of the specific facts of any investigation. *Crystalline Silicon Photovoltaic Cells and Modules from China*, Inv. Nos. 701-TA-481 and 731-TA-1190 (Final), USITC Pub. 4360 at 12-13 (Nov. 2012), *aff'd*, *Changzhou Trina Solar Energy Co. v. United States Int'l Trade Comm'n*, 100 F. Supp. 3d 1314, (Ct. Int'l Trade), *aff'd*, 879 F.3d 1377 (Fed. Cir. 2018).

¹¹² *Preliminary Determinations*, USITC Pub. 5141 at 25-26.

¹¹³ *Derived from* CR/PR at Tables C-4 and C-7. Total capital investments include investments from a greenfield perspective. See U.S. producer's questionnaire at questions II-20c-d.

¹¹⁴ *Derived from* CR at Tables C-4 and C-7. Total capital investments include investments from a greenfield perspective. See U.S. producer's questionnaire at questions II-20c-d.

most complex.¹¹⁵ Most of the responding converters rated the complexity of their finishing operations on the higher end of a one to five scale, with five being most complex; ***.¹¹⁶

Value Added. The record shows that the value added to thermal paper in the United States by responding converters using domestically purchased or imported jumbo rolls ranged from *** to *** percent of the finished product during the 2018-2020 period, while the value added by jumbo roll producers ranged from *** to *** percent of the finished product during the same period.¹¹⁷

Employment Levels. From 2018 to 2020, the number of production-related workers (“PRWs”) employed by responding converters ranged on an annual basis from *** to *** PRWs; jumbo roll producers reported employing between *** to *** PRWs annually during this period.¹¹⁸

Sourcing of imports. The record indicates that each of the responding converters sourced jumbo rolls from both domestic and subject sources during the POI. These converters purchased *** percent of their jumbo rolls from subject sources, and the remaining *** percent from domestic sources.¹¹⁹

Conclusion. The record in the final phase of these investigations shows that the production-related activities required to process domestically purchased or imported thermal paper jumbo rolls into converted rolls are considerable. The domestic industry’s finishing operations require significant capital investments in a variety of machines, as well as employees with considerable technical expertise to operate them efficiently. Although the value added by converters appears to be somewhat less than jumbo roll producers, conversion is an essential step in the production process prior to the product being sold for end use. Responding converters sourced jumbo rolls from both domestic and subject sources. Based on all these factors, we find that all converters of thermal paper jumbo rolls engage in sufficient production-related activities to constitute domestic producers.

C. Related Parties

We must determine whether any producer of the domestic like product should be excluded from the domestic industry pursuant to section 771(4)(B) of the Tariff Act. This provision allows the Commission, if appropriate circumstances exist, to exclude from the domestic industry producers that are related to an exporter or importer of subject merchandise

¹¹⁵ CR/PR at III-9 n.15; Tr. at 94 (Byers), 98 (Hefner), 95-96 (Hodson).

¹¹⁶ CR/PR at Table III-4.

¹¹⁷ *Derived from* CR/PR at Tables C-4 and C-7.

¹¹⁸ *Derived from* CR/PR at Tables C-4 and C-7.

¹¹⁹ *Derived from* CR/PR at Tables III-19, C-4, C-7.

or which are themselves importers.¹²⁰ Exclusion of such a producer is within the Commission's discretion based upon the facts presented in each investigation.¹²¹

In the preliminary determinations, the Commission considered whether to exclude *** as its affiliate, ***, exported a small amount of thermal paper to the United States in 2019. As the record indicated, *** exports were minimal, and there was no indication that *** affiliation with *** benefited its domestic production operations or caused it to behave differently than other domestic producers.¹²² The Commission therefore found that appropriate circumstances did not exist to exclude *** from the domestic industry as a related party.¹²³ The record in the final phase of these investigations remains the same with respect to this affiliation and supports the same finding.

Additionally, the record indicates that responding converters reported purchasing considerable volumes of subject imports of thermal paper jumbo rolls during the POI. The Commission has concluded that a domestic producer that does not itself import subject merchandise may nonetheless be deemed a related party if it controls large volumes of imports.¹²⁴ The Commission has found such control to exist where the domestic producer's

¹²⁰ See *Torrington Co. v. United States*, 790 F. Supp. 1161, 1168 (Ct. Int'l Trade 1992), *aff'd without opinion*, 991 F.2d 809 (Fed. Cir. 1993); *Sandvik AB v. United States*, 721 F. Supp. 1322, 1331-32 (Ct. Int'l Trade 1989), *aff'd mem.*, 904 F.2d 46 (Fed. Cir. 1990); *Empire Plow Co. v. United States*, 675 F. Supp. 1348, 1352 (Ct. Int'l Trade 1987).

¹²¹ The primary factors the Commission has examined in deciding whether appropriate circumstances exist to exclude a related party include the following:

- (1) the percentage of domestic production attributable to the importing producer;
- (2) the reason the U.S. producer has decided to import the product subject to investigation (whether the firm benefits from the LTFV sales or subsidies or whether the firm must import in order to enable it to continue production and compete in the U.S. market);
- (3) whether inclusion or exclusion of the related party will skew the data for the rest of the industry;
- (4) the ratio of import shipments to U.S. production for the imported product; and
- (5) whether the primary interest of the importing producer lies in domestic production or importation. *Changzhou Trina Solar Energy Co. v. USITC*, 100 F. Supp.3d 1314, 1326-31 (Ct. Int'l. Trade 2015) *aff'd*, 879 F.3d 1377 (Fed. Cir. 2018); see also *Torrington Co. v. United States*, 790 F. Supp. at 1168.

¹²² *** exported *** reels of thermal paper, valued at \$***, in a *** sale to an unrelated purchaser in the United States in 2019. ***'s production of thermal paper that year was *** short tons, and its U.S. shipments were ***, valued at \$***. See Confidential Preliminary Views at 27-29.

¹²³ See Confidential Preliminary Views at 29.

¹²⁴ 19 U.S.C. § 1677(4)(B)(ii)(III).

purchases were responsible for a predominant proportion of an importer's subject imports and that importer's imports were substantial.¹²⁵

In 2020, *** purchased *** short tons of subject imports from Japan, accounting for *** percent of *** subject imports from Japan that year.¹²⁶ As *** purchases appear to account for a predominant proportion of *** subject imports from Japan in 2020, we consider whether *** subject imports (of ***) accounted for a substantial share of subject imports. *** share of cumulated subject imports was *** percent in 2020.¹²⁷ *** purchases of subject imports from *** therefore do not appear to amount to the control of large volumes of subject imports sufficient to be deemed a related party.¹²⁸

¹²⁵ See generally *Iron Construction Castings from Brazil, Canada, and China*, Inv. Nos. 701-TA-249, 731-TA-262-263 and 265 (Fourth Review), USITC Pub. 4655 (Dec. 2016) at 11; *Chlorinated Isocyanurates from China and Spain*, Inv. Nos. 731-TA-1082-1083 (Second Review), USITC Pub. 4646 at 12 (Nov. 2016); *Foundry Coke from China*, Inv. No. 731-TA-891 (Final), USITC Pub. 3449 (September 2001) at 8-9. *Compare Seamless Carbon and Alloy Steel Standard, Line, and Pressure Pipe from Czech Republic (Czechia)*, Inv. No. 731-TA-1529 (Final), USITC Pub. 5183 (April 2021) at 15-16.

¹²⁶ See *** U.S. producer questionnaire at questions II-21b and II-22b; *** U.S. importer's questionnaire at question II-8a. In 2020, *** accounted for *** percent of subject imports from Japan. *Id.* *** also purchased subject imports from *** but none of their purchases of these imports comprised a predominant proportion of the subject importers' imports. Specifically, *** purchased *** short tons of subject imports from Germany, accounting for *** percent of *** subject imports from Germany that year; *** short tons of subject imports from Korea, accounting for *** percent of *** subject imports from Korea that year; and *** short tons of subject imports from Spain, accounting for *** percent of *** subject imports from Spain that year. See *** U.S. producer's questionnaire at questions II-21b and II-22b; *** U.S. importer's questionnaire at questions II-5a and II-6a; *** U.S. importer's questionnaire at questions II-11a and II-12a; *** U.S. importer's questionnaire at questions II-14a and II-15a.

¹²⁷ *** U.S. importer's questionnaire at question II-8a and CR/PR at Tables IV-3 and IV-4.

¹²⁸ Although *** also purchased subject imports from importers in 2020, we do not consider that any of these domestic producers controlled sufficient volumes of imports to qualify as a related party. As to *** their purchases accounted for less than 2 percent of total subject imports, and less than 4 percent of any importer's subject imports that year. See *** U.S. producer's questionnaire at questions II-21b and II-22b; *** U.S. producer's questionnaire at question II-21b; *** U.S. producer's questionnaire at question II-21b; and CR/PR at Tables IV-3 and IV-4. As to ***, their purchases do not constitute a predominant proportion of an importers' subject imports. In 2020, *** purchased: *** short tons of subject imports from Germany, accounting for *** percent of *** subject imports from Germany that year; *** short tons of subject imports from Korea, accounting for *** percent of *** subject imports from Korea that year; and *** short tons of subject imports from Spain, accounting for *** percent of *** subject imports from Spain that year. See *** U.S. producer's questionnaire at questions II-21b and II-22b; *** U.S. importer's questionnaire at questions II-5a and II-6a; *** U.S. importer's questionnaire at questions II-11a and II-12a; *** U.S. importer's questionnaire at questions II-14a and II-15a. In 2020, *** purchased: *** short tons of subject imports from Germany, accounting for *** percent of *** subject imports from Germany that year; and *** short tons of subject imports (Continued...)

In sum, based on our definition of the domestic like product, we define the domestic industry to include all domestic producers and converters of thermal paper jumbo rolls.

IV. Cumulation^{129 130}

For purposes of evaluating the volume and effects for a determination of material injury by reason of subject imports, section 771(7)(G)(i) of the Tariff Act requires the Commission to cumulate subject imports from all countries as to which petitions were filed and/or investigations self-initiated by Commerce on the same day, if such imports compete with each other and with the domestic like product in the U.S. market. In assessing whether subject imports compete with each other and with the domestic like product, the Commission generally has considered four factors:

- (1) the degree of fungibility between subject imports from different countries and between subject imports and the domestic like product, including

from Korea, accounting for *** percent of *** subject imports from Korea that year. *See* *** U.S. producer's questionnaire at questions II-21b and II-22b; *** U.S. importer's questionnaire at questions II-5a and II-6a; *** U.S. importer's questionnaire at questions II-11a and II-12a.

¹²⁹ Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than 3 percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B); *see also* 15 C.F.R. § 2013.1 (developing countries for purposes of 19 U.S.C. § 1677(36)). The statute further provides that subject imports from a single country which comprise less than 3 percent of total such imports of the product may not be considered negligible if there are several countries subject to investigation with negligible imports and the sum of such imports from all those countries collectively accounts for more than 7 percent of the volume of all such merchandise imported into the United States. 19 U.S.C. § 1677(24)(A)(ii).

During the 12-month period preceding filing of the petitions (October 2019 – September 2020), imports from Germany accounted for *** percent of total imports, imports from Korea accounted for *** percent of total imports, imports from Japan accounted for *** percent of total imports, and imports from Spain accounted for *** percent of total imports. CR/PR at Table G-5. Because subject imports from each subject country were above the negligibility threshold, we find that such imports are not negligible.

¹³⁰ Although Chair Kearns defines the domestic like product and domestic industry differently than the majority, *see* his Separate Views, he joins the remainder of these Views (Sections IV-VII) as the trends and material injury analysis are for the most part the same. Specific differences in data for the domestic industry that does not include producers of out-of-scope HW converted paper are noted where applicable. In joining the remainder of the Majority Views, he relies on the data contained in Table C-3 in Appendix C of the Staff Report.

consideration of specific customer requirements and other quality related questions;

- (2) the presence of sales or offers to sell in the same geographic markets of subject imports from different countries and the domestic like product;
- (3) the existence of common or similar channels of distribution for subject imports from different countries and the domestic like product; and
- (4) whether the subject imports are simultaneously present in the market.¹³¹

While no single factor is necessarily determinative, and the list of factors is not exclusive, these factors are intended to provide the Commission with a framework for determining whether the subject imports compete with each other and with the domestic like product.¹³² Only a “reasonable overlap” of competition is required.¹³³

A. Party Arguments

Petitioners’ arguments. Petitioners argue that the Commission should cumulate subject imports. They argue that the petitions were filed on the same day, and there is a reasonable overlap of competition among and between the domestic like product and imports from each subject country. In their view, the domestic like product and subject imports are highly fungible, sold in the same geographic regions, simultaneously present in the U.S. market, and sold through the same channels of distribution.¹³⁴

Respondents’ arguments. No respondent interested party addressed cumulation for purposes of our analysis of whether there is material injury by reason of subject imports.

¹³¹ See *Certain Cast-Iron Pipe Fittings from Brazil, the Republic of Korea, and Taiwan*, Inv. Nos. 731-TA-278-280 (Final), USITC Pub. 1845 (May 1986), *aff’d*, *Fundicao Tupy, S.A. v. United States*, 678 F. Supp. 898 (Ct. Int’l Trade), *aff’d*, 859 F.2d 915 (Fed. Cir. 1988).

¹³² See, e.g., *Wieland Werke, AG v. United States*, 718 F. Supp. 50 (Ct. Int’l Trade 1989).

¹³³ The Statement of Administrative Action (SAA) to the Uruguay Round Agreements Act (URAA), expressly states that “the new section will not affect current Commission practice under which the statutory requirement is satisfied if there is a reasonable overlap of competition.” H.R. Rep. No. 103-316, Vol. I at 848 (1994) (*citing Fundicao Tupy, S.A. v. United States*, 678 F. Supp. at 902; see *Goss Graphic Sys., Inc. v. United States*, 33 F. Supp. 2d 1082, 1087 (Ct. Int’l Trade 1998) (“cumulation does not require two products to be highly fungible”); *Wieland Werke, AG*, 718 F. Supp. at 52 (“Completely overlapping markets are not required.”)).

¹³⁴ Petitioners’ Prehearing Br. at 38-43.

B. Analysis

As an initial matter, Petitioners filed the antidumping duty petitions with respect to all four subject countries on the same day, October 7, 2020.¹³⁵ Additionally, as discussed below, we find a reasonable overlap of competition between subject imports from Germany, Japan, Korea, and Spain, and between subject imports from each source and the domestic like product.

Fungibility. Almost all responding domestic producers reported that subject imports from each subject country are always interchangeable with each other as well as with domestically produced thermal paper.¹³⁶ Responses from importers and purchasers were more mixed. A plurality of responding U.S. importers and purchasers reported that thermal paper imports from all subject countries are frequently or sometimes interchangeable with each other as well as with domestically produced thermal paper.¹³⁷

Moreover, there was substantial product overlap for shipments of the domestic like product and subject imports. In 2020, LWTP jumbo rolls from domestic and subject sources were sold in overlapping basis weights across all categories for which data were collected, with the largest volume of LWTP jumbo rolls sold from all sources in the *** category.¹³⁸ HWTP jumbo rolls from the domestic producers and all subject sources overlapped in the *** basis weights and most sources overlapped in the *** category.¹³⁹ For converted rolls, U.S. producers reported selling in all basis weights, with the vast majority of the volume of converted LWTP rolls in the *** category.¹⁴⁰ Only one importer, ***, reported any shipments of converted LWTP rolls, from ***, which were in the *** category.¹⁴¹ The available record information thus shows fungibility between and among the domestically produced product and thermal paper from each subject source.

Channels of Distribution. During the POI, all shipments of domestically produced jumbo rolls were sold to converters. Most subject imports of jumbo rolls from *** were sold to converters, whereas subject jumbo rolls from *** were sold mostly to distributors, with some meaningful sales to converters. Domestically produced converted LWTP rolls were sold mainly

¹³⁵ None of the statutory exceptions to cumulation apply.

¹³⁶ CR/PR at Tables II-25 and II-28.

¹³⁷ CR/PR at Tables II-26-27, II-29-30.

¹³⁸ CR/PR at Table IV-15.

¹³⁹ CR/PR at Table IV-17. There were no sales of HWTP jumbo rolls from Spain in the *** category. *Id.*

¹⁴⁰ CR/PR at Table IV-16.

¹⁴¹ CR/PR at IV-25.

to distributors, with a sizeable portion sold to end users, whereas the small amount of converted LWTP rolls from *** imported by *** was sold to end users.¹⁴² The available record information thus shows overlapping channels of distribution with respect to domestically produced and subject imported thermal paper products.

Geographic Overlap. During the POI, imports from each subject source and domestically produced thermal paper were sold in every region of the U.S. market, with the exception of thermal paper from Spain and Japan, which were not sold in the “other” region.¹⁴³ The available record information thus shows that imports from each subject source and domestically produced thermal paper were sold in overlapping geographical markets.

Simultaneous Presence in Market. Questionnaire data show that the domestic like product was present in the U.S. market throughout the POI.¹⁴⁴ Official U.S. import statistics indicate that imports of thermal paper from each subject source were present in each month of the POI.¹⁴⁵ The domestic producers’ and importers’ shipment data for different pricing products, which varied by basis weight, provide additional insight into the market presence of the different sources of thermal paper. The domestic producers reported shipments of each of the pricing products throughout the POI.¹⁴⁶ There were imports from each subject country of one LWTP pricing product during each quarter of the POI.¹⁴⁷ Further, there were imports from each subject country of one pricing product whose basis weight range largely encompasses HWTP during each full year of the POI.¹⁴⁸ The available record information thus shows that imports from each subject source and domestically produced thermal paper were simultaneously present in the U.S. market.

Conclusion. The petitions were filed on the same day thereby satisfying the threshold requirement for cumulation. Subject imports from each subject country are fungible with the domestic like product and with each other, and subject imports from each subject country and the domestic like product are sold in the same channels of distribution. The record also indicates an overlap among subject sources and the domestic like product in terms of

¹⁴² CR/PR at Tables II-1-2. A small amount of LWTP jumbo rolls from *** were sold to distributors during the POI. *Id.*

¹⁴³ CR/PR at Table II-3. Moreover, thermal paper imports from each subject country entered the United States in 2020 through each port of entry, albeit at minimal quantities for subject imports from Japan entering from the North and South points, and for subject imports from Spain entering from the West point. CR/PR at Table IV-18.

¹⁴⁴ CR/PR at Tables III-12-13, III-15.

¹⁴⁵ CR/PR at Table IV-19.

¹⁴⁶ CR/PR at Tables V-6-13.

¹⁴⁷ CR/PR at Table V-6.

¹⁴⁸ CR/PR at Table V-8.

geographic markets and simultaneous presence in the U.S. market. We thus find that there is a reasonable overlap of competition between the domestic like product and imports from each subject country and among imports from each subject country. We consequently analyze subject imports on a cumulated basis for our analysis of whether there is material injury by reason of subject imports.

V. Material Injury by Reason of Subject Imports

Based on the record in the final phase of this investigation, we find that an industry in the United States is materially injured by reason of imports of thermal paper from Germany, Japan, Korea, and Spain that Commerce has found to be sold in the United States at less than fair value.

A. Legal Standards

In the final phase of antidumping and countervailing duty investigations, the Commission determines whether an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.¹⁴⁹ In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic like product, but only in the context of U.S. production operations.¹⁵⁰ The statute defines “material injury” as “harm which is not inconsequential, immaterial, or unimportant.”¹⁵¹ In assessing whether the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.¹⁵² No single factor is dispositive, and all relevant factors are considered “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”¹⁵³

Although the statute requires the Commission to determine whether the domestic industry is “materially injured or threatened with material injury by reason of” unfairly traded imports,¹⁵⁴ it does not define the phrase “by reason of,” indicating that this aspect of the injury

¹⁴⁹ 19 U.S.C. §§ 1671d(b), 1673d(b).

¹⁵⁰ 19 U.S.C. § 1677(7)(B). The Commission “may consider such other economic factors as are relevant to the determination” but shall “identify each {such} factor ... and explain in full its relevance to the determination.” 19 U.S.C. § 1677(7)(B).

¹⁵¹ 19 U.S.C. § 1677(7)(A).

¹⁵² 19 U.S.C. § 1677(7)(C)(iii).

¹⁵³ 19 U.S.C. § 1677(7)(C)(iii).

¹⁵⁴ 19 U.S.C. §§ 1671d(b), 1673d(b).

analysis is left to the Commission's reasonable exercise of its discretion.¹⁵⁵ In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.¹⁵⁶

In many investigations, there are other economic factors at work, some or all of which may also be having adverse effects on the domestic industry. Such economic factors might include nonsubject imports; changes in technology, demand, or consumer tastes; competition among domestic producers; or management decisions by domestic producers. The legislative history explains that the Commission must examine factors other than subject imports to ensure that it is not attributing injury from other factors to the subject imports, thereby inflating an otherwise tangential cause of injury into one that satisfies the statutory material injury threshold.¹⁵⁷ In performing its examination, however, the Commission need not isolate

¹⁵⁵ *Angus Chemical Co. v. United States*, 140 F.3d 1478, 1484-85 (Fed. Cir. 1998) ("The statute does not 'compel the commissioners' to employ {a particular methodology}.", *aff'g*, 944 F. Supp. 943, 951 (Ct. Int'l Trade 1996).

¹⁵⁶ The Federal Circuit, in addressing the causation standard of the statute, observed that "{a}s long as its effects are not merely incidental, tangential, or trivial, the foreign product sold at less than fair value meets the causation requirement." *Nippon Steel Corp. v. USITC*, 345 F.3d 1379, 1384 (Fed. Cir. 2003). This was further ratified in *Mittal Steel Point Lisas Ltd. v. United States*, 542 F.3d 867, 873 (Fed. Cir. 2008), where the Federal Circuit, quoting *Gerald Metals, Inc. v. United States*, 132 F.3d 716, 722 (Fed. Cir. 1997), stated that "this court requires evidence in the record 'to show that the harm occurred 'by reason of' the LTFV imports, not by reason of a minimal or tangential contribution to material harm caused by LTFV goods.'" See also *Nippon Steel Corp. v. United States*, 458 F.3d 1345, 1357 (Fed. Cir. 2006); *Taiwan Semiconductor Industry Ass'n v. USITC*, 266 F.3d 1339, 1345 (Fed. Cir. 2001).

¹⁵⁷ SAA at 851-52 ("The Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports."); S. Rep. 96-249 at 75 (1979) (the Commission "will consider information which indicates that harm is caused by factors other than less-than-fair-value imports."); H.R. Rep. 96-317 at 47 (1979) ("in examining the overall injury being experienced by a domestic industry, the ITC will take into account evidence presented to it which demonstrates that the harm attributed by the petitioner to the subsidized or dumped imports is attributable to such other factors;" those factors include "the volume and prices of nonsubsidized imports or imports sold at fair value, contraction in demand or changes in patterns of consumption, trade restrictive practices of and competition between the foreign and domestic producers, developments in technology and the export performance and productivity of the domestic industry"); accord *Mittal Steel*, 542 F.3d at 877.

the injury caused by other factors from injury caused by unfairly traded imports.¹⁵⁸ Nor does the “by reason of” standard require that unfairly traded imports be the “principal” cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.¹⁵⁹ It is clear that the existence of injury caused by other factors does not compel a negative determination.¹⁶⁰

Assessment of whether material injury to the domestic industry is “by reason of” subject imports “does not require the Commission to address the causation issue in any particular way” as long as “the injury to the domestic industry can reasonably be attributed to the subject imports.”¹⁶¹ The Commission ensures that it has “evidence in the record” to “show that the harm occurred ‘by reason of’ the LTFV imports,” and that it is “not attributing injury from other

¹⁵⁸ SAA at 851-52 (“{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports.”); *Taiwan Semiconductor Industry Ass’n*, 266 F.3d at 1345 (“{T}he Commission need not isolate the injury caused by other factors from injury caused by unfair imports Rather, the Commission must examine other factors to ensure that it is not attributing injury from other sources to the subject imports.” (emphasis in original)); *Asociacion de Productores de Salmon y Trucha de Chile AG v. United States*, 180 F. Supp. 2d 1360, 1375 (Ct. Int’l Trade 2002) (“{t}he Commission is not required to isolate the effects of subject imports from other factors contributing to injury” or make “bright-line distinctions” between the effects of subject imports and other causes.); see also *Softwood Lumber from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Remand), USITC Pub. 3658 at 100-01 (Dec. 2003) (Commission recognized that “{i}f an alleged other factor is found not to have or threaten to have injurious effects to the domestic industry, *i.e.*, it is not an ‘other causal factor,’ then there is nothing to further examine regarding attribution to injury”), citing *Gerald Metals*, 132 F.3d at 722 (the statute “does not suggest that an importer of LTFV goods can escape countervailing duties by finding some tangential or minor cause unrelated to the LTFV goods that contributed to the harmful effects on domestic market prices.”).

¹⁵⁹ S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

¹⁶⁰ See *Nippon Steel Corp.*, 345 F.3d at 1381 (“an affirmative material-injury determination under the statute requires no more than a substantial-factor showing. That is, the ‘dumping’ need not be the sole or principal cause of injury.”).

¹⁶¹ *Mittal Steel*, 542 F.3d at 876 & 78; see also *id.* at 873 (“While the Commission may not enter an affirmative determination unless it finds that a domestic industry is materially injured ‘by reason of’ subject imports, the Commission is not required to follow a single methodology for making that determination ... {and has} broad discretion with respect to its choice of methodology.”) citing *United States Steel Group v. United States*, 96 F.3d 1352, 1362 (Fed. Cir. 1996) and S. Rep. 96-249 at 75. In its decision in *Swift-Train v. United States*, 793 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission’s causation analysis as comporting with the Court’s guidance in *Mittal*.

sources to the subject imports.”¹⁶² The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed “rigid adherence to a specific formula.”¹⁶³

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.¹⁶⁴ Congress has delegated this factual finding to the Commission because of the agency’s institutional expertise in resolving injury issues.¹⁶⁵

B. Conditions of Competition and the Business Cycle

The following conditions of competition inform our analysis of whether there is material injury by reason of subject imports.

1. Demand Considerations

U.S. demand for thermal paper depends on demand for the downstream products in which it is used, such as POS and automated teller machine (“ATM”) receipts, entertainment and transportation tickets, medical recording paper, and shipping labels.¹⁶⁶ U.S. demand for thermal paper follows demand trends in the economy, and some market participants reported seasonality in the market, with demand increasing during the holiday season.¹⁶⁷ The parties generally agree that the COVID-19 pandemic, which caused downturns in the retail and hospitality sectors, drove decreased demand for POS receipts and tickets during the POI and increased demand for shipping labels used in e-commerce.¹⁶⁸

A plurality of responding firms, including most importers, reported that demand for thermal paper increased during the POI.¹⁶⁹ Information on the record indicates that apparent

¹⁶² *Mittal Steel*, 542 F.3d at 873 (quoting from *Gerald Metals*, 132 F.3d at 722), 877-79. We note that one relevant “other factor” may involve the presence of significant volumes of price-competitive nonsubject imports in the U.S. market, particularly when a commodity product is at issue. In appropriate cases, the Commission collects information regarding nonsubject imports and producers in nonsubject countries in order to conduct its analysis.

¹⁶³ *Nucor Corp. v. United States*, 414 F.3d 1331, 1336, 1341 (Fed. Cir. 2005); see also *Mittal Steel*, 542 F.3d at 879 (“*Bratsk* did not read into the antidumping statute a Procrustean formula for determining whether a domestic injury was ‘by reason’ of subject imports.”).

¹⁶⁴ We provide in our discussion below a full analysis of other factors alleged to have caused any material injury experienced by the domestic industry.

¹⁶⁵ *Mittal Steel*, 542 F.3d at 873; *Nippon Steel Corp.*, 458 F.3d at 1350, citing *U.S. Steel Group*, 96 F.3d at 1357; S. Rep. 96-249 at 75 (“The determination of the ITC with respect to causation is ... complex and difficult, and is a matter for the judgment of the ITC.”).

¹⁶⁶ CR/PR at II-16.

¹⁶⁷ CR/PR at II-17-18.

¹⁶⁸ See CR/PR at II-10 n.23, II-19; Tr. at 49 (Howard), 140 (Hefner); Koehler’s Prehearing Br. at 17-20; Hansol’s Prehearing Br. at 18-19; Torraspapel’s Prehearing Br. at 9-10.

¹⁶⁹ CR/PR at Tables II-8-10.

U.S. consumption of thermal paper declined by *** percent from 2018 to 2020, from *** short tons in 2018 to *** short tons in 2020.^{170 171 172}

2. Supply Considerations

During the POI, there were four U.S. producers of jumbo rolls (Domtar, Appvion, Kanzaki, and Ricoh) and seven U.S. converters of jumbo rolls.¹⁷³ Appvion filed for bankruptcy on October 1, 2017, citing the need to restructure its debt. It emerged from bankruptcy on June 13, 2018, following its sale to Franklin Advisors, Inc.¹⁷⁴ Subsequently, Domtar purchased Appvion's POS assets in April 2020, which positioned it as the sole integrated U.S. producer that

¹⁷⁰ CR/PR at Table C-4. Apparent U.S. consumption was lower in the January to March ("interim") 2021 period, at *** short tons, than in the interim 2020 period, at *** short tons. *Id.* Due to potential double-counting when evaluating consumption of both jumbo rolls and converted rolls, we measure apparent U.S. consumption using the quantity of U.S. shipments of jumbo rolls. We find this to be more probative than measuring consumption by value, which will vary due to changes in product mix. The import data included in the apparent U.S. consumption calculation corresponds to the scope of the investigation. *** imports during the POI were in the form of jumbo rolls. CR/PR at IV-5.

¹⁷¹ Respondents argue that the apparent U.S. consumption data lack information concerning subject imports from Germany shipped to the U.S. market by *** in 2018 and part of 2019 and understate nonsubject import volumes. They contend that the Commission should use *** reported U.S. exports as a proxy for U.S. import shipments from this source and rely on nonsubject import volumes contained in the official import data. Hansol's Prehearing Br. at 14 n.44(1), Exhibit 1; Torraspapel's Prehearing Br. at 6 n.17(1), Exhibit A; Koehler's Posthearing Br., Responses to Commission Questions at 15-17. We decline to calculate apparent U.S. consumption as proposed by respondents, which consists of a mix of several data sources. *** export data do not provide a value figure or distinguish between product that was shipped to customers that year or kept in inventory. Moreover, use of these data as a proxy for its import shipment data would cause data inconsistencies with respect to the value and timing of shipment data. Further, the official import data in these investigations implicate a basket category of goods that includes out-of-scope merchandise and may overstate nonsubject import volumes.

¹⁷² Chair Kearns notes that the data regarding apparent U.S. consumption and market shares for the domestic industry, subject imports, and nonsubject imports discussed below is the same even when excluding converters of HWTP from the definition of the domestic industry. CR/PR at Table C-3. He further notes that while demand for thermal paper "in general is linked to overall demand trends in the economy, demand for LW thermal paper and HW thermal paper is driven by different demand trends." CR/PR at II-19. As discussed above, the parties state that the COVID-19 pandemic had disparate impact on the POS and non-POS segments. Consistent with this, apparent U.S. consumption for LW jumbo rolls declined by *** percent between 2018 and 2020 while apparent U.S. consumption for HW jumbo rolls increased by *** percent. CR/PR at Tables C-2, C-5.

¹⁷³ CR/PR at VI-1-2. Converters purchase jumbo rolls both from domestic sources and importers of subject merchandise.

¹⁷⁴ Koehler's Prehearing Br., Exhibit 7.

also produces pulp and base paper.¹⁷⁵ Ricoh and Kanzaki are coaters that purchase base paper to coat with chemicals to make thermal paper jumbo rolls.¹⁷⁶

The domestic industry accounted for the largest share of the U.S. thermal paper market during the POI. Its share of the quantity of apparent U.S. consumption declined by *** percentage points between 2018 to 2020, from *** percent in 2018 to *** percent in 2019 and *** percent in 2020.¹⁷⁷ The domestic industry's jumbo roll production capacity exceeded apparent U.S. consumption throughout much of the POI.¹⁷⁸

Cumulated subject imports accounted for the next largest shares of the U.S. thermal paper market during the POI. Their share of the quantity of apparent U.S. consumption increased by *** percentage points between 2018 to 2020, from *** percent in 2018 to *** percent in 2019 and *** percent in 2020.¹⁷⁹

Nonsubject imports accounted for a minimal share of the U.S. thermal paper market during the POI. Their share of the quantity of apparent U.S. consumption declined from *** percent in 2018 to *** percent in 2019 and 2020.¹⁸⁰ Canada, Mexico, and Malaysia were the primary sources of nonsubject imports during the POI.¹⁸¹ LWTP from China is subject to existing antidumping and countervailing duty orders arising from earlier investigations.¹⁸²

U.S. converters reported supply constraints of both imported and domestically produced thermal paper, citing a variety of factors, including raw material shortages, allocations, availability issues related to COVID, shipping container shortages and delays, and preliminary duties in these investigations, and the majority of U.S. importers also reported experiencing supply constraints with respect to LW jumbo rolls, citing similar factors.¹⁸³ U.S. jumbo roll producers reported shutdowns and curtailments during the POI, which they

¹⁷⁵ CR/PR at VI-1 n.2 and III-8; Hearing Tr. at 38 (Melton).

¹⁷⁶ CR/PR at Table VI-1.

¹⁷⁷ CR/PR at Table C-4. The domestic industry's share of apparent U.S. consumption was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

¹⁷⁸ CR/PR at Table C-4. The domestic industry's production capacity for jumbo rolls was less than apparent U.S. consumption in 2018 and interim 2020, but it exceeded apparent U.S. consumption in 2019, 2020, and interim 2021. *Id.*

¹⁷⁹ CR/PR at Table C-4. Cumulated subject imports' share of apparent U.S. consumption was lower in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

¹⁸⁰ CR/PR at Table C-4. Nonsubject imports' share of apparent U.S. consumption was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

¹⁸¹ CR/PR at II-14.

¹⁸² CR/PR at I-6.

¹⁸³ CR/PR at II-9-15; U.S. producers' questionnaire responses to questions IV-17a-b filed by ***.

primarily attributed to the leuco dye shortage, subject import competition, and declines in demand.¹⁸⁴

3. Substitutability and Other Conditions

We find that there is a moderate-to-high degree of substitutability between domestically produced thermal paper and cumulated subject imports.¹⁸⁵ As discussed above, almost all U.S. producers reported that subject imports from each subject country are always interchangeable with each other as well as with domestically produced thermal paper, and at least half of responding importers and purchasers reported that subject imports from all subject countries are frequently or sometimes interchangeable with each other as well as with domestically produced thermal paper.¹⁸⁶ Further, jumbo rolls from all sources were sold in overlapping basis weights across most product categories.¹⁸⁷ Some industry participants, however, reported that certain types of thermal paper are only available from specific sources.¹⁸⁸

¹⁸⁴ CR/PR at III-6; Petitioners' Prehearing Br. at 69-72. The leuco dye shortage, which was caused by plant closures in China, began in September 2017 and ended in late 2018. During this time, domestic and foreign producers of jumbo rolls limited sales and increased prices. CR/PR at V-4-5 and Koehler's Posthearing Brief, Responses to Commission Questions at 9-11.

¹⁸⁵ CR/PR at II-21-22. Factors contributing to this level of substitutability include similar quality, little preference for particular country of origin or producers, and few differences between domestically produced thermal paper and thermal paper imported from subject countries across multiple purchase factors (with certain exceptions for Spanish thermal paper). Factors reducing substitutability include differences in lead times for domestic/subject supply, certain types of thermal paper being available only from subject sources, product meeting supplier certifications, mixed responses regarding interchangeability between thermal paper from domestic and subject sources, and some factors other than price that firms consider. *Id.*

¹⁸⁶ CR/PR at II-38-47 and Tables II-25-30. Purchasers were asked to compare domestically produced thermal paper with subject imports by source country. Most purchasers reported that U.S. thermal paper and thermal paper from Germany and Korea were comparable on all 17 purchasing factors. CR/PR at II-29, Tables II-16-19. Compared to the factors rated as "very important" by a majority of purchasers in Table II- 13, most purchasers reported that Japanese paper was comparable on most of the factors except availability and availability of BPA-free paper. *Id.* A plurality of purchasers ranked domestic producers as inferior compared to thermal paper from Spain regarding product consistency, availability, price, quality meets industry standards, availability of BPA-free paper, and discounts offered. *Id.*

¹⁸⁷ CR/PR at Tables IV-15, IV-17, F-1-2.

¹⁸⁸ CR/PR at II-22, II-40, II-42.

We also find price to be an important factor in purchasing decisions. Responding purchasers identified price/cost most frequently as one of their top-three purchasing factors.¹⁸⁹ Moreover, most purchasers reported that they at least sometimes or usually purchase the lowest priced thermal paper.¹⁹⁰

Thermal paper is primarily sold from U.S. producers' and importers' inventories.¹⁹¹ Commercial shipments of domestically produced jumbo rolls predominantly involve short-term contracts and spot sales, whereas commercial shipments of converted LWTP are primarily sold through long-term contracts and spot sales.¹⁹² Subject imports are primarily sold through short term contracts.¹⁹³

The main raw materials used to produce jumbo thermal paper rolls include the base pulp or paper and chemicals used in the coating process.¹⁹⁴ Raw materials, as a share of the cost of goods sold ("COGS") for jumbo roll producers, declined from *** percent in 2018 to *** percent in 2019 and increased to *** percent in 2020.¹⁹⁵ During 2018-2019, wood pulp prices increased due to an increase in demand for virgin pulp in China.¹⁹⁶ As discussed above, from

¹⁸⁹ CR/PR at Table II-12. Price/cost was listed most frequently as the second-most important factor, while quality was listed most frequently as the first-most important factor, and availability/supply as the third-most important factor. *Id.*

¹⁹⁰ CR/PR at II-24.

¹⁹¹ CR/PR at II-25. Firms reported LWTP lead times of *** days for U.S. producers and *** days for importers; and HWTP lead times of *** days for U.S. producers and *** days for importers. LWTP shipments that are produced-to-order averaged lead times of *** days for U.S. producers and *** days for importers; produced-to-order HWTP shipments averaged lead times of *** days for U.S. producers and *** days for importers. *Id.* No importer reported selling subject thermal paper from foreign inventory. *Id.* n. 57.

Most responding purchasers require prospective suppliers to qualify in order to sell them thermal paper, with qualification periods ranging from 30 to 90 days. Two purchasers reported that domestic and foreign suppliers had failed to qualify during the POI. CR/PR at II-26.

¹⁹² CR/PR at V-6-8 and Tables V-3-5.

¹⁹³ CR/PR at V-6-8 and Tables V-3 and V-5.

¹⁹⁴ CR/PR at V-1.

¹⁹⁵ CR/PR at Table P-1. They accounted for a *** lower share of COGS in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.* These price movements are captured in the COGS/raw material ratio for converters, whose principal raw material input are jumbo rolls. Raw materials as a share of converters' COGS declined from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. They accounted for a lower share of COGS in interim 2021, at *** percent, than in interim 2020, at *** percent. *Calculated from* data in U.S. producers' questionnaire responses to questions III-11a and V-10 filed by ***.

¹⁹⁶ CR/PR at V-1-3.

late 2017 and continuing into 2018, the price of leuco dye increased dramatically due to plant closures in China, creating a supply shortage.¹⁹⁷

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that the “Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant.”¹⁹⁸

The volume of cumulated subject imports, which consisted *** of jumbo rolls, fluctuated but increased overall from 2018 to 2020.¹⁹⁹ It increased from *** short tons in 2018 to *** short tons in 2019, then declined to *** short tons in 2020 for an overall increase of *** percent.²⁰⁰ This increase occurred as apparent U.S. consumption declined by *** percent over the same period, and cumulated subject imports’ share of the quantity of apparent U.S. consumption increased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020.²⁰¹

We find that the volume of cumulated subject imports is significant in absolute terms and relative to consumption in the United States, and that the increase in volume from 2018 to 2020 relative to consumption is also significant.

D. Price Effects of the Subject Imports

Section 771(7)(C)(ii) of the Tariff Act provides that, in evaluating the price effects of the subject imports, the Commission shall consider whether

¹⁹⁷ CR/PR at V-4-5. During the shortage, prices of leuco dye were reported to have increased by as much as *** percent. The increase in prices of leuco dye in turn caused increases in the price of jumbo rolls, which were reported to have increased by up to 35 percent in 2018. CR/PR at V-4 -V-5, II-17; Koehler’s Posthearing Brief, Responses to Commission Questions at 9-11; *** U.S. purchaser questionnaire at question III-17.

¹⁹⁸ 19 U.S.C. § 1677(7)(C)(i).

¹⁹⁹ CR/PR at IV-5-10 and Table G-4.

²⁰⁰ CR/PR at Table G-4. Cumulated subject import volume was lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *Id.*

²⁰¹ CR/PR at Table C-4. Cumulated subject imports’ share of apparent U.S. consumption was *** percent in interim 2020 and *** percent in interim 2021. *Id.*

Moreover, the ratio of cumulated subject imports of jumbo rolls to domestic jumbo roll production increased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. *Derived from* Tables C-4 and L-1. This ratio was higher in interim 2021, at *** percent, than it was in interim 2020, at *** percent. *Id.* The ratio of all subject imports to U.S. production of jumbo rolls and converted paper increased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. *Derived from* Tables C-4 and G-4.

(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and

(II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.²⁰²

As previously discussed in Section V.B.3, we find that the domestic like product and cumulated subject imports have a moderate-to-high degree of substitutability, and that price is an important factor in purchasing decisions for thermal paper.

The Commission collected quarterly price data on a delivered basis for eight thermal paper products shipped to unrelated U.S. customers during the POI.²⁰³ Five U.S. producers and

²⁰² 19 U.S.C. § 1677(7)(C)(ii).

²⁰³ CR/PR at V-10-11. The pricing products were:

Product 1. – Thermal paper in jumbo rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 2. – Thermal paper in jumbo rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 3. – Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 4. – Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 5. – Thermal paper in converted rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 6. – Thermal paper in converted rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity;

Product 7. – Thermal paper in jumbo rolls, with a target caliper of 3.23 to 4.33 mils (82 to 110 microns), with a target basis weight greater than 80 g/m², not topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity; and

Product 8. – Thermal paper in jumbo rolls, with a target caliper of 3.23 to 9.65 mils (82 to 245 microns), with a target basis weight greater than 80 g/m², topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

10 importers provided usable pricing data for sales of the requested products, although not all firms reported pricing for all products for all quarters.²⁰⁴

The pricing data indicate that cumulated subject imports were priced below domestically produced product in 95 of 188 quarterly instances (or 50.5 percent of such comparisons) from the first quarter of 2018 to the first quarter of 2021.²⁰⁵ The quantity of subject imports in underselling comparisons was 33.7 billion feet, while the quantity in overselling comparisons was 48.3 billion feet.²⁰⁶ Thus, 41.1 percent of the quantity of subject imports in the pricing data was sold during quarters in which the average price of these imports was less than that of the comparable domestic product.

The record further shows that of the 28 purchasers that responded to the Commission's questionnaires, 17 responded that they had purchased subject LWTP jumbo rolls rather than the domestic like product, and 10 of these purchasers reported that subject import prices were lower than those for the domestic like product; two purchasers reported they had purchased subject converted LWTP rolls rather than the domestic like product, with one reporting that subject import prices were lower than those for the domestic like product; and 14 responded that they had purchased subject HWTP jumbo rolls rather than the domestic like product, with eight of these purchasers reporting that subject import prices were lower than those for the domestic like product.²⁰⁷ Thus, a majority of purchasers that reported buying subject imports instead of the domestic product also reported that the subject imports were lower priced. Collectively, six of these purchasers of LWTP jumbo rolls, one purchaser of LWTP converted rolls, and five purchasers of HWTP jumbo rolls reported that price was a primary reason for their decision to purchase over *** short tons of subject imports rather than the domestic like product.²⁰⁸ The quantity of subject imports that these purchasers indicated they purchased instead of domestic product primarily due to the price of the imports is substantial.²⁰⁹

²⁰⁴ CR/PR at V-11. Pricing data reported by these firms accounted for approximately *** percent of the value of U.S. producers' U.S. shipments of thermal paper, *** percent of the value of U.S. shipments of subject imports from Germany, *** percent of the value of U.S. shipments of subject imports from Japan, *** percent of the value of U.S. shipments of subject imports from Korea, and *** percent of the value of U.S. shipments of subject imports from Spain in 2020. *Id.*

There were no reported import data for pricing product 6. CR/PR at Table V-11 at Note.

²⁰⁵ *Derived from* CR/PR at Tables V-6-13. Subject imports oversold the domestic like product in the remaining 93 instances. *Id.*

²⁰⁶ CR/PR at Tables V-15-16.

²⁰⁷ CR/PR at Tables V-18, V-23, V-26.

²⁰⁸ *Derived from* CR/PR at Tables V-18, V-23, V-26.

²⁰⁹ *Derived from* CR/PR at Tables V-17-18, V-22-23, V-25-26. The total quantity of reported lost sales is *** short tons. CR/PR at Tables V-18, V-23, V-26. This quantity accounted for *** percent of the (Continued...)

Other record information shows that cumulated subject imports were recurrently priced lower than the domestic like product. Purchaser questionnaire responses regarding the comparability of domestic thermal paper and subject imports with respect to a number of purchasing factors indicate that, while U.S. prices were mostly “comparable” with those of the subject sources, they were more frequently reported as being “inferior” to subject import prices than “superior.”²¹⁰ Additionally, petitioners provided substantial contemporaneous documentation, including internal call reports and email correspondence with purchasers showing that lower-priced subject imports are frequently cited in sales negotiations with domestic producers.²¹¹ Finally, the record contains average unit value (“AUV”) data compiled for a range of basis weights showing that importers’ U.S. shipment AUVs were lower than domestic producers’ U.S. shipment AUVs in *** comparisons (or *** percent of such comparisons).²¹²

In light of the substitutability of thermal paper, the importance of price in purchasing decisions, the pricing and lost sales data and other record information showing that cumulated subject imports were lower priced than domestic product, we find that there has been

total aggregate *** short tons of thermal paper purchases and imports reported by the 28 purchasers that responded to the Commission’s questionnaires and *** percent of total subject imports reported by these purchasers during the POI. *Derived from CR/PR at Tables V-17, V-22, V-25.*

²¹⁰ CR/PR at Tables II-16-19.

²¹¹ Petitioners’ Prehearing Br. at Exhibits 9-11; Petitioners’ Posthearing Br., Exhibits 16-19. The contemporaneous email correspondence included those with some of the largest purchasers in the U.S. market (*e.g.*, ***). Koehler argues that Petitioners seek to “displace” the pricing data with internal or external email correspondence that they “cherry-picked” to create the impression that U.S. producers were losing sales to lower-priced subject imports. Koehler’s Posthearing Br. at 11-13. We disagree. We also are unpersuaded by Koehler’s argument that this information amounts to “sales puffery” that should be disregarded. *Id.* at 11-12. Many of the included examples ***, which does not appear to be mere puffery. *See* Petitioners’ Prehearing Br. at Exhibits 9-10. We find that this information provides additional context surrounding the credible role that lower-priced subject imports played in sales negotiations between U.S. producers and purchasers.

²¹² CR/PR at Appendix F at Tables F-1, F-6, F-9, F-14. Respondents argue that these data fail to reflect inland freight costs, suffer from product mix issues, and lack granularity, and therefore the Commission should not consider these “over” the pricing data. Koehler’s Posthearing Br. at 13-15. *See also* Hansol’s Final Comments at 8-11. We acknowledge respondents’ concerns that these data do not control for micron thickness and sensitivities; however, the data were compiled for a range of basis weights to lessen certain of these product mix issues and respondents have not presented evidence that suggests the AUV data are inaccurate or otherwise not probative of comparative prices. Further, contrary to respondents’ assertion, the Commission does not rely on the AUV data to replace the pricing data; rather, we find that these AUV data serve as supplemental information on the record concerning comparative pricing.

significant price underselling of the domestic like product by subject imports. Lower-priced imports caused the domestic industry to lose market share and substantial sales.^{213 214 215}

We have also considered price trends during the POI. Between the first quarters of 2018 and 2021, domestic producer sales prices generally increased towards the end of 2018, and declined from the second quarter of 2019 for the rest of the period with respect to all but two pricing products.²¹⁶ Importer sales prices showed similar trends during this period.²¹⁷ The parties agree that the leuco dye shortage resulted in price increases at the beginning of the POI and that prices declined as the shortage alleviated and the industry's raw material costs

²¹³ Cumulated subject imports' share of the quantity of apparent U.S. consumption was *** percent in 2018, *** percent in 2019, and *** percent in 2020. Of the *** percentage points of market share subject imports gained from 2018 to 2020, *** percentage points came at the expense of the domestic industry. CR/PR at Table C-4.

²¹⁴ Respondents contend that the Commission should focus its analysis on pricing product 1 (corresponding to LW jumbo rolls with a weight of less than 49.9 gsm), which accounted for *** of commercial shipments of subject imports during the POI. Focusing on this pricing product, respondents contend that underselling occurred only in 2018 while overselling occurred in 2019 and 2020 demonstrating a lack of correlation between subject import underselling and gains in market share. Koehler's Prehearing Br. at 38-44. *See also* Hansol's Prehearing Br. at 31-43; Torraspapel's Prehearing Br. at 13-16. While we have considered pricing product 1, we have also considered the other pricing products. Although the subject import volumes may be smaller in some of the other pricing products, they are still instructive of the impact of subject imports' lower prices, with subject imports gaining substantial sales volume in products 2 (corresponding to LW jumbo rolls with a weight of 49.9 gsm up to 70 gsm) and 3 (corresponding to HW jumbo rolls with a weight of at least 70 gsm up to 80 gsm) while primarily underselling the domestic product. CR/PR at Tables V-7-8. Moreover, as explained above, we have considered the totality of the evidence on the record, including the pricing data as well as other evidence probative to comparative prices, and concluded that the record shows the underselling by subject imports was significant.

²¹⁵ Chair Kearns notes that, consistent with the pricing data showing underselling by subject imports for pricing products corresponding to LW and HW jumbo rolls and purchaser questionnaire responses confirming lost sales of LW and HW jumbo rolls due to price discussed above, that subject imports caused the domestic industry to lose market share for both. Specifically, for LW jumbo rolls, subject imports gained *** percentage points in market share while the domestic industry lost *** percentage points in market share. CR/PR at Table C-5. For HW jumbo rolls, subject imports gained *** percentage points in market share while the domestic industry lost *** percentage points from 2018 to 2020. CR/PR at Table C-2

²¹⁶ CR/PR at Tables V-6-14. Between the first and last quarters of the POI, domestic producer prices increased by *** percent for pricing product 4 and *** percent for pricing product 2. Price declines for the remaining products ranged from *** percent to *** percent. *Id.*

²¹⁷ CR/PR at Tables V-6-14. Between the first and last quarters of the POI, subject import prices from Japan increased by *** percent for pricing product 2, and subject import prices from Germany, Japan, and Korea increased for pricing product 3 by ***, ***, and *** percent, respectively. *Id.*

declined.²¹⁸ This relationship in prices is apparent in the industry financial data, as declines in raw material costs exceeded declines in the industry's net sales AUVs from 2018 to 2020 and in the interim periods.²¹⁹ These price declines also occurred as apparent U.S. consumption declined during each year of the POI.²²⁰

While Petitioners provided contemporaneous documentation showing lower-priced subject imports being used during price negotiations during this period, and five purchasers reported that domestic producers had lowered prices to compete with lower-priced subject imports,²²¹ which suggest that subject imports are exerting some degree of pricing pressure on domestic producers, we cannot conclude that subject imports depressed domestic industry prices to a significant degree in light of the declining raw material costs and declining apparent U.S. consumption.

We have also considered whether subject imports prevented price increases which would otherwise have occurred. The domestic industry's average ratio of COGS to net sales was essentially flat during the POI, declining from *** percent in 2018 to *** in 2019, then returning to *** percent in 2020.^{222 223 224} Consistent with these ratios, the record shows that

²¹⁸ See, e.g., Hearing Tr. at 31, 64-65 (Mr. Hodson); Hansol's Prehearing Br. at 33-34, 41; see also CR/PR at V-4-5.

²¹⁹ See CR/PR at Tables N-1-2.

²²⁰ CR/PR at Table C-4.

²²¹ Petitioners' Prehearing Br. at Exhibits 9-11; Petitioners' Posthearing Br., Exhibits 16-19; CR/PR at Tables V-20 and V-28.

²²² CR/PR at Table C-4. The domestic industry's COGS/sales ratio was *** lower in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

²²³ We acknowledge that these data obscure the opposing trends that producers and converters of jumbo rolls experienced during the POI. As previously discussed, subject imports consisted *** of jumbo rolls. Moreover, converters were responsible for purchasing substantial quantities of subject jumbo rolls over the POI. Jumbo roll producers' COGS/sales ratio increased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. CR/PR at Table C-7. Jumbo roll producers' COGS/sales ratio was lower in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.* For converters, their COGS/sales ratio declined from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. *Calculated from* data in U.S. producers' questionnaire responses to questions III-11a and V-10 filed by ***. Converters' COGS/sales ratio was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

Jumbo roll producers' COGS/sales ratio increased during the POI, driven by declines in their net sales that exceeded declines in their COGS, as their production and shipments declined and their fixed costs were spread over a smaller volume of sales. CR/PR at Table P-7. Converters' decrease in COGS/sales ratio was driven by *** declines in raw material costs ***. See CR/PR at ***; *calculated from* data in U.S. producers' questionnaire responses to questions III-11a and V-10 filed by ***.

²²⁴ Chair Kearns notes that for the domestic industry producing the domestic like product coextensive with the scope (*i.e.*, LW jumbo rolls, HW jumbo rolls, and LW converted paper), the ratio of (Continued...)

the industry's unit net sales values generally moved in line with changes to the industry's costs of production.²²⁵ Additionally, as discussed above, the industry's raw material costs declined in the latter portion of the POI, and apparent U.S. consumption declined each year.²²⁶ Thus, we cannot conclude that cumulated subject imports prevented price increases which otherwise would have occurred to a significant degree.

We find that underselling by cumulated subject imports was significant during the POI. The underselling enabled cumulated subject imports to take sales and market share from the domestic industry. We therefore find that cumulated subject imports had significant price effects.

E. Impact of the Subject Imports²²⁷

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."²²⁸ These factors include output, sales, inventories, capacity utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debts, research and development, and factors affecting domestic prices. No single

COGS to net sales was almost the same and showed the same trends. Specifically, it declined from *** percent in 2018 to *** percent in 2019, and then increased to *** percent in 2020; it was lower in interim 2021 at *** percent than in interim 2020 at *** percent. CR/PR at Table C-3.

²²⁵ CR/PR at Table N-2.

²²⁶ As discussed above in Section V.B.1, the parties generally agree that the COVID-19 pandemic drove down demand for thermal paper used in retail and hospitality applications.

²²⁷ The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping duty proceeding as part of its consideration of the impact of imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination of sales at less value, Commerce found dumping margins of 2.90 percent for subject imports from Germany, 86 Fed. Reg. 54,152, 54,153; of 6.19 percent for subject imports from Korea, 86 Fed. Reg. 54,154, 54,155; of 135.06 percent to 140.25 percent for subject imports from Japan, 86 Fed. Reg. 54,157, 54,158; and of 37.07 percent to 41.45 percent for subject imports from Spain, 86 Fed. Reg. 54,162, 54,163. We take into account in our analysis the fact that Commerce has made final findings that all subject producers in Germany, Japan, Korea, and Spain are selling subject imports in the United States at less than fair value. In addition to this consideration, our impact analysis has considered other factors affecting domestic prices. Our analysis of the significant underselling of subject imports, described in both the price effects discussion and below, is particularly probative to an assessment of the impact of the subject imports.

²²⁸ 19 U.S.C. § 1677(7)(C)(iii); *see also* SAA at 851 and 885 ("In material injury determinations, the Commission considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they also may demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.").

factor is dispositive and all relevant factors are considered “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”²²⁹

The domestic industry’s performance declined over the POI. The industry’s capacity,²³⁰ production,²³¹ and capacity utilization declined.²³² The domestic industry’s U.S. shipments declined by *** percent from 2018 to 2020, while apparent U.S. consumption declined by *** percent.²³³ Although the domestic industry’s inventories declined absolutely,²³⁴ we note that the ratio of inventories relative to jumbo roll shipments increased from 2018 to 2020.²³⁵ ²³⁶ The domestic industry also lost market share to cumulated subject imports that significantly

²²⁹ 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

²³⁰ Jumbo producers’ capacity was *** short tons in 2018 and 2019 and *** short tons in 2020. It was lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. CR/PR at Table C-4. Converters’ capacity fell from *** short tons in 2018 to *** short tons in 2019 and *** short tons in 2020. It was lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *Id.*

²³¹ Jumbo producers’ production declined *** short tons in 2018 to *** short tons in 2019 and *** short tons in 2020. It was lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. CR/PR at Table C-4. Converters’ production declined from *** short tons in 2018 to *** short tons in 2019 and *** short tons in 2020. It was lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *Id.*

²³² Jumbo producers’ capacity utilization declined from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. It was lower in interim 2021, at *** percent, than in interim 2020, at *** percent. CR/PR at Table C-4. Converters’ capacity utilization declined from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. It was lower in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

²³³ CR/PR at Table C-4. The domestic industry’s U.S. shipments were *** short tons in 2018, *** short tons in 2019, and *** short tons in 2020. They were lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *Id.*

²³⁴ Jumbo producers’ end-of-period inventories were *** short tons in 2018, *** short tons in 2019, and *** short tons in 2020. They were higher in interim 2021, at *** short tons, than in interim 2020, at *** short tons. CR/PR at Table C-4. Converters’ end-of-period inventories were *** short tons in 2018, *** short tons in 2019, and *** short tons in 2020. They were lower in interim 2021, at *** short tons, than in interim 2020, at *** short tons. *Id.*

²³⁵ End-of-period inventories of jumbo rolls grew irregularly as a share of total shipments during this period, declining from *** percent in 2018 to *** percent in 2019, and increasing to *** percent in 2020. CR/PR at Table C-4. Converters’ end-of-period inventories as a share of total shipments declined during this period, from *** percent in 2018 to *** percent in 2019 and *** percent in 2020. *Id.*

²³⁶ Chair Kearns notes that the domestic industry producing the domestic like coextensive with the scope experienced the same declining trends. Its capacity declined by *** percent from 2018 to 2020, its production declined by *** percent from 2018 to 2020, and its capacity utilization declined by *** percentage points from *** percent in 2018 to *** percent in 2020. Its U.S. shipments declined by *** percent in U.S. shipments. All of these trade indicators were lower in interim 2021 than in interim 2020. The industry’s inventories declined absolutely. CR/PR at Table C-3.

undersold the domestic product. The industry's share of apparent U.S. consumption by quantity fell from *** percent in 2018 to *** percent in 2019 and *** percent in 2020.²³⁷

The domestic industry's employment-related indicia were mixed. From 2018 to 2020, the domestic industry's number of PRWs²³⁸ and productivity declined,²³⁹ whereas its hours worked,²⁴⁰ wages paid,²⁴¹ and hourly wages²⁴² increased. Unit labor costs also increased during this period.^{243 244}

The domestic industry's financial performance indicators deteriorated over the POI. The domestic industry's sales revenue,²⁴⁵ gross profits,²⁴⁶ and operating income²⁴⁷ declined each year of the POI. Its net *** worsened.²⁴⁸ Operating and net income margins similarly declined

²³⁷ CR/PR at Table C-4. The domestic industry's share of apparent U.S. consumption was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

²³⁸ The number of PRWs declined irregularly from *** in 2018 to *** in 2019 and *** in 2020. It was lower in interim 2021, at *** than in interim 2020, at ***. CR/PR at Table C-4.

²³⁹ Jumbo producers' productivity (in short tons per 1,000 hours) was *** in 2018, *** in 2019, and *** in 2020. It was lower in interim 2021, at ***, than in interim 2020, at ***. CR/PR at Table C-4. Converters' productivity was *** in 2018, *** in 2019, and *** in 2020. It was higher in interim 2021, at ***, than in interim 2020, at ***. *Id.*

²⁴⁰ Total hours worked increased from *** hours in 2018 to *** hours in 2019 and *** hours in 2020. They were lower in interim 2021, at *** hours, than in interim 2020, at *** hours. CR/PR at Table C-4.

²⁴¹ Wages paid increased from \$*** in 2018 to \$*** in 2019 and \$*** million in 2020. They were lower in interim 2021, at \$*** than in interim 2020, at \$***. CR/PR at Table C-4.

²⁴² Hourly wages (in dollars per hour) were \$*** per hour in 2018, \$*** per hour in 2019, and \$*** in 2020. They were higher in interim 2021, at \$*** per hour, than in interim 2020, at \$*** per hour. CR/PR at Table C-4.

²⁴³ Jumbo producers' unit labor costs were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were higher in interim 2021, at \$***, than in interim 2020, at \$***. CR/PR at Table C-4. Converters' unit labor costs were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were lower in interim 2021, at \$***, than in interim 2020, at \$***. *Id.*

²⁴⁴ Chair Kearns notes that the domestic industry producing the domestic like coextensive with the scope experienced the same mixed trends in its employment indicators. The number of PRWs declined by *** percent and productivity declined by *** percent from 2018 to 2020. Both indicators were higher in interim 2021 than in interim 2020. Hours worked increased by *** percent and wages paid increased by *** percent between 2018 and 2020. They were lower in interim 2021 than in interim 2020. CR/PR at Table C-3.

²⁴⁵ The domestic industry's total net sales were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were lower in interim 2021, at \$***, than in interim 2020, at \$***. CR/PR at Table C-4.

²⁴⁶ The domestic industry's gross profits were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were lower in interim 2021, at \$***, than in interim 2020, at \$***. CR/PR at Table C-4.

²⁴⁷ The domestic industry's operating income was \$*** in 2018, \$*** in 2019, and \$*** in 2020. It was lower in interim 2021, at \$***, than in interim 2020, at \$***. CR/PR at Table C-4.

²⁴⁸ The domestic industry's net *** were \$*** in 2018, \$*** in 2019, and \$*** in 2020. It was higher in interim 2021 at \$*** than in interim 2020 at \$***. CR/PR at Table C-4.

over this period.²⁴⁹ Capital expenditures and research and development expenses likewise declined.²⁵⁰ The domestic industry's assets and its return on assets also declined from 2018 to 2020.²⁵¹ Finally, a number of domestic producers reported negative effects on investment, growth and development due to subject imports.^{252 253}

From 2018 to 2020, significant volumes of cumulated subject imports entered the U.S. market that significantly undersold the domestic like product and took sales and market share from the domestic industry. As a result, the domestic industry's output and revenues were lower than they would have otherwise been. Consequently, the domestic industry's production, U.S. shipments, and financial performance declined from 2018 to 2020, with the domestic industry sustaining net losses and declining operating income throughout this period.²⁵⁴ Based on the foregoing, we find that subject imports had a significant impact on the domestic industry.

²⁴⁹ The domestic industry's operating income as a share of net sales was *** percent in 2018 and *** percent in 2019 and 2020. It was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. CR/PR at Table C-4. The domestic industry's net income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020. It was higher in interim 2021, at *** percent, than in interim 2020, at *** percent. *Id.*

²⁵⁰ Capital expenditures were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were lower in interim 2021, at \$***, than in interim 2021, at \$***. CR/PR at Table C-4. Research and development expenses were \$*** in 2018, \$*** in 2019, and \$*** in 2020. They were lower in interim 2021, at \$***, than in interim 2020, at \$***. *Id.*

²⁵¹ Total net assets were \$*** in 2018, \$*** in 2019, and \$*** in 2020. CR/PR at Table C-4. The domestic industry's operating return on assets was *** percent in 2018, *** percent in 2019, and *** percent in 2020. *Derived from* CR/PR at Table C-4.

²⁵² CR/PR at Tables VI-24-VI-26. Negative effects on investments reported by U.S. producers included cancellation, postponement, or rejection of expansion projects and return on specific investments. Negative effects on growth and development reported included lowering of credit rating and lowered ability to service debt. *Id.* at Tables VI-24-VI-25.

²⁵³ Chair Kearns notes that the financial performance of the domestic industry producing the domestic like coextensive with the scope similarly deteriorated over the POI. From 2018 and 2020, the domestic industry's net sales declined by *** percent, gross profit declined by *** percent, operating income declined by *** percent, and its net *** worsened. While its net sales and gross profits were lower in interim 2021 than in interim 2020, its operating income and net income were higher. From 2018 to 2020, its operating and net income margins declined by *** percent and *** percent, respectively. They were both higher in interim 2021 than in interim 2020. The industry's capital expenditures declined by *** percent and its research and development expenses declined by *** percent over the POI and were lower in interim 2021 than in interim 2020. CR/PR at Table C-3.

²⁵⁴ CR/PR at Table C-4. Given that subject imports were primarily jumbo rolls, we also think it is instructive to consider the financial performance of jumbo roll producers. The declines in financial performance for jumbo roll producers were more severe than for the domestic industry as a whole. The jumbo roll producers' total net sales were \$*** in 2018, \$*** in 2019, and \$*** in 2020. CR/PR at Table (Continued...)

We have also considered whether there are other factors that may have had an impact on the domestic industry during the POI to ensure that we are not attributing injury from such other factors to cumulated subject imports. We find that nonsubject imports had a minimal and declining presence in the U.S. market during the POI and cannot explain the domestic industry's market share losses during that period.²⁵⁵

We also acknowledge that apparent U.S. consumption declined by *** percent during the POI.²⁵⁶ Nevertheless, the declines in apparent U.S. consumption do not explain the larger declines in the domestic industry's output during this period, nor do they explain the domestic industry's loss of sales or market share to cumulated subject imports. The significant underselling by subject imports, which resulted in lost sales and market share for the domestic industry, indicate that the decline in demand alone cannot account for the domestic industry's poor performance.

We have also considered Respondents' argument that supply shortages, which were purportedly caused by the leuco dye shortage, a reduction in capacity following Appvion's bankruptcy, and Domtar's alleged inability or unwillingness to supply purchasers, and the COVID-19 pandemic explain the domestic industry's deteriorating condition over the POI.²⁵⁷ We acknowledge that various market participants reported experiencing supply shortages. However, as described above, the record indicates that these reported supply constraints due to the leuco dye shortage pertained to both domestically produced and subject imported thermal paper. Moreover, any constraints related to the leuco dye shortage were transitory as the shortage was over by the end of 2018, before the market share shift occurred,²⁵⁸ and any changes in the structure of the industry related to Appvion's bankruptcy and the sale of its POS assets to Domtar did not result in significant changes to the industry's production capacity.²⁵⁹

C-7. The jumbo roll producers' gross profits were \$*** in 2018, \$*** in 2019, and \$*** in 2020. *Id.* The jumbo roll producers' operating income was \$*** in 2018, \$*** in 2019, and \$*** in 2020. *Id.* The jumbo roll producers' operating income as a share of net sales was *** percent in 2018 and *** percent in 2019 and *** percent in 2020. *Id.* The jumbo roll producers' net income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020. *Id.*

²⁵⁵ The market share of nonsubject imports declined from *** percent in 2018 to *** percent in 2019 and 2020. CR/PR at Table C-4.

²⁵⁶ CR/PR at Table C-4.

²⁵⁷ Koehler's Prehearing Br. at 14-24; Koehler's Posthearing Br., Economists' Responses to Commission Questions at 6-12; Hansol's Final Comments at 3-6; Torrassapel's Posthearing Br. at 8-12, Responses to Commission Questions at 2-6.

²⁵⁸ CR/PR at II-14-II-16, V-4-V-5.

²⁵⁹ CR/PR at Tables III-7 and III-9. We acknowledge that jumbo roll producers' capacity declined by *** percent during the full years of the POI. CR/PR at Table C-7. We do not find that the *** decline (Continued...)

Additionally, the pandemic, which drove down demand for LWTP and caused temporary supply disruptions, cannot explain the relative increase in cumulated subject import volume and market penetration.²⁶⁰ Moreover, as discussed above, the record shows that multiple purchasers bought subject imports rather than domestic thermal paper specifically because of their lower price and not due to domestic supply constraints.²⁶¹ Respondents' arguments that quality and availability drove purchases of subject imports do not undercut the significance of the substantial volumes of confirmed lost sales.

Respondents further argue that the use of value-based metrics to analyze volume are more appropriate than quantity-based metrics due to product mix issues in these investigations, and that there is limited overlap in competition as subject imports are concentrated in a few applications.²⁶² We disagree. We find that use of value-based metrics in these investigations understates the volume and market share of subject imports, as cumulated subject imports entered the U.S. market at declining prices, which allowed them to increase market share by quantity while maintaining a steady market share by value.²⁶³ We also find that information on the record concerning pricing, lost sales, and AUVs by basis weights

in capacity, which occurred between 2019 and 2020, was significant enough to exacerbate domestic supply conditions. Additionally, the jumbo roll producers' end-of-period inventories increased by *** percent from 2019 to 2020, which seems inconsistent with the notion that there were significant domestic supply constraints as the volume of subject imports increased. CR/PR at Table C-7. Moreover, we also acknowledge that multiple purchasers reported and testified that Domtar refused to supply them during the POI. Petitioners provided conflicting evidence, however, that shows Domtar's ***, as well as evidence of ***. Petitioners' Posthearing Br., Responses to Commission Questions at 76-82, Exhibits 25-26. On balance, we are unpersuaded that there were significant domestic supply constraints that forced customers to turn to subject imports.

²⁶⁰ CR/PR at Tables G-4 and C-4.

²⁶¹ See CR/PR at Tables V-18, V-23, V-26.

²⁶² Koehler's Posthearing Br., Responses to Commission Questions at 15-17; Hansol's Prehearing Br. at 27-28. As previously stated, respondents argue that apparent U.S. consumption data lack information concerning subject imports from Germany shipped by *** and understate nonsubject import volume. They contend that these data should be supplemented with *** export dataset and official import data concerning nonsubject imports. Hansol's Prehearing Br. at 14 n.44(1), Exhibit 1; Torraspapel's Prehearing Br. at 6 n.17(1), Exhibit A; Koehler's Posthearing Br., Responses to Commission Questions at 15-17. These supplemental data would show that the domestic industry lost *** percentage points of market share, whereas cumulated subject imports gained a *** percentage point share from 2018-2020. See Hansol's Prehearing Br. at Exhibit 1. We have declined to use the amended data, which consists of a mix of data sources that, regarding the export dataset, would not match with other record information concerning shipments and inventory and, regarding official import data, would implicate a basket category of goods that may overstate nonsubject import volumes.

²⁶³ CR/PR at Table L-4. Between 2018 and 2020, U.S. shipments of subject imports of jumbo rolls decreased by *** percent by quantity and by *** percent by value. CR/PR at Table L-3.

establishes that subject imports and the domestic like product competed on a head-to-head basis across a broad range of thermal paper product categories.^{264 265}

We consequently conclude that any other causes are distinct from the injury we have attributed to the cumulated subject imports. We accordingly determine that the domestic industry was materially injured by reason of cumulated subject imports.

VI. Critical Circumstances

A. Legal Standards

In its final antidumping duty determinations concerning, Commerce found that critical circumstances exist with respect to certain subject producers/exporters in Germany and all producers/exporters in Korea.²⁶⁶ Because we have determined that the domestic industry is materially injured by reason of subject imports from these two countries, we must further determine "whether the imports subject to the affirmative {Commerce critical circumstances} determination ... are likely to undermine seriously the remedial effect of the antidumping {and/or countervailing duty} order{s} to be issued."²⁶⁷ The SAA indicates that the Commission is to determine "whether, by massively increasing imports prior to the effective date of relief, the importers have seriously undermined the remedial effect of the order" and specifically "whether the surge in imports prior to the suspension of liquidation, rather than the failure to provide retroactive relief, is likely to seriously undermine the remedial effect of the order."²⁶⁸ The legislative history for the critical circumstances provision indicates that the provision was designed "to deter exporters whose merchandise is subject to an investigation from circumventing the intent of the law by increasing their exports to the United States during the period between initiation of an investigation and a preliminary determination by

²⁶⁴ See Section V.D. for our discussion of these data.

²⁶⁵ We are also unpersuaded by Respondents' argument that a negative determination is warranted because imposition of antidumping duties would support Domtar's and Kanzaki's parent companies' future increases in imports of thermal paper from nonsubject countries. See, e.g., Koehler's Prehearing Br. at 24-31. In addition to being speculative, this argument does not detract from the material injury by reason of subject imports that we have found. Moreover, record evidence indicates that Domtar increased its U.S. production in 2021 after preliminary duties went into effect. Petitioners' Posthearing Br., Responses to Commission Questions at 77 and Exhibit 25.

²⁶⁶ Commerce made affirmative critical circumstances findings with respect to Koehler from Germany and with respect to subject imports from all sources in Korea. 86 Fed. Reg. 54,153 and 54,155.

²⁶⁷ 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii).

²⁶⁸ SAA at 877.

{Commerce}.²⁶⁹ An affirmative critical circumstances determination by the Commission, in conjunction with an affirmative determination of material injury by reason of subject imports, would normally result in the retroactive imposition of duties for those imports subject to the affirmative Commerce critical circumstances determination for a period 90 days prior to the suspension of liquidation.

The statute provides that, in making this determination, the Commission shall consider, among other factors it considers relevant,

(I) the timing and the volume of the imports,

(II) a rapid increase in inventories of the imports, and

(III) any other circumstances indicating that the remedial effect of the {order} will be seriously undermined.^{270 271}

In considering the timing and volume of subject imports, the Commission's practice is to consider import quantities prior to the filing of the petition with those subsequent to the filing of the petition using monthly statistics on the record regarding those firms for which Commerce has made an affirmative critical circumstances determination.²⁷²

²⁶⁹ *ICC Industries, Inc. v United States*, 812 F.2d 694, 700 (Fed. Cir. 1987), quoting H.R. Rep. No. 96-317 at 63 (1979), *aff'g* 632 F. Supp. 36 (Ct. Int'l Trade 1986). See 19 U.S.C. §§ 1671b(e)(2), 1673b(e)(2).

²⁷⁰ 19 U.S.C. §§ 1671d(b)(4)(A)(ii), 1673d(b)(4)(A)(ii).

²⁷¹ Chair Kearns and Commissioner Karpel observe that the statute directs the Commission to consider the following factors in making this determination: "the timing and volume the imports, a rapid increase in the inventories of the imports, and any other circumstances indicating that the remedial effect of the antidumping order will be seriously undermined." 19 U.S.C. §1673d(b)(4)(A)(ii). In their analysis, they would therefore take into account a number of factors as appropriate to a given investigation (as directed by the statute) and do not necessarily give precedence to the pre- and post-petition subject import volumes. Among the factors they may consider, depending on the facts of the investigation and the available data, are the parties' arguments, subject import volumes relative to apparent U.S. consumption or production, monthly changes in subject import volume, subject import inventories (both absolute and relative to imports or shipments of imports), purchaser inventories, pricing, and the domestic industry's performance.

²⁷² See *Lined Paper School Supplies from China, India, and Indonesia*, Inv. Nos. 701-TA-442-43, 731-TA-1095-97 (Final), USITC Pub. 3884 at 46-48 (Sept. 2006); *Carbazole Violet Pigment from China and India*, Inv. Nos. 701-TA-437 and 731-TA-1060-61 (Final), USITC Pub. 3744 at 26 (Dec. 2004); *Certain Frozen Fish Fillets from Vietnam*, Inv. No. 731-TA-1012 (Final), USITC Pub. 3617 at 20-22 (Aug. 2003).

B. Party Arguments

Petitioners' Arguments. Petitioners contend that subject imports from Germany and Korea subject to Commerce's critical circumstances findings surged into the U.S. market and reached their highest monthly levels of the POI in the post-petition period. In their view, the timing and volume of imports suggest that the subject producers shipped large quantities of thermal paper to avoid paying preliminary duties.²⁷³

Petitioners assert that a rapid increase in inventories of subject imports also supports affirmative critical circumstances determinations; they contend that inventories from Germany and Korea subject to Commerce's critical circumstances findings more than *** from September 2020 to December 2020 (for Germany) and to January 2021 (for Korea), and reached monthly levels that were far higher than at any other point in the POI.²⁷⁴

Petitioners also assert that other factors, namely subject import volumes relative to apparent U.S. consumption and production, monthly changes in subject import volumes, subject import and purchaser inventories, pricing, and the domestic industry's performance in interim 2021, indicate that the remedial effect of the orders would be seriously undermined absent an affirmative critical circumstances finding.²⁷⁵

Respondents' Arguments. Koehler argues that the post-petition increase in volume of subject imports from Germany subject to Commerce's critical circumstances findings reflects economic conditions caused by the pandemic. It claims that the pre-petition period reflects a time when the pandemic disrupted the thermal paper supply chain as lockdown restrictions were issued, resulting in store closures and the attendant reduction in demand for "point-of-sale" receipts, whereas the post-petition period covers a time when demand for thermal paper increased as these restrictions eased. It contends that its average monthly level of imports in the post-petition period is comparable to its average monthly import levels earlier in the POI.²⁷⁶

Koehler further asserts that end-of-period inventories held by Matra Atlantic GmbH, its exclusive U.S. distributor, do not support an affirmative critical circumstances determination; it contends that monthly LWTP inventories show declines since ***, whereas inventories of HWTP were ***.²⁷⁷

²⁷³ Petitioners' Prehearing Br. at 83-85.

²⁷⁴ Petitioners' Prehearing Br. at 85-87.

²⁷⁵ Petitioners' Prehearing Br. at 87-89.

²⁷⁶ Koehler's Prehearing Br., Critical Circumstances Appendix, at 3-6; Koehler's Posthearing Br., Responses to Commission Questions at 27-31.

²⁷⁷ Koehler's Prehearing Br., Critical Circumstances Appendix, at 7.

Koehler also asserts that other considerations, namely *** subject import volumes from Germany, a low final antidumping duty margin calculated by Commerce for Koehler, the overselling by subject imports from Germany, and reported domestic supply constraints, likewise do not support an affirmative critical circumstances determination.²⁷⁸

Hansol similarly argues that the increase in volume of subject imports from Korea in the post-petition period reflects the recovery in demand and abatement of disruptions caused by pandemic-related lockdowns. It contends that subject Korean import volumes in the post-petition period are commensurate with pre-pandemic import volumes, and that any increases in volume in the first few months of the post-petition period relative to the pre-pandemic period simply reflected anticipated growth in demand, the need for converters to replenish inventories, and global shipping disruptions. It argues that the Commission should use a pre-petition base period of October 2019 to March 2020, which encapsulates the six months prior to the onset of lockdowns in the United States.²⁷⁹ It adds that the increase between the pre- and post-petition periods is in any event not of a magnitude that would warrant an affirmative critical circumstances determination.²⁸⁰

Hansol asserts that the ratios of inventories to imports during the POI, which were consistent, belies any claims that importers sought to stockpile inventories of subject imports. Any increases to this ratio in the post-petition period were, in its view, unrelated to the filing of the petitions, and reflected increased demand, seasonality, and shipping disruptions.²⁸¹

C. Analysis

We first consider the appropriate period for comparison of pre-petition and post-petition levels of the imports subject to the affirmative critical circumstances finding. The Commission is not required to analyze the same period that Commerce examined.²⁸² Unless the industry under investigation involves seasonality or the Commission decides that circumstances warrant otherwise, the Commission generally compares six months of data gathered from the periods immediately preceding and following the petitions' filing, but has

²⁷⁸ Koehler's Prehearing Br., Critical Circumstances Appendix, at 6-8; Koehler's Posthearing Br., App. 1 at 26-27.

²⁷⁹ Hansol's Posthearing Br. at 13-14.

²⁸⁰ Hansol's Prehearing Br. at 71-79; Hansol's Posthearing Br. at 13-14, Exhibits 1 (***), 2 (***), 3 (***), App. at 28-33.

²⁸¹ Hansol's Prehearing Br. at 79-81; Hansol's Posthearing Br. at 14-15, Responses to Commission Questions at 28-33.

²⁸² *Certain Polyester Staple Fiber from China*, Inv. No. 731-TA-1104 (Final), USITC Pub. 3922 at 35 (June 2007); *Steel Concrete Reinforcing Bars from Turkey*, Inv. No. 731-TA-745 (Final), USITC Pub. 3034 at 34 (Apr. 1997).

used shorter periods when Commerce’s preliminary determination falls within the post-petition six-month period.²⁸³ In these investigations, we compare the volume of subject imports in the six months prior to the filing of the petitions (April 2020 – September 2020) with the volume of subject imports in the six months after the filing of the petitions (October 2020 – March 2021).²⁸⁴ ²⁸⁵ Commerce’s determination does not fall within the sixth month period, and while we acknowledge respondents’ arguments that the COVID-19 pandemic affected import volume in the pre- and post-petition periods, we address those arguments below rather than in the context of the appropriate comparison periods.²⁸⁶

Germany. Subject imports produced by Koehler and shipped by Koehler’s exclusive distributor, Matra Americas, increased from *** short tons in the pre-petition period to *** short tons in the post-petition period, an increase of *** percent.²⁸⁷ This increase of *** short

²⁸³ See, e.g., *Certain Hot-Rolled Steel Flat Products from Australia, Brazil, Japan, Korea, the Netherlands, Turkey, and the United Kingdom*, Inv. Nos. 701-TA-545-547, 731-TA-1291-1297 (Final), USITC Pub. 4638 at 49-50 (Sept. 2016); *Certain Corrosion-Resistance Steel Products from China, India, Italy, Korea, and Taiwan*, Inv. No. 701-TA-534-537 and 731-TA-1274-1278 (Final), USITC Pub. 4630 at 35-40 (July 2016); *Carbon and Certain Steel Wire Rod from China*, Inv. Nos. 701-TA-512, 731-TA-1248 (Final), USITC Pub. 4509 at 25-26 (Jan. 2015) (using five-month periods because preliminary Commerce countervailing duty determination was during the sixth month after the petition). The Commission may also use different periods when the product is seasonal. See *1,1,1,2-Tetrafluoroethane (R-134a) from China*, Inv. No. 731-TA-1313 (Final), USITC Pub. 4679 at 25 (April 2017) (seasonal product); *Certain Polyester Staple Fiber from China*, Inv. No. 731-TA-1104 (Final), USITC Pub. 3922 at 35 (June 2007) (declining to analyze different periods absent seasonality).

²⁸⁴ In the present case Commerce issued its preliminary determinations in the antidumping duty investigations with respect to Germany and Korea in May 2021, after the six-month post-petition period of October 2020 to March 2021. See *Thermal Paper from Germany: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances in Part, Postponement of Final Determination, and Extension of Provisional Measures*, 86 Fed. Reg. 26001 (May 12 2021); *Thermal Paper from the Republic of Korea: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances, Postponement of Final Determination, and Extension of Provisional Measures*, 86 Fed. Reg. 26007 (May 12 2021).

²⁸⁵ Since the petition was filed on October 7, 2020, which is during the first half of that month, October 2020 falls in the post-petition period, per Commission practice. No party argues to the contrary.

²⁸⁶ As noted above, Hansol argues that the Commission should use a pre-petition base period of October 2019 to March 2020, which encapsulates the six months prior to the onset of lockdowns in the United States. Granting that there are COVID-related issues that impact comparisons in the six-month periods immediately before and after the petition filing, there is insufficient data on the record to allow for the use of an earlier, alternate period initially asserted by Hansol. Specifically, the evidence on record does not contain complete U.S. importer monthly shipments or any end-of-month inventory data for the period October 2019 to March 2020.

²⁸⁷ Matra Americas’ Importer Questionnaire Response, EDIS Doc. 746492, Responses to questions II-5d and II-6d.

tons in the post-petition period equates to *** percent of apparent U.S. consumption in 2020 (*** short tons).²⁸⁸ End-of-period inventories of subject merchandise held by U.S. importers which were produced by Koehler increased from *** short tons in September 2020 to *** short tons in March 2021, an increase of *** percent.²⁸⁹ This increase in inventories of *** short tons in the post-petition period equates to *** percent of apparent U.S. consumption in 2020.²⁹⁰

While we recognize that both the import volume and inventory level increased in the post-petition period, it is important to consider these increases within the context of the market conditions at the time they occurred. We note that the pre-petition period closely corresponds with the onset of lockdown restrictions relating to the COVID-19 pandemic resulting in depressed demand, particularly for LWTP used in POS applications, when restaurants and stores were closed.^{291 292} Indeed, GDP data show a drop in the second quarter of 2020 as the pandemic affected the market, with increases in the subsequent quarters as the economy started to recover.²⁹³ This suggests that the increases in imports and inventories in the post-petition period are reflective of the unique impacts that the pandemic had on demand and shipments in the U.S. market in the pre-petition period relative to the post-petition period, where demand and shipments declined in one period due to the COVID-19 pandemic and rose in the other as lockdown restrictions eased and demand normalized.

In light of these considerations, we find that the record in this investigation does not support a finding the subject imports from Germany subject to Commerce's affirmative critical

²⁸⁸ *Derived from* CR/PR at Tables IV-5, IV-7 and C-4. The total volume of Koehler's imports during the post-petition period equates to *** percent of apparent U.S. consumption in 2020. *Id.* While the 2020 consumption data do not fully align with the post-petition period, they do constitute the best information available for evaluating the volume of the post-petition imports relative to the size of the market.

²⁸⁹ Matra Americas' Importer Questionnaire Response, EDIS Doc. 746492, Responses to questions II-5e and II-6e.

²⁹⁰ *Derived from* CR/PR at Tables IV-6, IV-8 and C-4. The total volume of Koehler's inventories at the end of the post-petition period equates to *** percent of apparent U.S. consumption in 2020. *Id.* While the 2020 consumption data do not fully align with the post-petition period, they do constitute the best information available for evaluating the increase in inventories of the imports relative to the size of the market.

²⁹¹ CR/PR at Table II-7 and Figure II-1; *see also* Koehler's Posthearing Brief at Exhibits 15-17. We note that the volume of U.S. imports of HW jumbo thermal paper from Germany subject to Commerce's affirmative final critical circumstances determination declined in the post-petition period relative to the pre-petition period. CR/PR at Table IV-7.

²⁹² We note that arranged subject imports from Germany (which is broader than only thermal paper produced by Koehler) steadily declined by quarter compared to the higher level as the lockdown restrictions eased in the post-petition period. *Derived from* CR/PR at Tables VII-33 and VII-34.

²⁹³ CR/PR at II-17-19.

circumstances finding are likely to undermine seriously the remedial effect of the antidumping duty order. While we acknowledge the increase in subject imports from Germany in the post-petition period and the share they comprise relative to U.S. consumption, as well as the increase in inventories in the post-petition period, we evaluate that data recognizing the negative impact of the COVID-19 pandemic on demand and shipments in the pre-petition period as well as the recovery in demand in the post-petition period. On balance, the record evidence suggests that the import and inventory volumes in the pre- and post-petition periods are reflective of temporal demand trends and do not lead us to conclude that the volume of imports subject to Commerce's affirmative critical circumstances determination is likely to undermine seriously the remedial effect of the orders. Consequently, based on the evidence reviewed above, we determine that critical circumstances do not exist with respect to subject imports from Germany produced by Koehler.

Korea. Subject imports from Korea increased from *** short tons in the pre-petition period to *** short tons in the post-petition period, an increase of *** percent.²⁹⁴ This increase of *** short tons in the post-petition period equates to *** percent of apparent U.S. consumption in 2020.²⁹⁵ End-of-period inventories of subject merchandise from Korea held by U.S. importers increased from *** short tons in the pre-petition period to *** short tons in the post-petition period, an increase of *** percent.²⁹⁶ This increase in inventories of *** short tons in the post-petition period equates to *** percent of apparent U.S. consumption in 2020.²⁹⁷

As discussed above, it is important to consider these increases within the context of the market conditions at the time they occurred. The pre-petition period closely corresponds with the onset of lockdown restrictions relating to the COVID-19 pandemic resulting in depressed demand, particularly for LWTP used in POS applications, when restaurants and stores were

²⁹⁴ *Derived from* CR/PR at Tables IV-9 and IV-11.

²⁹⁵ *Derived from* CR/PR at Tables IV-9, IV-11 and C-4. The total volume of subject imports from Korea in the post-petition period equates to *** of apparent U.S. consumption in 2020. *Id.* While the 2020 consumption data do not fully align with the post-petition period, they do constitute the best information available for evaluating the volume of the post-petition imports relative to the size of the market.

²⁹⁶ *Derived from* CR/PR at Tables IV-10 and IV-12.

²⁹⁷ *Derived from* CR/PR at Tables IV-10, IV-12 and C-4. The total volume of inventories of subject imports from Korea at the end of the post-petition period represents *** percent of apparent U.S. consumption in 2020. *Id.* While the 2020 consumption data do not fully align with the post-petition period, they do constitute the best information available for evaluating the increase in inventories of the imports relative to the size of the market.

²⁹⁷ CR/PR at Tables IV-10 and IV-12.

closed.^{298 299} Indeed, GDP data show a drop in the second quarter of 2020 as the pandemic affected the market, with increases in the subsequent quarters as the economy started to recover.³⁰⁰ Again, this suggests that the increases in imports and inventories in the post-petition period are reflective of the unique impacts that the pandemic had on demand and shipments in the U.S. market in the pre-petition period relative to the post-petition period, where demand and shipments declined in one period due to the COVID-19 pandemic and rose in the other as lockdown restrictions eased and demand normalized.

In light of these considerations, we find that the record in this investigation does not support a finding that subject imports from Korea subject to Commerce's affirmative critical circumstances finding are likely to undermine seriously the remedial effect of the antidumping duty order. While we acknowledge the increase in subject imports from Korea in the post-petition period and the share they comprise relative to U.S. consumption, as well as the increase in inventories in the post-petition period, we evaluate that data recognizing the negative impact of the COVID-19 pandemic on demand and shipments in the pre-petition period as well as the recovery in demand in the post-petition period. On balance the record evidence suggests that the import and inventory volumes in the pre- and post-petition periods are reflective of temporal demand trends and do not lead us to conclude that the volume of imports subject to Commerce's affirmative critical circumstances determination is likely to undermine seriously the remedial effect of the orders. Consequently, based on the evidence reviewed above, we determine that critical circumstances do not exist with respect to subject imports from Korea.

VII. Conclusion

For the reasons stated above, we determine that an industry in the United States is materially injured by reason of subject imports of thermal paper from Germany, Japan, Korea, and Spain that are sold in the United States at less than fair value. We also find that critical

²⁹⁸ CR/PR at Table II-7 and Figure II-1; *see also* Hansol's Posthearing Br. at 71-72 (detailing purchaser communications in the pre-petition period ***), and Exhibits 1-3. We note that the volume of U.S. imports of HW thermal paper from Korea subject to Commerce's affirmative final critical circumstances determination increased in the post-petition period relative to the pre-petition period. CR/PR at Table IV-11. However, we note that due to the characteristics of the COVID-19 pandemic on the services sector, demand for shipping labels used in e-commerce, which are typically HW thermal paper, increased. CR/PR at II-19.

²⁹⁹ We note that arranged subject imports from Korea steadily declined by quarter compared to the higher level as the lockdown restrictions eased in the post-petition period. *Derived from* CR/PR at Tables VII-33 and VII-34.

³⁰⁰ CR/PR at II-17-19.

circumstances do not exist with respect to imports of thermal paper from Germany and Korea that are subject to Commerce's final affirmative critical circumstances determinations.

Separate Views of Chair Jason E. Kearns Regarding the Domestic Like Product and Domestic Industry

Based on the record in the final phase of these investigations, I define a single domestic like product coextensive with the scope (*i.e.*, lightweight (“LW”) jumbo rolls, heavy weight (“HW”) jumbo rolls, and LW converted paper), and the domestic industry as comprising all U.S. producers of the domestic like product. I differ with the majority in that I do not find that the facts in these investigations warrant expansion of the domestic like product to include out-of-scope HW converted paper. Notwithstanding my separate views with respect to these issues, I concur with my colleagues in finding that an industry is materially injured by reason of imports of thermal paper from Germany, Japan, Korea, and Spain, and join sections I, IIA-C, IIIA, and IV-VII of the majority Views.

These investigations raise three important and closely related questions concerning how the Commission defines the “domestic like product” and the “domestic industry”: (1) Should the Commission expand the definition of the domestic like product beyond the scope of these investigations to include an out-of-scope downstream product (*i.e.*, HW converted thermal paper); (2) Can and should the Commission exclude producers of the in-scope downstream product (*i.e.*, LW converted thermal paper) as “related parties” based upon their purchases of substantial quantities of subject imports from importers they do not control; and (3) Should these downstream producers be included in the domestic industry based on conduct of sufficient production related activities? The answers to these questions do not determine the outcome in these investigations: affirmative injury determinations are warranted regardless of how these issues are decided. It is conceivable, however, that the responses to these questions could determine the outcome of an investigation in the future. In my view, by not addressing some of these issues, we may run the risk of masking injury caused by subject imports.

I address each of these issues below.

I. Domestic Like Product

The Tariff Act of 1930 (“the Act”) defines “domestic like product” as “a product which is like, or in the absence of like, most similar in character and uses with the article subject to an investigation,” *i.e.*, the subject imported merchandise that is within the scope of the investigation, as determined by the Department of Commerce (“Commerce”).¹ Thus, Commerce’s scope determination is “necessarily the starting point of the Commission’s like

¹ 19 U.S.C. § 1677(10).

product analysis.”² These investigations call into question the extent to which the scope should serve as an anchor for the Commission’s domestic like product definition, and under what circumstances the Commission should move away from that starting point.

In my view, where, as here, there is a domestic industry that produces the exact same products as those that are within the scope, the Commission generally should not expand the scope unless the distinction between products within and outside the scope is too blurry to be workable.^{3 4} That principle is consistent with the Commission’s past practice: the Commission generally does not expand or broaden the like product to include downstream domestic articles when the scope does not encompass a corresponding subject product.⁵ In recognizing that the statute requires the Commission to consider Commerce’s subject merchandise determination in reaching its own like product determination, the Federal Circuit has stated that “{t}o do otherwise risks creating two disconnected agency investigations” at Commerce and the Commission.⁶

² *Cleo Inc. v. United States*, 501 F.3d 1291, 1298 n.1 (Fed. Cir. 2007).

³ We recently expanded the domestic like product to include out-of-scope product, for example, in *4th Tier Cigarettes from Korea*, Inv. No. 731-TA-1465 (Final), USITC Pub. 5151 at 5-25 (Jan. 2021). That case was relatively straightforward, in my view, because there was no concrete definition, let alone a common understanding, of what constituted the “4th tier” cigarettes covered under the scope.

⁴ Similarly, we should not divide up products within the scope unless there is a clear dividing line between them. *Large Diameter Welded Pipe from China and India*, Inv. Nos. 701-TA-593-594 and 731-TA-1402 and 1404 (Final), USITC Pub. 4859 (Jan. 2019).

⁵ See, e.g., *Sodium Hexametaphosphate from China*, Inv. No. 731-TA-1110 (Preliminary), USITC Pub. 3912 at 7 n.36 (April 2007); *Certain Frozen or Canned Warmwater Shrimp from Brazil, China, Ecuador, India, Thailand, and Vietnam*, Inv. Nos. 731-TA-1063-1068 (Preliminary), USITC Pub. 3672 at 14-15 (Feb. 2004); *Low Enriched Uranium from France, Germany, the Netherlands, and the United Kingdom*, Inv. Nos. 701-TA-409-412 (Preliminary) and 731-TA-909-912 (Preliminary), USITC Pub. 3388 at 6 (Jan. 2001); *Beryllium Metal and High-Beryllium Alloys from Kazakhstan*, Inv. No. 731-TA-746 (Final), USITC Pub. 3019 at 5 (Feb. 1997); *Fresh Garlic from the People’s Republic from China*, Inv. Nos. 731-TA-683 (Final), USITC Pub. 2825 at I-14 & n.65 (Nov. 1994).

⁶ *Hitachi Metals, Ltd. v. United States*, 949 F.3d 710, 717 (Fed. Cir. 2020). *Hitachi Metals* did not involve a possible expansion beyond the scope, but the same principle expressed by the court in that case applies here.

We have seen the consequences of two disconnected agency investigations. For example, in *Hydrofluorocarbon Blends and Components from China*, Inv. No. 731-TA-1279 (Final), USITC Pub. 4629 (August 2016), the Commission divided the scope into two separate domestic like products (upstream components and downstream blends) and determined that an industry was materially injured by reason of dumped imports of HFC blends, but not materially injured or threatened with material injury by reason of HFC components. Subsequently, Commerce initiated an anti-circumvention inquiry to determine whether imports of certain HFC components (*i.e.*, R-32, R-125, and R-143a) from China that are further processed into finished HFC blends in the United States were circumventing the antidumping duty order on HFC blends from China within the meaning of section 781(a) of the Act.

Hydrofluorocarbon Blends from China: Initiation of Anti-Circumvention Inquiry on Antidumping Duty Order; Components, 84 Fed. Reg. 28273 (June 18, 2019). Commerce preliminarily determined that HFC components from China were circumventing the antidumping duty order on HFC blends from China. *Hydrofluorocarbon Blends from China: Affirmative Preliminary Determination of Circumvention of the Antidumping Duty Order for HFC Components; and Extension of Time Limit for Final Determination*, 85 Fed. Reg. 20248 (Apr. 10, 2020) and accompanying *Decision Memorandum* (Apr. 3, 2020); and *Hydrofluorocarbon Blends and Components from China*, Inv. No. 731-TA-1279, USITC Pub. 4629 (August 2016). Commerce's affirmative preliminary determination, however, did not consider as part of its analysis the Commission's 2016 negative final injury determination on HFC components from China. *Id.* On August 19, 2020, following notification from the Commission that an affirmative circumvention determination on HFC components would raise a significant injury issue, Commerce determined in a final negative determination that imports of HFC components (R-32, R-125, and R-143a) from China were not circumventing the antidumping duty order on HFC blends from China. See *Anti-Circumvention Inquiry of Antidumping Duty Order on Hydrofluorocarbon Blends from China—HFC Components: Final Determination Not To Include Within the Scope of the Order*, 85 Fed. Reg. 51018, 51019 (Aug. 19, 2020), and accompanying *Decision Memorandum*. In January 2020, a U.S. component producer then filed a petition covering R-32 imports from China. The Commission made an affirmative material injury determination in March 2021 (based on the January 2017-September 2020 period of investigation), and Commerce subsequently issued an antidumping duty order covering R-32. *Difluoromethane (R-32) from China*, Inv. No. 731-TA-1472 (Final), USITC Pub. 5165 (March 2021); *Difluoromethane from China: Antidumping Duty Order*, 86 Fed. Reg. 13886 (March 11, 2021). And in January 2021, another U.S. component producer filed a petition covering R-125 imports from China. After the Commission made preliminary affirmative material injury determinations in March 2021, *Pentafluoroethane (R-125) from China*, Inv. Nos. 701-TA-662 and 731-TA-1554 (Preliminary), USITC Pub. 5170 (March 2021), Commerce preliminarily determined that the government of China provided countervailable subsidies to producers and exporters of R-125 and that R-125 imports from China were being sold at less than fair value, *Pentafluoroethane (R-125) from China: Preliminary affirmative countervailing duty determination*, 86 Fed. Reg. 33648 (June 25, 2021), *Pentafluoroethane (R-125) from China: Preliminary affirmative determination of less than fair value*, 86 Fed. Reg. 45959 (Aug. 17, 2021). The Commission has yet to conduct the final phase of those investigations. See also *Non-Refillable Steel Cylinders from China*, Inv. Nos. 701-TA-644 and 731-TA-1494 (Final), USITC Pub. 5188 at 15 (May 2021) (observing that the Commission's antidumping duty order on imports of hydrofluorocarbon blends, but not on components of those blends, resulted in increased imports of HFC components and, consequently, increased demand for non-refillable steel cylinders as production of HFC blends increased relative to HFC blend imports in the U.S. market).

One can imagine similar issues arising when the domestic like product is defined to be broader than the scope. Suppose, for example, that after an order is put in place in this case, a petition is filed alleging injury due to a massive increase in dumped imports of HW converted paper. If the facts have not changed concerning the physical characteristics, manufacturing facilities, channels of distribution, etc., between HW and LW converted thermal paper, the Commission presumably would expand the scope beyond HW converted paper to also cover the other products covered in this case (*i.e.*, LW converted paper and HW and LW jumbo rolls). But, as a result of the order in the first case, the industry may no longer be suffering injury by reason on imports of jumbo rolls or LW converted rolls, and the injury to producers of HW converted rolls may be masked by these other "segments" of the industry. We may, therefore, unintentionally be encouraging petitions to include an over-inclusive scope at the outset.

The six-factor test can help us determine whether the line on the continuum is too blurry.⁷ For example, if two products are produced on the same equipment and with the same employees, that may make our production and financial data less reliable, or reliable but not very meaningful. If customers perceive no difference between the two products, a look at market shares for only one of the two products may be misleading.

Here, the scope covers jumbo rolls of thermal paper in all weights and converted rolls of thermal paper with a basis weight of 70 grams per square meter (“gsm”) or less. I begin my domestic like product analysis by first examining whether all domestically produced jumbo rolls corresponding to the scope constitute the same like product. Because all jumbo rolls are at the same stage of processing, I apply the traditional domestic like product factors to determine if there are any clear dividing lines.

A. Lightweight and Heavyweight Jumbo Rolls are not Separate Domestic Like Products

Physical Characteristics and Uses. All jumbo rolls are produced in a range of basis weights measured in gsm and in a variety of calipers (or thicknesses).⁸ Regardless of weight, however, jumbo rolls share the same general physical characteristics and end uses. Specifically, jumbo rolls within the scope are paper coated with chemicals that react to form images when exposed to heat.⁹ They are produced using the same chemical inputs and raw materials and are sold to converters for transformation into their final form depending on their customers’ needs.¹⁰ All parties agree that there are not clear dividing lines between jumbo rolls, and the majority of U.S. producers (6 of 8) and purchasers (10 of 17) reported that all jumbo rolls were at least sometimes comparable in terms of physical characteristics, although the majority of

⁷ In determining whether a specific product should be included within the Commission’s domestic like product analysis, the Commission generally considers a number of factors including the following: (1) physical characteristics and uses; (2) interchangeability; (3) channels of distribution; (4) customer and producer perceptions of the products; (5) common manufacturing facilities, production processes, and production employees; and, where appropriate, (6) price. *See Nippon Steel Corp. v. United States*, 19 CIT 455 n.4 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996). “The ‘like product’ determination is a factual issue that the Commission resolves by weighing six factors relating to the products in question.” *Cleo Inc. v. United States*, 501 F.3d 1291, 1295 (Fed. Cir. 2007). The statute’s legislative history states that the like product standard should not be interpreted in “such a narrow fashion as to permit minor differences in physical characteristics or uses to lead to the conclusion that the product and article are not ‘like’ each other, nor should the definition of ‘like product’ be interpreted in such a fashion as to prevent consideration of an industry adversely affected by the imports under consideration.” S. Rep. No. 96-249 at 90–91 (1979).

⁸ CR/PR at I-9; Petitioners Prehearing Br. at 16.

⁹ CR/PR at I-8-10.

¹⁰ CR/PR at I-10-11.

importers (6 of 8) reported that they were never comparable.¹¹ The narrative responses explain that the jumbo rolls comprise a range of basis weights and become more dissimilar in terms of physical characteristics as the weight departs further from the mid-range 70 gsm dividing line.¹²

Manufacturing Facilities, Production Processes and Employees. The record indicates that there is overlap in terms of the manufacturing facilities, production processes, and employees of producers of different weight jumbo rolls. There are four primary stages in the production of thermal paper: pulp production, base paper production, coating, and converting.¹³ Jumbo roll production entails, depending on the level of integration, the first three stages. Out of the four U.S. producers of jumbo rolls – Domtar, Appvion, Kanzaki, and Ricoh – Domtar is the only integrated U.S. producer that produces pulp and base paper and coats the paper. Appvion, Kanzaki, and Ricoh purchase the base paper that they coat to make jumbo rolls.¹⁴ Petitioners state that Domtar, Appvion, and Kanzaki produce thermal paper jumbo rolls in basis weights above and below 70 gsm using the same production processes and production employees,¹⁵ and most responding U.S. producers of jumbo rolls (5 of 6) confirmed in their questionnaire responses that the manufacturing process for jumbo rolls above and below 70 gsm was always comparable.¹⁶

Channels of Distribution. All jumbo rolls are sold through the same channel of distribution, specifically to converters.¹⁷

Interchangeability. As discussed, all jumbo rolls overlap with respect to being coated with chemicals that react to form images when exposed to heat.¹⁸ As a practical matter, however, there is limited interchangeability between LW jumbo rolls and HW jumbo rolls due to their differences in weight, which impact the capability, ease, and cost of converting the rolls as well as their ultimate end-uses.¹⁹ Indeed, market participant responses reflect the limited

¹¹ CR/PR at Table D-1.

¹² See, e.g., CR/PR at D-4 (***) ; see also *id.* at D-8 (***, ***).

¹³ CR/PR at I-10.

¹⁴ CR/PR at VI-1.

¹⁵ Petitioners Prehearing Br. at 25; see also CR/PR at D-5-6.

¹⁶ CR/PR at Appendix D, Table D-1.

¹⁷ CR/PR at Tables II-1 & II-2.

¹⁸ CR/PR at I-8-9.

¹⁹ In asserting the existence of an overlap in end uses of LW jumbo rolls and HW jumbo rolls, petitioners presented evidence of POS receipts from the same restaurants that were purportedly made from LW and HW jumbo rolls as well as receipts for car rentals that also were purportedly made from LW and HW jumbo rolls. Petitioners' Posthearing Br. at Exhibit 8, slides accompanying hearing testimony of Stephen Hefner at 1, 4. As discussed in further detail below, while there may be some

degree to which LW jumbo rolls and HW jumbo rolls can be used interchangeably.²⁰ Specifically, while 4 U.S. producers reported that LW jumbo and HW jumbo rolls were mostly interchangeable, 3 U.S. producers reported that they were never interchangeable. Most U.S. importers (6 of 8) and purchasers (10 of 18) reported that the products were never interchangeable. Market participants that reported that the products were not interchangeable explained that they served different purposes, with LW jumbo rolls being processed into point of sale (“POS”) receipt applications and HW jumbo rolls being used in non-POS applications such as labels, tickets, and medical charts.²¹ Other market participants reported that the degree of interchangeability increases in the mid-weight range of the jumbo rolls.²² As the majority Views note, a lack of interchangeability between products within a grouping, however, is not inconsistent with a finding of a single domestic like product when the products are part of a range of products and all share the general characteristics of that group.²³

Producer and Customer Perceptions. The majority of U.S. producers (3 of 5) reported that LW jumbo rolls and HW jumbo rolls were mostly comparable in terms of producer and customer perceptions, while most U.S. importers (7 of 8) reported that the products were never comparable. U.S. purchaser responses were mixed, with 4 purchasers reporting that the products were fully or mostly comparable with respect to producer and customer perceptions, 4 purchasers reporting that they were somewhat comparable, and 7 reporting that they were

limited overlap in converted paper used in POS and non-POS applications in the mid-weight range of jumbo rolls, the record shows that LWTP is predominantly used in POS applications while HWTP is typically used in non-POS applications. Indeed, the majority of U.S. shipments of LWTP made by domestic producers and U.S. importers were of thermal basis weight of less than 49.9 gsm and not in the 49.9 to 60 gsm weight range or the 60 to 70 gsm weight range. CR/PR at Tables F-1-8. Moreover, converters reported that the vast majority of jumbo rolls processed using their slitter machinery were of LWTP. *** U.S. Producer Questionnaire Response at V-4a; *** U.S. Producer Questionnaire Response at V-4a; *** U.S. Producer Questionnaire Response at V-4a; and *** U.S. Producer Questionnaire Response at V-4a. The parties, in fact, also expressly recognized the differences in end uses of LWTP and HWTP. Petitioners Comments on Draft Questionnaires at 1-3; Koehler Comments on Draft Questionnaires at 1-2 (stating that the Commission’s decision to collect data and separately evaluate the LWTP and HWTP products accurately reflects the distinction between LWTP, primarily used in POS receipt paper and HWTP, predominantly used for tags, tickets, medical charts and labels); Torraspapel Comments on Draft Questionnaires at 2; Mitsubishi Comments on Draft Questionnaires at 2 (“the primary use for LWTP is for POS applications, while HWTP is generally used for thermal labels, tickets and tags”).

²⁰ CR/PR at Table D-1.

²¹ CR/PR at D-4-5, D-8, D-14-15.

²² CR/PR at D-5, D-8, D-14.

²³ See, e.g., *Certain Seamless Carbon and Alloy Steel Standard, Line, and Pressure Pipe from China*, Inv. Nos. 701-TA-469 and 731-TA-1168 (Final), USITC Pub. 4190 at 8 n. 45 (Nov. 2010); *Outboard Engines from Japan*, Inv. No. 731-TA-1069 (Preliminary), USITC Pub. 3673 (March 2004) at 8, n. 40.

never comparable.²⁴ In their narrative responses, several market participants focused on the end use, particularly POS applications, in explaining differences in customer perceptions.²⁵

Price. Thermal paper has different price points, which increase along the range of products as basis weight and caliper increase.²⁶

Conclusion. I find that there is not a clear dividing line between LW jumbo rolls and HW jumbo rolls that would warrant defining them to be separate domestic like products. All jumbo rolls share the same essential physical characteristics in that, regardless of weight, they are paper coated with chemicals that react to form images when exposed to heat. Jumbo rolls are produced in the same facilities using the same manufacturing processes and comprise a range of weights and a variety of calipers that are sold to converters for further processing. I recognize that the evidence is mixed with respect to producer and customer perceptions. In addition, LW jumbo rolls and HW jumbo rolls have limited interchangeability in ultimate end use applications and differ in price based on weight and caliper, but this is not inconsistent with a finding of a single domestic like product where, as here, all products share the same essential physical properties and are part of a product range that differ solely in weight and caliper. Consequently, and in the absence of party argument to the contrary, I find that LW jumbo rolls and HW jumbo rolls are part of the same domestic like product.

B. LW Converted Paper and LW Jumbo Rolls are not Separate Domestic Like Products

Having found that there is not a clear dividing line between the LW jumbo rolls and HW jumbo rolls at the same level of processing that would warrant defining them to be separate domestic like products, I next analyze whether in-scope LW converted paper should be defined as a separate domestic like product. For this aspect of the domestic like product analysis, I concur and adopt as my own the majority Views, which applies the semi-finished product analysis to evaluate whether there is a clear dividing line between LW jumbo rolls and LW converted paper.²⁷ As the majority concludes, I also find LW converted paper to be part of the same domestic like product as LW jumbo rolls.

²⁴ CR/PR at Table D-1.

²⁵ CR/PR at D-11, D-17 (*e.g.*, ***, ***, ***, ***, ***) .

²⁶ Petitioners Prehearing Br. at 26; CR/PR at D-6-7, D-12-13, D-17-18.

²⁷ In a semi-finished products analysis, the Commission examines the following: (1) the significance and extent of the processes used to transform the upstream into the downstream articles; (2) whether the upstream article is dedicated to the production of the downstream article or has independent uses; (3) differences in the physical characteristics and functions of the upstream and downstream articles; (4) whether there are perceived to be separate markets for the upstream and

C. The Domestic Like Product Should Not be Expanded to Include Out-of-Scope HW Converted Paper

Finally, I examine whether the domestic like product should be expanded to include out-of-scope HW converted paper by applying the traditional six-factor test to the in-scope product that is at the same level of processing as the out-of-scope HW converted paper.

Physical Characteristics and Uses. All thermal paper products are paper coated with chemicals (dyes) that react to form images when exposed to heat.²⁸ Notwithstanding this overarching high-level similarity, the record indicates important differences in physical characteristics and uses for in-scope LW converted paper and out-of-scope HW converted paper. In particular, LW converted paper are lighter in weight (70 gsm or less) and are predominantly used for POS applications, such as receipts and coupons.²⁹ LW converted paper for POS applications are rolls that have been slit and rewound on small cores, and may or may not have printing on the non-thermal side of the paper.³⁰ On the other hand, HW converted paper are heavier in weight (greater than 70 gsm) and are generally not used for POS applications. Rather, HW converted paper is typically used for non-POS applications such as labels, tickets, and tags.³¹ HW non-POS paper undergo more complex processing using different machinery than LW POS paper.³² While some HW jumbo rolls are processed for POS

downstream articles; and (5) differences in the costs or value of the vertically differentiated articles. See, e.g., *Glycine from India, Japan, and Korea*, Inv. Nos. 731-TA-1111-1113 (Preliminary), USITC Pub. No. 3921 at 7 (May 2007); *Artists' Canvas from China*, Inv. No. 731-TA-1091 (Final), USITC Pub. No. 3853 at 6 (May 2006); *Live Swine from Canada*, Inv. No. 731-TA-1076 (Final), USITC Pub. 3766 at 8 n.40 (Apr. 2005); *Certain Frozen Fish Fillets from Vietnam*, Inv. No. 731-TA-1012 (Preliminary), USITC Pub. No. 3533 at 7 (Aug. 2002).

²⁸ CR/PR at I-9.

²⁹ CR/PR at I-9; *** U.S. Producer Questionnaire Response at V-4a; *** U.S. Producer Questionnaire Response at V-4a; *** U.S. Producer Questionnaire Response at V-4a; and *** U.S. Producer Questionnaire Response at V-4a.

³⁰ Petitioner Posthearing Br. at Exhibit 7 Attach. B.

³¹ CR/PR at I-9-10.

³² Petitioner Posthearing Br. at Exhibit 7 Attach. B.

applications and some LW jumbo rolls are processed for non-POS applications, the record shows that for conversion of most jumbo rolls, there is a dividing line based on weight.^{33 34}

Respondents claim that the 70 gsm weight basis is an artificial distinction between light and heavy weight paper that is not based on any reality in the thermal paper market.^{35 36} However, in commenting on the draft questionnaires, petitioners and respondents alike agreed with the Commission's definitions of LWTP and HWTP, the delineation of which were based on whether they were above or at/below 70 gsm in weight. The parties explicitly recognized differences in end uses of LWTP and HWTP and therefore indicated their support for the Commission's decision to collect data (including pricing data) separately based on weight to

³³ A representative for Iconex, one of the largest converters, testified that "93 to 95 percent of all of {its} product that {it} does convert {in its POS division} is in the 48-gram basis weight," and that it has "minimal sales in the 80-gram" weight. Hearing Tr. at 157 (Burns). In addition, "the majority of the product that {it} convert{s} in the label division is 80-gram or higher." *Id.* Indoor Media, a POS converter that testified on behalf of respondents, reported that it converted mostly LW jumbo rolls on its slitting machinery. Hearing Tr. at 178-179 (Endsley); *** U.S. Producer Questionnaire Response at V-4a. Other converters of both LW and HW jumbo rolls similarly reported that they converted mostly LW jumbo rolls on their slitting machinery. *** U.S. Producer Questionnaire Response at V-4a; and *** U.S. Producer Questionnaire Response at V-4a.

³⁴ Respondents emphasize that POS products, including receipts and coupons, have a basis weight ranging up to 75 gsm. *See, e.g.*, Koehler Posthearing Br. at Responses to Questions p.6; Hansol Posthearing Br. at Responses to Questions p.9. But the record shows that the overlap in converted paper near the 70 gsm weight in POS applications is limited. The majority of U.S. shipments of LWTP made by domestic producers and U.S. importers were of basis weight *** and not in the *** weight range or the *** weight range. CR/PR at Tables F-1-8. In other words, a graph of shipment quantities by basis weight would show two lumps, with relatively few shipments near 70 gsm.

³⁵ Hansol Posthearing Br. at Appendix p.4; Torraspapel Posthearing Br. at 1-3; Koehler Posthearing Br. at Responses to Questions pp.3-5.

³⁶ Respondents also take issue with what they characterize as a "lopsided scope." Hansol Posthearing Br. at Appendix p.4; Koehler Posthearing Br. at 3. It is not unusual, however, for the Commission not to expand the definition to include all out-of-scope downstream products. *See, e.g., Softwood Lumber Products from Canada*, Inv. Nos. 701-TA-414 and 731-TA-928 (Final), USITC Pub. 3509 at 4-16 (May 2002). In any event, whether the scope is "lopsided" is not a consideration that the Commission considers as it has no place in the six-factor domestic like product analysis.

evaluate these products.^{37 38} In fact, the majority of responding market participants (5 of 6 U.S. producers, 8 of 8 U.S. importers, and 8 of 13 U.S. purchasers) reported that the two products were never or only sometimes comparable with respect to physical characteristics.³⁹

Manufacturing Facilities, Production Processes and Employees. Conversion of jumbo rolls is the final stage in the production of thermal paper products.⁴⁰ The record shows limited overlap in the manufacturing facilities, production processes, or employees used to produce LW converted paper and HW converted paper.

As discussed above, LW converted paper is primarily dedicated to POS applications. POS production is a relatively simple process. Essentially, jumbo rolls are cut to the desired width and length using a slitter/rewinder.⁴¹ In contrast, HW converted paper is mostly used in non-POS applications. Production of non-POS converted paper is a more complex process entailing several steps and using different equipment. For instance, in the production of laminated labels, converters apply a warm layer of adhesive on a release liner (made from Kraft paper treated with silicone) before marrying it with HWTP. They then die cut the label rolls to the desired label size.⁴² Other non-POS products such as tickets and tags similarly involve multi-step processes before being slit into the various sizes tailored to their relevant end-uses.⁴³ Thus, the production processes and machinery used to produce most LW and HW converted paper are different.⁴⁴ In fact, Iconex, a producer of both LW and HW converted paper, testified that its corresponding POS and non-POS label operations are entirely separate business units

³⁷ Petitioners Comments on Draft Questionnaires at 1-3; Koehler Comments on Draft Questionnaires at 1-2 (stating that the Commission’s decision to collect data and separately evaluate the LWTP and HWTP products accurately reflects the distinction between LWTP, primarily used in POS receipt paper and HWTP, predominantly used for tags, tickets, medical charts and labels); Torraspapel Comments on Draft Questionnaires at 2; Mitsubishi Comments on Draft Questionnaires at 2 (“the primary use for LWTP is for POS applications, while HWTP is generally used for thermal labels, tickets and tags”).

³⁸ A representative of Indoor Media testified that although there might not be an industry definition of LWTP and HWTP, it refers to products “specifically in just the gram weight.” He further testified that “for cash registers, which is what I do, it’s really 48 or 55 gram, and most of the end users would prefer the 48 gram because you can put more footage on a roll and there’s less interruption with them having to change the rolls more often.” Hearing Tr. at 262 (Endsley).

³⁹ CR/PR at Table D-5.

⁴⁰ CR/PR at I-11.

⁴¹ CR/PR at I-10-11; Petitioners Posthearing Br. at Exhibit 7 p.4; Hearing Tr. at 92 (Burns).

⁴² Petitioners Posthearing Br. at Exhibit 7 pp.5-6; Hearing Tr. at 92 (Burns).

⁴³ Petitioners Posthearing Br. at Exhibit 7 pp.6-7.

⁴⁴ Although machinery for POS and non-POS applications may have the capability to convert both LW and HW jumbo rolls, the reality of the thermal paper market, as discussed above, is that the majority of POS production is of LWTP and the majority of non-POS production is of HWTP.

housed in different buildings and using different employees.⁴⁵ In their questionnaire responses, 2 of 5 U.S. producers, 4 of 4 U.S. importers, and 3 of 11 U.S. purchasers reported that the manufacturing processes for these two products were never or only sometimes comparable.⁴⁶

Channels of Distribution. Both LW converted paper and HW converted paper are sold to distributors and end users.⁴⁷ Petitioners state that LW converted paper is ultimately sold to retailers, while HW converted paper is typically sold to large producers of tickets, tags, and labels.⁴⁸ While the majority of U.S. producers (4 of 5) and purchasers (11 of 12) reported that the channels of distribution for both products were fully or mostly comparable, all importers (5 of 5) reported that the products were somewhat or never comparable with respect to channels of distribution.⁴⁹

Interchangeability. There is limited interchangeability between LW converted paper and HW converted paper. Respondents maintain that thermal paper with weights both above and below 70 gsm are interchangeable because they are used for POS end uses as well as for non-POS applications such as labels, tickets, and tags.⁵⁰ As discussed, although thermal paper greater than 70 gsm can be used for POS applications,⁵¹ converters reported that the vast majority of jumbo rolls processed using their slitter machinery were of LWTP.⁵² The record further indicates that thermal paper used for labels is typically sold in basis ranges of 70 to 85 gsm, and thermal paper used in ticket and tag applications is typically sold in basis ranges of 80

⁴⁵ Hearing Tr. at 91 (Burns).

⁴⁶ CR/PR at Table D-5.

⁴⁷ CR/PR at Table II-1; *** U.S. Producer Questionnaire Response at V-6; *** U.S. Producer Questionnaire Response at V-6; *** U.S. Producer Questionnaire Response at V-6; *** U.S. Producer Questionnaire Response at V-6; *** U.S. Producer Questionnaire Response at V-6; *** U.S. Producer Questionnaire Response at V-6.

⁴⁸ Petitioners Posthearing Br. at Responses to Questions p.17.

⁴⁹ CR/PR at Table D-5. U.S. importers indicated that ***. CR/PR at D-25.

⁵⁰ Hansol Posthearing Br. at Appendix p.9; Koehler Posthearing Br. at Responses to Questions p.3.

⁵¹ CR/PR at I-9 (“Thermal paper used in POS applications tends to be in basis weight ranges of 44 to 75 gsm”); Hearing Tr. at 55 (Rapier), 57 (Burns), 157-158 (Hefner).

⁵² A representative for Iconex, one of the largest converters, testified that “93 to 95 percent of all of {its} product that {it} does convert {in its POS division} is in the 48-gram basis weight,” and that it has “minimal sales in the 80-gram” weight. Hearing Tr. at 157 (Burns). Indoor Media, a POS converter that testified on behalf of respondents, reported that it converted mostly LW jumbo rolls on its slitting machinery. Hearing Tr. at 178-179 (Endsley); *** U.S. Producer Questionnaire Response at V-4a. Other converters of both LW and HW jumbo rolls similarly reported that they converted mostly LW jumbo rolls on their slitting machinery. *** U.S. Producer Questionnaire Response at V-4a; and *** U.S. Producer Questionnaire Response at V-4a.

facilities and processes and are priced differently, with HW converted paper being priced higher compared to LW converted paper due to its additional processing and higher costs. On balance, I find that the record does not support expansion of the definition of the domestic like product to include out-of-scope HW converted paper.

Based on the foregoing, I define a single domestic like product, coextensive with the scope. As we do here, the Commission frequently faces investigations involving a scope that includes less than all products along a continuum. But the Commission has not automatically equated a continuum with an unworkable, blurry line – and it has previously recognized that the analysis when considering whether to *expand* the definition beyond the scope is different from the analysis of whether to *divide* products included in the scope into separate like products.⁵⁸

Treating the continuum and dividing line questions differently for expansion versus division cases may appear inconsistent but it is not. What is consistent is that the scope anchors the Commission’s domestic like product analysis: the Commission starts with the scope – and stays with the scope – unless the lines are too blurry (in expansion cases) or too clear (in division cases).

A decision to include HW and LW jumbo rolls, but only LW converted rolls, may feel inconsistent, illogical, or, as respondents have argued, “gerrymandered.” Congress, however, requires the Commission to start its analysis of the domestic like product and, in turn, the domestic industry, with the scope, not with some preconceived notion of what industries exist in the United States (such as those classified in the North American Industry Classification system), nor with what may appear to be the most logically consistent definition. The scope is the anchor. While in this case respondents have argued that this will result in “gerrymandering,” that concern is better expressed to the Department of Commerce, not the Commission, although I doubt the respondents would argue that the scope should be expanded in the interest of consistency.^{59 60}

⁵⁸ *Certain Aluminum Plate from South Africa*, Inv. No. 731-TA-1056 (Preliminary) USITC Pub. 3654 at n.59 (December 2003) (declining to expand the domestic like product beyond the scope (plate) to include aluminum products that are less than 0.250 inch thick (sheet)); *see also Small Diameter Graphite Electrodes from China*, Inv. 731-TA-1143 (Final) USITC Pub. 4062 (February 2009) at n.50 (declining to expand the domestic like product beyond the scope to include graphite electrode of more than 400 millimeters).

⁵⁹ A more consistent and less “gerrymandered” scope (*i.e.*, one that is expanded to include HW converted paper) would likely result in the application of additional import duties on products for which the Petitioners did not seek relief.

⁶⁰ 19 U.S.C. § 1677(10). The Commission must accept Commerce’s determination as to the

The subject imported merchandise in these investigations consists of jumbo rolls of thermal paper in all weights and LW converted rolls. In my view, the question of what constitutes the “like” domestic product is an easier one to answer when the imported product is the exact same product: jumbo rolls of thermal paper in all weights and LW converted paper. Based on the evidence in the final phase of these investigations, I see no reason or need to expand the definition to include products not covered by the scope.

II. Domestic Industry

These investigations raise two issues concerning the domestic industry: (1) whether appropriate circumstances exist to exclude any firms from the domestic industry pursuant to the statutory related parties provision; and (2) whether U.S. converters of LWTP engaged in sufficient production related activities to be considered domestic producers.⁶¹ The two issues are closely related to one another and together raise a more fundamental question: whether downstream producers (converters), which rely heavily on and may benefit substantially from unfairly traded subject imports as the most important input in their production process, should be included in the definition of the industry.

In my view, by considering separately, and mechanically applying, our traditional two tests (“related parties” and “sufficient production related activities”), we may not sufficiently address that fundamental question.

scope of the imported merchandise that is subsidized and/or sold at less than fair value. *See, e.g., USEC, Inc. v. United States*, 34 Fed. App’x 725, 730 (Fed. Cir. 2002) (“The ITC may not modify the class or kind of imported merchandise examined by Commerce.”); *Algoma Steel Corp. v. United States*, 688 F. Supp. 639, 644 (Ct. Int’l Trade 1988), *aff’d*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

⁶¹ In light of my domestic like product finding, I evaluate this consideration only for converters of LWTP.

A. Related Parties

The purpose of excluding “related parties” is to minimize any distortion in the aggregate data related to the condition of the domestic industry that might result from including related parties whose operations are shielded from the adverse effects of the subject imports.^{62 63}

In my view, these investigations reveal what might be described as a loophole, either in the law or in our practice, that is inconsistent with that purpose: in appropriate circumstances, the Commission excludes a domestic producer from the industry if that producer *directly imports* the subject merchandise, or if it *directly or indirectly controls* an importer, but it has not excluded a domestic producer that *indirectly imports* the subject merchandise (*i.e.*, that purchases unfairly traded subject imports from importers it does not directly or indirectly control).⁶⁴

In these investigations, in the aggregate, domestic converters purchased massive quantities of unfairly traded imports (jumbo rolls) from many different importers during the POI, and those unfairly traded imports accounted for most of the converters’ raw material costs and the largest component of overall COGS. The quantities purchased from each *individual* importer were generally too small to suggest the domestic producer exercised control over any importer. But, taken together, those producers may have been not only *shielded* from the

⁶² *Allied Mineral Products, Inc. v. United States*, F. Supp. 2d, Slip Op. 04-139 at 5 (Ct. Int’l Trade Nov. 12, 2004); *USEC, Inc. v. United States*, 132 F. Supp. 2d 1, 12 (Ct. Int’l Trade 2001), *aff’d* Slip Op. 01-1421 (Fed. Cir. April 22, 2002); *Torrington Co. v. United States*, 790 F. Supp. 1161, 1168 (Ct. Int’l Trade 1992), *aff’d*, 991 F. 2d 809 (Fed. Cir. 1993); *Empire Plow Co. v. United States*, 675 F. Supp. 1348, 1353-54 (Ct. Int’l Trade 1987). In some cases, including those involving downstream producers, a producer may not only be “shielded from” the adverse effects, it may *benefit from* the unfairly traded subject imports.

⁶³ The record indicates that domestic producer *** is subject to exclusion as a related party because its affiliate, ***, a producer of thermal paper in Germany, appears to have exported a small amount of thermal paper in a single sale to an unrelated purchaser in the United States in 2019. For the reasons stated in the majority Views, I find that appropriate circumstances did not exist to exclude *** from the domestic industry as a related party.

⁶⁴ The Act states that a producer of the domestic like product that “is also an importer of the subject merchandise” may be excluded from the industry in appropriate circumstances. 19 U.S.C. § 1677(4)(B). The Statement of Administrative Action to the Uruguay Round Agreements Act notes that while the term “importer” is not expressly defined in the statute, the Commission “will apply a sufficiently broad definition to encompass domestic producers who are not formally importers of record.” URAA SAA at 187-88 (H. Rep. 316, 103rd Cong., 2nd Sess., Vol. 1 at 857-58). According to the statute, “a party shall be considered to directly or indirectly control another party if the party is legally or operationally in a position to exercise restraint or direction over the other party.” 19 U.S.C. § 1677(4)(B).

adverse effects of subject imports, but also may have *benefitted* from those unfairly traded imports.

Table III-19 illustrates the issue. For example, U.S. converter *** purchased *** short tons of subject import jumbo rolls and *** short tons of domestically produced jumbo rolls in 2020. It *** the petition. U.S. converter *** purchased *** short tons of subject import jumbo rolls and only *** short tons of domestically produced jumbo rolls in 2020. It *** the petition. That year (and over the POI generally), each firm’s COGS to net sales ratio was substantially lower than that of LW jumbo roll producers.⁶⁵ In addition, their operating income and net income margins were higher than that of LW jumbo roll producers.⁶⁶ And while LW jumbo roll producers suffered substantial *** in 2019 and 2020, ***’s operating and net income rose over the POI.⁶⁷ *** operating and net income declined over the POI, but unlike LW jumbo roll producers, it still remained profitable.⁶⁸

Despite these concerns based on the specific facts in these investigations, I decline to exclude any converter from the domestic industry – but, in any event, excluding them would have only made an affirmative determination even clearer.⁶⁹ These thorny legal and factual

⁶⁵ While the average COGS to net sales ratio of LW jumbo producers was *** percent in 2018, *** percent in 2019, and *** percent in 2020, *** COGS to net sales ratio of *** percent in 2018, *** percent in 2019, and *** percent in 2020. Also lower was *** COGS to net sales ratio at *** percent in 2018, *** percent in 2019, and *** percent in 2020. CR/PR at Table VI-3. These U.S. converters’ lower COGS to net sales ratios are consistent with their substantial purchases of subject jumbo rolls that significantly undersold the domestically produced product.

⁶⁶ LW jumbo roll producers’ operating income as a share of net sales was *** percent in 2018 and *** percent in 2019 and 2020; their net income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020. CR/PR at Table VI-3. *** operating income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020; its operating income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020. ***’s operating income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020; its net income as a share of net sales was *** percent in 2018, *** percent in 2019, and *** percent in 2020. *See id.*

⁶⁷ CR/PR at Table VI-3.

⁶⁸ CR/PR at Table VI-3.

⁶⁹ In considering whether a domestic producer that purchases subject imports is subject to the related party provision, the Commission has first considered if the producer purchases a “predominant proportion” of an importer’s subject merchandise. I can envision some circumstances in which control is exercised over an importer based on less than a predominant share of that importer’s imports. In this case, with the exception of ***, I concur with the majority Views that the record in these investigations do not demonstrate that any domestic converters qualify as a related party. With respect to ***, the record shows that it accounted for *** percent of *** subject imports from Japan in 2020, which I find is sufficiently large for it to qualify as a related party. *See* *** U.S. producer questionnaire at II-21b and II-22b; *** U.S. importer questionnaire at II-8a. The record further shows, however, that the volume of

issues were not fully addressed by the parties in this case. Petitioners take no position regarding whether converters of LW jumbo rolls should be excluded from the domestic industry due to their purchases of subject imports.⁷⁰ Respondents Hansol and Koehler argue the domestic industry should include those converters.⁷¹ Instead of excluding any converter from the domestic industry in these investigations, I have considered the impact of subject imports on the segment of the industry that produces jumbo rolls (as that large segment competes most directly with the subject imports) as part of my causation analysis.

B. Sufficient Production-Related Activities

Applying the traditional six-factor sufficient production-related activities test,⁷² I find that, on balance, U.S. converters of LWTP engaged in sufficient domestic production.⁷³ In doing so, I observe that none of the six factors we traditionally apply to determine the sufficiency of a firm's production activities explicitly or directly address the extent to which the firm relies upon or benefits from subject imports as inputs in its production process. While we consider the "quantity and type of parts sourced in the United States" and the "value added to the product

*** imports ***. Specifically, *** imported *** short tons of jumbo rolls in 2018 (equivalent to *** percent of *** domestic production), *** short tons in 2019 (equivalent to *** percent of *** domestic production), *** short tons in 2020 (equivalent to *** percent of *** domestic production), and *** short tons in interim 2021 (equivalent to *** percent of *** domestic production). *** U.S. Producer Questionnaire Response at II-21b & II-22b. In addition, *** supports the petitions and made ***, stating that ***. *** U.S. Producer Questionnaire Response at II-20a, III-11h. It was the fourth largest LW converter in 2020, accounting for *** percent of reported LW converted paper production that year. CR/PR at Table III-1. I find that the foregoing considerations indicate that *** primary interest appears to be in domestic production. Consequently, appropriate circumstances do not exist to exclude *** from the domestic industry.

⁷⁰ Petitioners' Posthearing Br. at Exh. 1 at 22.

⁷¹ Hansol's Prehearing Br. At 11-13; Koehler's Posthearing Br., Exh. 1 at 7-8.

⁷² The Commission generally considers six factors: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product. No single factor is determinative and the Commission may consider any other factors it deems relevant in light of the specific facts of any investigation. *Crystalline Silica Photovoltaic Cells and Modules from China*, Inv. Nos. 701-TA-481 and 731-TA-1190 (Final), USITC Pub. 4360 at 12-13 (Nov. 2012).

⁷³ Specifically, the record showed that U.S. converters made considerable capital investments and employed a sizable number of workers. CR/PR at Tables VI-10, III-6. Although the value added appears to be modest and there was some disagreement in terms of the complexity of the conversion process and the technical expertise required, conversion was an essential step in the production process prior to the product being sold to the end user. CR/PR at Tables III-4, III-6.

in the United States,” those factors are agnostic as to whether parts and value added outside the United States are imports subject to the same investigation.

In this particular case, taken as a whole, converters purchased far more subject imports than domestically produced jumbo rolls. Subject jumbo rolls constituted more than *** of converters’ total raw material costs,⁷⁴ and raw material costs were the largest single component of COGS, accounting for at least *** percent of converters’ total COGS.⁷⁵

C. Conclusion

For the foregoing reasons, and based on my definition of the domestic like product, I define a single domestic industry consisting of all domestic producers of LW jumbo rolls, HW jumbo rolls, and LW converted paper. Notwithstanding my finding above that U.S. converters of LWTP engaged in domestic production and my inclusion of all LWTP converters in the definition of the domestic industry, I note that during the POI, these firms relied heavily upon purchases of subject jumbo rolls rather than domestically produced jumbo rolls for their conversion operations.⁷⁶ In fact, as discussed above, some converters of LWTP – *** – purchased almost exclusively subject jumbo rolls in certain years of the POI.⁷⁷ Given this, and in light of the fact that the vast majority of subject imports from all sources were of jumbo rolls, with *** imported from ***,⁷⁸ jumbo producers experienced more direct competition and experienced the injurious effects of subject imports to a greater degree than did converters of LWTP. Under these circumstances and as reflected in the majority Views, I find it important, while considering the domestic industry as a whole, to examine how subject imports impacted the jumbo roll segment in rendering a determination on whether an industry is materially injured or threatened with material injury by reason of the imports under investigation.

These thorny legal and factual issues did not invite a great deal of debate by the parties because these issues were not outcome determinative in these investigations. But, in my view, it is important to continue to think about and discuss them before we reach an investigation in which they do determine the outcome, and that is my purpose in writing these Views. Specifically, as we separately apply the six-factor and semi-finished product analyses, interpret related-party provisions, and consider what production-related activities are sufficient, we should ensure that congressional intent is not lost along the way.

⁷⁴ CR/PR at Table VI-8.

⁷⁵ CR/PR at Table O-3.

⁷⁶ CR/PR at Table III-19.

⁷⁷ CR/PR at Table III-19

⁷⁸ CR/PR at IV-5 n.6.

Part I: Introduction

Background

These investigations result from petitions filed with the U.S. Department of Commerce (“Commerce”) and the U.S. International Trade Commission (“USITC” or “Commission”) by Appvion Operations, Inc. (Appleton, Wisconsin), and Domtar Corporation (Fort Mill, South Carolina) on October 7, 2020, alleging that an industry in the United States is materially injured and threatened with material injury by reason of less-than-fair-value (“LTFV”) imports of thermal paper¹ from Germany, Japan, Korea, and Spain. The following tabulation provides information relating to the background of these investigations.^{2 3}

Table I-1
Thermal paper: Information relating to the background and schedule of this proceeding

Effective date	Action
October 7, 2020	Petitions filed with Commerce and the Commission; institution of Commission investigations (85 FR 65073, October 14, 2020)
October 27, 2020	Commerce’s notice of initiation (85 FR 69580, November 3, 2020)
November 23, 2020	Commission’s preliminary determinations (85 FR 76601, November 30, 2020)
May 12, 2021	Commerce’s preliminary determination (86 FR 26001, 86 FR 26003, 86 FR 26007, and 86 FR 26011, May 12, 2021); scheduling of final phase of Commission investigations (86 FR 30627, June 9, 2021)
September 21, 2021	Commission’s hearing
September 24, 2021	Commerce’s final determinations (86 FR 54152, 86 FR 54157, 86 FR 54154, and 86 FR 54162, September 30, 2021)
October 26, 2021	Commission’s vote
November 15, 2021	Commission’s views

¹ See the section entitled “The subject merchandise” in Part I of this report for a complete description of the merchandise subject in this proceeding.

² Pertinent Federal Register notices are referenced in appendix A, and may be found at the Commission’s website (www.usitc.gov).

³ Appendix B is reserved for the witnesses appearing at the Commission’s hearing.

Statutory criteria

Section 771(7)(B) of the Tariff Act of 1930 (the “Act”) (19 U.S.C. § 1677(7)(B)) provides that in making its determinations of injury to an industry in the United States, the Commission--

shall consider (I) the volume of imports of the subject merchandise, (II) the effect of imports of that merchandise on prices in the United States for domestic like products, and (III) the impact of imports of such merchandise on domestic producers of domestic like products, but only in the context of production operations within the United States; and. . . may consider such other economic factors as are relevant to the determination regarding whether there is material injury by reason of imports.

Section 771(7)(C) of the Act (19 U.S.C. § 1677(7)(C)) further provides that--⁴

In evaluating the volume of imports of merchandise, the Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States is significant. . . .In evaluating the effect of imports of such merchandise on prices, the Commission shall consider whether. . .(I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree. . . . In examining the impact required to be considered under subparagraph (B)(i)(III), the Commission shall evaluate (within the context of the business cycle and conditions of competition that are distinctive to the affected industry) all relevant economic factors which have a bearing on the state of the industry in the United States, including, but not limited to. . . (I) actual and potential decline in output, sales, market share, gross profits, operating profits, net profits, ability to service debt, productivity, return on investments, return on assets, and utilization of capacity, (II) factors affecting domestic prices, (III) actual and potential negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, (IV) actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

⁴ Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.

In addition, Section 771(7)(J) of the Act (19 U.S.C. § 1677(7)(J)) provides that—⁵

(J) EFFECT OF PROFITABILITY.—The Commission may not determine that there is no material injury or threat of material injury to an industry in the United States merely because that industry is profitable or because the performance of that industry has recently improved.

Organization of report

Part I of this report presents information on the subject merchandise, subsidy/dumping margins, and domestic like product. Part II of this report presents information on conditions of competition and other relevant economic factors. Part III presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. Parts IV and V present the volume of subject imports and pricing of domestic and imported products, respectively. Part VI presents information on the financial experience of U.S. producers. Part VII presents the statutory requirements and information obtained for use in the Commission’s consideration of the question of threat of material injury as well as information regarding nonsubject countries. For purposes of this report, “lightweight” thermal paper is defined as thermal paper with a basis weight of 70 grams per square meter, and “heavyweight” thermal paper is defined as thermal paper with a basis weight greater than 70 grams per square meter. Unless otherwise noted, lightweight thermal paper will be denoted as “LW” and heavyweight thermal paper will be denoted as “HW” throughout this report.

Market summary

Thermal paper generally is used to produce point-of-sale (“POS”) receipts, labels, tickets, and tags. The leading U.S. producers of thermal paper are Appvion Operations Inc., Domtar Corporation, and Kanzaki Specialty Papers, Inc., while leading producers of thermal paper outside the United States include Papierfabrik August Koehler SE of Germany, Oji Imaging Media, Nippon Paper Industries, and Mitsubishi Paper Mills Limited of Japan, Hansol Paper Co., Ltd. of Korea, and Torraspapel SA of Spain. Among the leading U.S. importers are *** (Germany), *** (Japan), *** (Korea), and *** (Spain). Leading importers of thermal paper from nonsubject countries include ***.⁶ Purchasers are firms that transform paper

⁵ Amended by PL 114-27 (as signed, June 29, 2015), Trade Preferences Extension Act of 2015.

⁶ Additional information on nonsubject countries can be found in Part VII.

rolls into products such as paper receipts and/or labels; leading purchasers include ***.

Apparent U.S. consumption of all LW thermal paper totaled approximately *** short tons (\$***) in 2020, and apparent U.S. consumption of HW jumbo thermal paper totaled approximately *** short tons (\$***) in 2020. Currently, three firms are known to produce LW and HW jumbo thermal paper in the United States.^{7 8} U.S. producers' U.S. shipments of all LW thermal paper totaled *** short tons (total value of \$***) in 2020, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by total value. U.S. producers' U.S. shipments of HW jumbo thermal paper totaled *** short tons (\$***) in 2020, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. shipments of imports of all LW thermal paper from subject sources totaled *** short tons (\$***) in 2020 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. shipments of imports of HW jumbo thermal paper from subject sources totaled *** short tons (\$***) in 2020 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. imports of all LW thermal paper from nonsubject sources totaled *** short tons (\$***) in 2020 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.⁹ There were no reported U.S. shipments of HW jumbo thermal paper from nonsubject sources.

⁷ See Part III for additional information on U.S. producers of jumbo thermal paper.

⁸ A fourth firm, ***.

⁹ The data used in this discussion can be found in Appendix C, tables C-1 through C-7. Additional information on apparent U.S. consumption of all LW thermal paper and HW jumbo thermal paper can be found in Part IV.

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, tables C-1 through C-7. Except as noted, U.S. industry data are based on questionnaire responses of eleven firms that are believed to account for 50 to 75 percent of U.S. production of thermal paper during 2020. U.S. import data are based on usable questionnaire responses of eleven U.S. importers which are believed to account for the majority of subject imports in 2020.

Previous and related investigations

Certain lightweight (“LW”) thermal paper has been the subject of prior antidumping and countervailing duty investigations in the United States. The prior investigations resulted from petitions filed by Appleton Papers, Inc. (now Appvion, Inc.), on September 19, 2007, alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized imports of certain LW thermal paper from China and less-than-fair-value (“LTFV”) imports of certain LW thermal paper from China and Germany. The Commission determined on November 17, 2008 that a domestic industry was threatened with material injury by reason of subsidized and LTFV imports of certain LW thermal paper from China and LTFV imports of certain LW thermal paper from Germany.¹⁰ Commerce published the countervailing duty order on subject imports of certain LW thermal paper from China on November 24, 2008.¹¹ Commerce published the antidumping duty orders on certain LW thermal paper from China and Germany on November 24, 2008.¹²

Subsequently, Papierfabrik August Koehler AG (“Koehler Germany” or “Koehler”) and Koehler America, Inc. (“Koehler America”), respectively an exporter and importer of certain LW thermal paper from Germany, appealed the Commission’s determination with respect to certain LW thermal paper from Germany to the Court of International Trade (“CIT”). The CIT affirmed the Commission’s determination.¹³ On appeal, the United States Court of Appeals for the Federal Circuit vacated the judgment of the CIT, holding that the Commission improperly failed to consider certain materials Koehler introduced, consisting of a worksheet prepared in the Commerce dumping investigation containing intermediate dumping margin calculations concerning certain types of certain LW thermal paper, including certain LW thermal paper

¹⁰ *Certain Lightweight Thermal Paper from China and Germany, Inv. Nos. 701-TA-451 and 731-TA-1126-1127 (Final)*, USITC Publication 4043, November 2008.

¹¹ 73 FR 70958, November 24, 2008.

¹² 73 FR 70959, November 24, 2008.

¹³ *Papierfabrik August Koehler AG v. United States*, 675 F. Supp. 2d 1172 (Ct. Int’l Trade 2009).

having basis weight of 48 grams per square meter.¹⁴ On June 15, 2011, the CIT remanded the matter to the Commission, and ordered it, inter alia, to take "action consistent with the (Federal Circuit) decision." On July 1, 2011, the Commission gave notice of the court-ordered remand.¹⁵ On remand, the Commission again determined that a domestic industry was threatened with material injury by reason of LTFV imports from Germany.¹⁶

On October 1, 2013, the Commission instituted five-year reviews concerning LW thermal paper from China and Germany.¹⁷ On January 23, 2014, it determined to conduct a full review for each order under review.¹⁸ On January 16, 2015, the Commission determined that revocation of the antidumping duty and countervailing duty orders on lightweight thermal paper from China would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time, and that revocation of the antidumping duty order on lightweight thermal paper from Germany would not be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.¹⁹

¹⁴ *Papierfabrik August Koehler AG v. United States*, 413 F. App'x 227 (Fed. Cir. 2011).

¹⁵ *Certain Lightweight Thermal Paper From Germany; Remand Proceedings*, 76 FR 42137, July 18, 2011.

¹⁶ *Certain Lightweight Thermal Paper from China and Germany, Investigation Nos. 701-TA-451 and 731-TA-1126-1127 (Remand)*, USITC Publication 4334, September 2011.

¹⁷ 78 FR 60313, October 1, 2013.

¹⁸ 79 FR 6218, February 3, 2014.

¹⁹ 80 FR 3252, January 22, 2015. See also *Lightweight Thermal Paper from China and Germany, Investigation Nos. 701-TA-451 and 731-TA-1126-1127 (Review)*, USITC Publication 4511, January 2015.

Nature and extent of sales at LTFV

Sales at LTFV

On September 30, 2021, Commerce published a notice in the Federal Register of its final determinations of sales at LTFV with respect to imports from Germany,²⁰ Japan,²¹ Korea,²² and Spain.²³ Tables I-2 through I-5 present Commerce's dumping margins with respect to imports of thermal paper from Germany, Japan, Korea, and Spain, respectively.

Table I-2

Thermal paper: Commerce's final weighted-average LTFV margins with respect to imports from Germany

Exporter/Producer	Final dumping margin (percent)
Papierfabrik August Koehler SE	2.90
All others	2.90

Source: 86 FR 54152, September 30, 2021.

Table I-3

Thermal paper: Commerce's final weighted-average LTFV margins with respect to imports from Japan

Exporter	Producer	Final dumping margin (percent)
Nippon Paper Industries Co., Ltd.	Nippon Paper Papyrus Co., Ltd.	140.25
All others	All others	135.06

Source: 86 FR 54157, September 30, 2021.

Table I-4

Thermal paper: Commerce's final weighted-average LTFV margins with respect to imports from Korea

Exporter/Producer	Final dumping margin (percent)
Hansol Paper Company	6.19
All others	6.19

Source: 86 FR 54154, September 30, 2021.

²⁰ 86 FR 54152, September 30, 2021.

²¹ 86 FR 54157, September 30, 2021. Nippon Paper Industries ("NPI"), the sole mandatory respondent in the investigation of thermal paper from Japan, withdrew its participation prior to Commerce's verification. Since Commerce was unable to verify the data NPI provided, Commerce applied a dumping margin based on adverse facts available. 86 FR 54158, September 30, 2021.

²² 86 FR 54154, September 30, 2021.

²³ 86 FR 54162, September 30, 2021.

Table I-5

Thermal paper: Commerce’s final weighted-average LTFV margins with respect to imports from Spain

Exporter/Producer	Final dumping margin (percent)
Torraspapel S.A.	41.45
All others	37.07

Source: 86 FR 54162, September 30, 2021.

The subject merchandise

Commerce’s scope

In the current proceeding, Commerce has defined the scope as follows:²⁴

The scope of this investigation covers thermal paper in the form of “jumbo rolls” and certain “converted rolls.” The scope covers jumbo rolls and converted rolls of thermal paper with or without a base coat (typically made of clay, latex, and/or plastic pigments, and/or like materials) on one or both sides; with thermal active coating(s) (typically made of sensitizer, dye, and coreactant, and/or like materials) on one or both sides; with or without a top coat (typically made of pigments, polyvinyl alcohol, and/or like materials), and without an adhesive backing. Jumbo rolls are defined as rolls with an actual width of 4.5 inches or more, an actual weight of 65 pounds or more, and an actual diameter of 20 inches or more (jumbo rolls). All jumbo rolls are included in the scope regardless of the basis weight of the paper. Also included in the scope are “converted rolls” with an actual width of less than 4.5 inches, and with an actual basis weight of 70 grams per square meter (gsm) or less.

The scope of this investigation covers thermal paper that is converted into rolls with an actual width of less than 4.5 inches and with an actual basis weight of 70 gsm or less in third countries from jumbo rolls produced in the subject countries.

²⁴ 86 FR 54152, 86 FR 54157, 86 FR 54154, and 86 FR 54162, September 30, 2021.

Tariff treatment

Based upon the scope set forth by the Department of Commerce, information available to the Commission indicates that the merchandise subject to these investigations is provided for in subheadings 4811.90.80 and 4811.90.90 (statistical reporting numbers 4811.90.8030 and 4811.90.9030) of the Harmonized Tariff Schedule of the United States (“HTS”). The 2020 general rate of duty is free for both subheadings. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

The product

Description and applications

Thermal paper is a paper coated with chemicals (dyes) that react to form images when exposed to heat. Thermal paper can be used in special printers to create an image without ribbons or other consumables (other than the paper itself). When imaging, the thermal paper containing the dye is passed between the thermal print head and the platen roll in the printer. The thermal head consists of tiny heating elements lying side-by-side across the width of the paper. As the paper passes under the head, the computer instructs certain heater elements to heat up. Where the heat is in contact with the paper, the dye is activated to produce an image. Heater elements heat up and cool down each time the paper advances forward, creating a colored or black microdot on the paper. The arrangement of elements and paper movement create flexible graphic images on the thermal paper.

Thermal paper comes in a variety of basis weights measured in grams per square meter (“g/m²” or “gsm”) and in a variety of calipers (thicknesses). It may or may not be top-coated.²⁵

Thermal paper is used to make POS products, such as ATM receipts, coupons, credit card receipts, gas pump receipts, kiosk receipts/output, parking receipts, POS receipts, portable printer receipts, prescription receipts, and retail receipts. Thermal paper used in POS applications tends to be in basis weight ranges of 44 to 75 gsm.

Thermal paper is also used to produce thermal labels. Thermal label paper is generally sold to laminators who apply a self-adhesive material to the back side of the thermal paper to create a sandwich of face stock, liner, and adhesive. Laminators are sometimes referred to as pressure-sensitive adhesive (or “PSA”) coaters. Thermal labels are used in a variety of end uses

²⁵ A top-coat, when applied, is typically made of pigments, polyvinyl alcohol, and/or like materials and is intended to provide environmental protection, an improved surface for press printing, and/or wear protection for the thermal print head.

such as address labels, distribution labels, product labels, pharmaceuticals, warehouse labels, and deli and bakery labels. Thermal label paper is typically sold in basis ranges of 70 to 85 gsm.

Thermal paper is also used to produce a broad variety of tickets and tags, such as tickets for lotteries, casino coinless slot machines, sports betting, parking violations, movie theaters, amusement parks, and ski lifts use thermal paper. Thermal paper is used to make airline tickets/boarding passes, baggage tags, and retail hang tags. It is also used in various medical/healthcare applications, including pharmacy labels, test tube labels, medical charts/records, and prescriptions. Thermal paper used in ticket and tag applications is typically sold in basis ranges of 80 to 220 gsm.

Manufacturing processes

There are four primary stages in the production of thermal paper. The first stage is the production of pulp. The second is the production of base paper, either by the thermal paper manufacturer or by another paper manufacturer. When the thermal paper producer also makes the pulp and/or base paper, it is referred to as an “integrated” producer.²⁶ When the thermal paper producer uses base paper made by another company, it is referred to as a “coater.”

The third stage is coating. The base paper is coated by applying different coating layers to the functional (imaging) sides of the sheet. Raw materials include wet and dry coating components and reels of base paper. Coatings are typically blended in-house from solid and liquid raw materials purchased from outside vendors. Some solid materials require in-house particle size reduction (milling) prior to blending. Once blended, the coatings are delivered to individual coating units on an off-machine coater (“OMC”). The OMC is a continuous process with a revolving turret unwind station that automatically splices one reel to the next at constant speed. Coating is applied to the sheet and dried, in series, such that each subsequent layer is applied on top of the prior coating layer. The sheet is dried in flotation ovens after each coating application. The sheet is then calendered (smoothed) by passing it through a highly pressurized device to control thickness and smoothness. Water or steam is sometimes applied to the back side of the sheet to minimize curl, and the sheet is dried once more before winding onto the reel of the OMC. The reels coming off the thermal coater are then cut to the sizes

²⁶ Domtar is referred to as an integrated producer because the firm produces both the pulp and the base paper to make thermal paper. See Part VI for additional information.

ordered by customers on a slitter/rewinder, to produce “jumbo” rolls.²⁷ Jumbo rolls are then wrapped and sent directly to a customer or to a distribution center prior to final shipment.

The final stage is converting and packaging. Converting entails converting the jumbo rolls into its final form, depending on end-use customer needs. Converters slit the jumbo rolls to the desired width and length and package them for sale to end users.

²⁷ “Jumbo” is the term used by manufacturers of thermal paper for the large rolls that are eventually converted (slit) into smaller rolls used in printing equipment or converted into thermal labels or tickets. Jumbo rolls have average dimensions of 900 mm to 2100 mm wide and 1000 mm to 500 mm in diameter and can weigh as much as 3.5 tons, but this can vary depending on the needs of the converter. Smaller rolls cut from the jumbo rolls are known as “converted,” “finished,” or “slit” rolls.

Domestic like product issues

In the preliminary phase of these investigations, petitioners argued that the Commission should define a single domestic like product that is coextensive with the scope, containing LW and HW jumbo thermal paper and LW converted thermal paper.²⁸ Petitioners argued that all thermal paper as defined by the scope comprise a continuum of products that have similar physical characteristics and end uses, are interchangeable, are sold in the same channels of distribution, share similar customer and producer perceptions, and share common production processes and employees.²⁹ ³⁰ Respondent Koehler contended that, if the Commission were to define a single domestic like product that includes converted lightweight thermal paper, the domestic like product definition should be expanded to include converted heavyweight thermal paper and that the domestic industry should include converters of heavyweight thermal paper.³¹ Koehler argued that, via the Commission's six-factor analysis, Petitioners agreed that thermal paper of all calipers and basis weights constitutes a single like product.³² Koehler further contended that the conversion process between out-of-scope converted heavyweight thermal paper and in-scope converted thermal paper involves the same fundamental processes of cutting and re-winding.³³

For purposes of the preliminary determinations, the Commission defined two domestic like products: one consisting of LW jumbo and converted thermal paper, the second consisting of HW jumbo thermal paper within the scope.³⁴

In the final phase of these investigations, the Commission collected data on lightweight and heavyweight jumbo rolls, lightweight converted rolls, and heavyweight converted rolls. Petitioners argued that lightweight and heavyweight jumbo rolls and lightweight converted rolls as defined by the scope comprise a continuum of products that have similar physical characteristics and end uses, are interchangeable, are sold in the same channels of distribution,

²⁸ Petitioners' postconference brief, pp. 7-8.

²⁹ Petitioners' postconference brief, pp. 9-14.

³⁰ Petitioners further stated that at the staff conference, respondents did not contest the inclusion of heavyweight and lightweight jumbo rolls within the domestic like product. Petitioners' postconference brief, p. 12.

³¹ Petitioners disagreed, and argued that the Commission should reject Koehler's argument that the Commission should expand the domestic like product and associated domestic industry. Petitioners' postconference brief, p. 15.

³² Koehler's postconference brief, Ex. 2, p. 2. *See also* Petition, Vol. I, p. 16.

³³ Koehler's postconference brief, Ex. 2, p. 5.

³⁴ Thermal Paper from Germany, Japan, Korea, and Spain, Inv. Nos. 731-TA-1546-1549 (Preliminary), USITC Publication No. 5141, December 2020 ("Preliminary Publication"), p. 21.

share similar customer and producer perceptions, and share common production processes and employees.³⁵ Respondents Koehler and Torraspapel do not object to the preliminary determination finding of two domestic like products, but maintain that if the Commission were to define a single domestic like product that includes converted lightweight thermal paper, the domestic like product definition should be expanded to include converted heavyweight thermal paper and that the domestic industry should include converters of heavyweight thermal paper.³⁶

U.S. producers', importers', and purchasers' discussions of the comparability of in-scope and out-of-scope converted thermal paper can be found in Appendix D.

³⁵ Petitioners' prehearing brief, pp. 18-26. Petitioners stated that, while there is no clear dividing line between jumbo rolls with a basis weight above or below 70gsm, they argue that there is a very clear dividing line when it comes to converted thermal paper, namely, POS rolls. Petitioners stated that the conversion process for POS rolls is "very simple – the jumbo rolls are simply slit into smaller sizes." Petitioners' prehearing brief, p. 3. In contrast, "rolls that are converted for non-POS applications, such as labels, undergo a much more significant conversion process – often involving multiple complex steps that have no parallel when converting rolls for POS applications." Petitioners' prehearing brief, p. 4. While they acknowledge that there are converted POS rolls that weigh more than 70gsm, petitioners believe that the adopted cutoff of 70gsm and 4.5-inch width captures most POS rolls entering the United States. Petitioners' prehearing brief, p. 13.

³⁶ Koehler's prehearing brief, pp. 5-6 and Torraspapel posthearing brief, pp. 1-3. Hansol similarly argued that the Commission should find that there is one domestic like product, inclusive of heavyweight converted thermal paper, corresponding to one domestic industry. Hansol's prehearing brief, pp. 3-11. Hansol objects to the preliminary phase finding of two domestic like products, and argues that the Commission should define a single domestic like product that includes converted heavyweight paper. Hansol's posthearing brief, pp. 2-3.

Part II: Conditions of competition in the U.S. market

U.S. market characteristics

Thermal paper is a paper coated with special chemicals that, when heated, creates images.¹ Thermal paper is used in thermal printers to form an image without ink, ribbons, or other consumables. The main uses for thermal paper are receipt paper in point of sale (“POS”) applications, shipping labels, labels found in grocery stores, tickets, and medical reporting charts.² Thermal paper is produced in different weights that serve different end-uses.³ Lightweight thermal paper (“LW thermal paper”) is used mainly for POS while heavyweight thermal paper (“HW thermal paper”) is mainly used for labels, tickets, and tags.⁴ Thermal paper rolls are produced as jumbo rolls, which are then slit by converters into smaller rolls.⁵ Most imports of thermal paper are of jumbo rolls. In general, demand for thermal paper follows overall consumption in the economy. However, demand for some types of thermal paper reflects demand in specific parts of the market such as e-commerce and labels.⁶

Thermal paper is also available with different chemical developers,⁷ including with Bisphenol A (“BPA”),⁸ Bisphenol S (“BPS”), BPA-free, phenol free, and BPS-free coatings.

¹ Unless otherwise specified, thermal paper refers to LW jumbo rolls, LW converted rolls, and HW jumbo rolls. LW thermal paper refers to LW jumbo rolls and LW converted rolls.

² Conference transcript, pp. 15-16, 19 (Hodson); pp. 30-31 (Hefner). Hearing transcript, pp. 43-46 (Hodson).

³ Petitioner Kanzaki noted that to a certain degree, different basis weights can be used interchangeably. Hearing transcript, p. 44 (Hefner).

⁴ There is no clear distinction of the basis weights for HW and LW thermal paper, according to petitioners. Petitioners argued that thermal paper is a “continuum of products with a range of physical characteristics” and that “70 gsm is not a bright line physical characteristic that divides any two categories of thermal paper.” In addition, there are no industry standards or definitions for lightweight and heavyweight thermal paper. They added that thermal paper below 70 gsm can be used to make POS receipts as well as medical charts, betting tickets, and transport tickets. Petitioners’ prehearing brief, pp. 17-20.

⁵ Jumbo rolls have average dimensions of 900 mm to 2100 mm wide and 1000 mm to 500 mm in diameter and can weigh as much as 3.5 tons, but this can vary depending on the needs of the converter. See part I for more information.

⁶ Conference transcript, p. 91 (Hefner); p. 92 (Hodson).

⁷ The developer is in the thermal paper coating and once heated allows the image to appear on the paper. Petition, p. 16.

⁸ ***.” Petition exh. I-2, p. 29. See also, Respondent Nippon’s postconference brief, exh. 7.

Apparent U.S. consumption of LW thermal paper decreased during 2018-20. Overall, apparent U.S. consumption of LW thermal paper in 2020 was *** percent lower than in 2018, and was *** percent lower in January-March 2021 than in January-March 2020. However, apparent U.S. consumption of HW jumbo paper was *** percent higher in 2020 than in 2018, and was *** percent lower in January-March 2021 than in January-March 2020.

U.S. purchasers

The Commission received 28 usable questionnaire responses from firms that had purchased thermal paper during January 2018-March 2021.^{9 10} Seventeen of these purchasers are converters, five are distributors, three are end users, and two reported to be “other” users.^{11 12} In general, responding U.S. purchasers were located throughout the contiguous United States. The responding purchasers represented firms in a variety of domestic industries, including retailers such as big box stores and ***, hospitals, and distributors selling to gas stations, grocery stores, restaurant chains, and any other company that requires a label or receipt. The largest responding purchasers of thermal paper include ***.^{13 14}

⁹ The following firms provided purchaser questionnaire responses: ***.

¹⁰ Of the 28 responding purchasers, 21 purchased domestic thermal paper, 14 purchased imports of the subject merchandise from Germany, 8 from Japan, 18 from Korea, 12 from Spain, and 9 purchased from other sources. Multiple purchasers reported purchasing from more than one source, and three purchasers reported purchases from sources unknown.

¹¹ Purchaser *** is a printer, and *** is a ***.

¹² Purchaser *** did not indicate what type of purchaser it is, however, it noted elsewhere in its questionnaire that it supplies gas stations, restaurants, and brick and mortar stores.

¹³ Purchaser *** was unable to report its purchases in short tons. See email from ***. Purchaser *** did not respond to staff's request to provide the quantity of its purchases. See email to ***. Purchaser *** reported the value of its purchases and imports instead of its quantities in short tons. Staff telephone interview with *** (October 4, 2021).

¹⁴ These large purchasers purchased LW and/or HW jumbo rolls. *** was the largest reported purchaser of LW converted thermal paper.

Channels of distribution

U.S. producers sold LW jumbo rolls exclusively to converters, and sold LW converted rolls mainly to distributors with a sizeable portion of sales to end users. Importers mainly sold LW thermal paper from Germany, Japan, and Korea to converters, while imports from Spain were sold to mainly to distributors, as shown in table II-1.¹⁵ U.S. producers and importers of product from Germany, Japan, and Korea sold HW jumbo rolls almost exclusively to converters; imported HW jumbo rolls from Spain were sold mainly to distributors, with some meaningful sales to converters in 2020 (table II-2).

¹⁵ Only one importer (***) reported U.S. shipments of LW converted rolls from any subject country, with *** percent of shipments of LW converted rolls from Korea sold to end users.

Table II-1
LW thermal paper: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
United States LW jumbo	Share to distributors	***	***	***	***	***
United States LW jumbo	Share to converters	***	***	***	***	***
United States LW jumbo	Share to end users	***	***	***	***	***
United States LW converted	Share to distributors	***	***	***	***	***
United States LW converted	Share to converters	***	***	***	***	***
United States LW converted	Share to end users	***	***	***	***	***
Germany	Share to distributors	***	***	***	***	***
Germany	Share to converters	***	***	***	***	***
Germany	Share to end users	***	***	***	***	***
Japan	Share to distributors	***	***	***	***	***
Japan	Share to converters	***	***	***	***	***
Japan	Share to end users	***	***	***	***	***
Korea	Share to distributors	***	***	***	***	***
Korea	Share to converters	***	***	***	***	***
Korea	Share to end users	***	***	***	***	***
Spain	Share to distributors	***	***	***	***	***
Spain	Share to converters	***	***	***	***	***
Spain	Share to end users	***	***	***	***	***
Subject	Share to distributors	***	***	***	***	***
Subject	Share to converters	***	***	***	***	***
Subject	Share to end users	***	***	***	***	***
Nonsubject	Share to distributors	***	***	***	***	***
Nonsubject	Share to converters	***	***	***	***	***
Nonsubject	Share to end users	***	***	***	***	***
All imports	Share to distributors	***	***	***	***	***
All imports	Share to converters	***	***	***	***	***
All imports	Share to end users	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: U.S. lightweight converted double counts shipments of other reporting entities' shipments to converters. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Table II-2
HW jumbo thermal paper: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Source	Channel	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
United States	Share to distributors	***	***	***	***	***
United States	Share to converters	***	***	***	***	***
United States	Share to end users	***	***	***	***	***
Germany	Share to distributors	***	***	***	***	***
Germany	Share to converters	***	***	***	***	***
Germany	Share to end users	***	***	***	***	***
Japan	Share to distributors	***	***	***	***	***
Japan	Share to converters	***	***	***	***	***
Japan	Share to end users	***	***	***	***	***
Korea	Share to distributors	***	***	***	***	***
Korea	Share to converters	***	***	***	***	***
Korea	Share to end users	***	***	***	***	***
Spain	Share to distributors	***	***	***	***	***
Spain	Share to converters	***	***	***	***	***
Spain	Share to end users	***	***	***	***	***
Subject	Share to distributors	***	***	***	***	***
Subject	Share to converters	***	***	***	***	***
Subject	Share to end users	***	***	***	***	***
Nonsubject	Share to distributors	***	***	***	***	***
Nonsubject	Share to converters	***	***	***	***	***
Nonsubject	Share to end users	***	***	***	***	***
All imports	Share to distributors	***	***	***	***	***
All imports	Share to converters	***	***	***	***	***
All imports	Share to end users	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Geographic distribution

U.S. producers and importers reported selling thermal paper to all regions in the contiguous United States (table II-3).¹⁶ For U.S. producers, *** percent of LW thermal paper sales were within 100 miles of their production facility, *** percent were between 101 and 500 miles, and *** percent were between 501 miles and 1,000 miles, and *** percent were over 1,000 miles. Importers sold *** percent of LW thermal paper within 100 miles of their U.S. point of shipment, *** percent between 101 and 500 miles, *** percent between 501 and 1,000, and *** percent over 1,000 miles.¹⁷

¹⁶ U.S. producer Iconex is also ***. Its responses to *** are reported separately throughout this part of the report, unless otherwise indicated.

¹⁷ Firms' shipping distances by product type were calculated by weighting each firm's type of U.S. commercial shipment (LW jumbo, LW converted, HW jumbo) by its reported shipping distance.

Regarding HW jumbo paper, U.S. producers sold *** percent of their HW jumbo sales within 100 miles of their production facility, *** percent between 101 to 500 miles, *** percent between 501 miles and 1,000 miles, and *** percent over 1,000 miles. Importers sold *** percent of their sales of HW jumbo within 100 miles of their U.S. point of shipment, *** percent between 101 and 500 miles, *** percent between 501 miles and 1,000 miles, and *** percent over 1,000 miles.

**Table II-3
Thermal paper: Count of U.S. producers' and U.S. importers' geographic markets**

Region	U.S. producers	Germany	Japan	Korea	Spain	Subject sources
Northeast	10	3	1	1	2	7
Midwest	10	3	1	2	2	8
Southeast	10	3	1	1	2	7
Central Southwest	10	3	1	1	2	7
Mountains	10	3	1	1	2	7
Pacific Coast	10	1	2	1	2	6
Other	6	2	0	1	0	2
All regions (except Other)	10	1	0	1	2	4
Reporting firms	10	4	3	3	2	11

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Other U.S. markets include AK, HI, PR, and VI.

Supply and demand considerations

U.S. supply

Tables II-4 to II-6 provide a summary of the supply factors regarding LW jumbo rolls, LW converted rolls, and HW jumbo rolls, from U.S. producers and from subject country producers. As shown in the tables, no foreign producers from subject countries reported production of LW converted thermal paper.¹⁸ Germany was the largest subject producer of jumbo rolls, Korea was the second largest, and Spain and Japan had smaller capacities and production.¹⁹ All subject countries' LW jumbo roll capacities were greater than their reported capacities of HW jumbo rolls.²⁰ All responding foreign producers and most U.S. producers were able to shift production between LW and HW jumbo rolls.

¹⁸ One importer (***) reported imports of LW converted thermal paper from Korea.

¹⁹ The tables and analyses below incorporate the responses from two German producers, two Japanese producers, one Korean producer, and one Spanish producer.

²⁰ In table II-4 below, the ability to shift production between LW and HW jumbo, and the ability to shift between jumbo and other products includes responses of all producers of LW and HW jumbo rolls. Those factors are only presented in the first table, although the responses for LW jumbo rolls also apply to HW jumbo rolls.

Table II-4**LW jumbo thermal paper: Supply factors that affect the ability to increase shipments to the U.S. market, by country, by period**

Quantity in 1,000 short tons; ratio and share in percent; count is number of “yes” out of total responses

Factor	Measure	United States	Germany	Japan	Korea	Spain	Subject suppliers
Capacity 2018	Quantity	***	***	***	***	***	***
Capacity 2020	Quantity	***	***	***	***	***	***
Capacity utilization 2018	Ratio	***	***	***	***	***	***
Capacity utilization 2020	Ratio	***	***	***	***	***	***
Ending inventories to total shipments 2018	Ratio	***	***	***	***	***	***
Ending inventories to total shipments 2020	Ratio	***	***	***	***	***	***
Home market shipments 2020	Share	***	***	***	***	***	***
Non-US export market shipments 2020	Share	***	***	***	***	***	***
Ability to shift production between LW and HW jumbo	Count	***	***	***	***	***	***
Ability to shift production between jumbo and other products	Count	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responding U.S. producers accounted for virtually all of U.S. production of LW jumbo thermal paper in 2020. Responding foreign producer/exporter firms accounted for virtually all of U.S. imports of LW jumbo thermal paper from Germany, more than 90 percent from Japan, virtually all from Korea, and virtually all from Spain during 2020. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, “Summary Data and Data Sources.”

Note: The three U.S. producers of jumbo rolls (***) all reported that they ***.

Note: ***.

Table II-5
LW converted thermal paper: Supply factors that affect the ability to increase shipments to the U.S. market, by source, by period

Quantity in 1,000 short tons; ratio and share in percent count is number of “yes” out of total responses

Factor	Measure	United States	Subject suppliers
Capacity 2018	Quantity	***	---
Capacity 2020	Quantity	***	---
Capacity utilization 2018	Ratio	***	---
Capacity utilization 2020	Ratio	***	---
Ending inventories to total shipments 2018	Ratio	***	---
Ending inventories to total shipments 2020	Ratio	***	---
Home market shipments 2020	Share	***	---
Non-US export market shipments 2020	Share	***	---
Ability to shift production between LW and HW converted	Count	7 of 7	---
Ability to shift production between converted thermal paper and other products	Count	5 of 7	---

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responding U.S. producers accounted for more than half of U.S. production of LW converted thermal paper in 2020. Responding foreign producer/exporter firms reported no production or exports of converted LW thermal paper and importers reported no imports of converted LW thermal paper from Germany, Japan, or Spain during January 2018 to March 2021. One importer (***) reported *** of imports of LW converted paper from Korea, however, ***. These reported imports are treated as ***. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, “Summary Data and Data Sources.”

Table II-6**HW jumbo thermal paper: Supply factors that affect the ability to increase shipments to the U.S. market, by country, by period**

Quantity in 1,000 short tons; ratio and share in percent

Factor	Measure	United States	Germany	Japan	Korea	Spain	Subject suppliers
Capacity 2018	Quantity	***	***	***	***	***	***
Capacity 2020	Quantity	***	***	***	***	***	***
Capacity utilization 2018	Ratio	***	***	***	***	***	***
Capacity utilization 2020	Ratio	***	***	***	***	***	***
Ending inventories to total shipments 2018	Ratio	***	***	***	***	***	***
Ending inventories to total shipments 2020	Ratio	***	***	***	***	***	***
Home market shipments 2020	Share	***	***	***	***	***	***
Non-US export market shipments 2020	Share	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responding U.S. producers accounted for virtually all of U.S. production of HW thermal paper in 2020. Responding foreign producer/exporter firms accounted for virtually all of U.S. imports of thermal paper from Germany, Japan, Korea, and Spain during 2020. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources."

Note: ***.

Domestic production

Based on available information, U.S. producers of LW and HW jumbo thermal paper have the ability to respond to changes in demand with large changes in the quantity of shipments of U.S.-produced LW and HW thermal paper jumbo rolls to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, the ability to shift some shipments from alternate markets (for HW jumbo rolls) and some ability to shift production to or from alternate products. Factors mitigating responsiveness of supply include limited availability of inventories and limited sales to other markets (particularly for LW jumbo rolls). U.S. producers of LW converted thermal paper have the ability to respond to changes in demand with moderate changes in the quantity of LW converted shipments. The main contributing factors to this degree of responsiveness are available capacity and inventories, and the ability to switch from HW converted products and

other products. Factors mitigating responsiveness of supply include limited sales to other markets.

Capacity utilization fell during 2018-20 for all types of thermal paper. U.S. producers' LW jumbo roll production and capacity declined between 2018 and 2020, but the production decline was greater resulting in a *** percentage point reduction in capacity utilization, with almost all the decline occurring in 2019.²¹ LW converted production declined while capacity increased from 2018-20, resulting in a decline in capacity utilization. Reported foreign export markets included Canada, Mexico, and Europe. HW jumbo roll capacity increased while its production decreased between 2018 and 2020.²² Other products that producers reportedly can produce on the same equipment as thermal paper include tickets, ink jet coated paper, bond paper, and odd sized blanks. U.S. producers reported that thermal paper was designated as an essential service during the COVID-19 pandemic and as a result production was not limited by the COVID-19 pandemic.²³

Sixteen of 23 responding purchasers reported there were changes in the availability of domestically produced thermal paper since January 1, 2018. Two purchasers reported limited availability from Domtar, citing labor constraints (***) and Domtar's unwillingness to take orders since its acquisition of Appvion (***).²⁴ Purchaser *** estimated that U.S. producers can only supply "about 50 percent of U.S. demand", and *** reported that 48 and 55 gram thermal paper was unavailable from Appvion. Other reasons for changes in the availability of domestically produced thermal paper included chemical

²¹ U.S. producer and petitioner Domtar, which began operations in 2020 after purchasing Appvion, noted that it is operating on a "reduced capacity schedule" with "incremental capacity available should {it} staff up and be able to run to those levels." Hearing transcript, pp. 67-68 (Melton). It added that it was operating at about "two-thirds capacity" and that the "pricing in the market simply did not justify ramping up more production that would then be sold at a loss." Petitioners' posthearing brief, exh. 1, pp. 76-77.

²² Respondents disagreed with U.S. producers' reported capacity utilization, asserting that purchasers' statements that they were unable to source from domestic suppliers, even after the leuco dye shortage, are inconsistent with domestic producers' available capacity. Hearing transcript, pp. 236-238 (DeBusk, Dougan). *See also*, Respondent Koehler's prehearing brief, pp. 47-48. Additionally, respondent Koehler noted that domestic producers' capacity utilization calculations were unreasonable due to "unrealistic assumptions about run time and labor supply", amongst other issues. Respondent Koehler's posthearing brief, "Responses to Commissioners' Questions from Papierfabrik August Koehler SE" ("Koehler's responses to Commissioners' questions"), pp. 14-24.

²³ U.S. producers reported that the COVID-19 pandemic caused demand for HW thermal rolls to increase due to increased shipping and deliveries, but retail demand for LW thermal rolls decreased.

²⁴ Petitioner Domtar stated that it had available capacity but its costs were "at a point where taking on incremental volume to win the volume just didn't make sense by lowering {its} price." It also refuted allegations of supply interruptions after acquiring Appvion. Hearing transcript, p. 68 (Melton) and pp. 102-104 (Melton, Hodson).

shortages, including shortages related to leuco dye, reduced production, and availability issues related to COVID.

To the extent there is a shortage of inputs, actual production appears to be limited and producers may be unable to respond to changes in demand with increased production of either LW or HW jumbo rolls.²⁵ Shortages of LW jumbo rolls would also impact domestic production of LW converted paper.

Subject imports from Germany

Based on available information, producers of thermal paper from Germany have the ability to respond to changes in demand with large changes in the quantity of shipments of thermal paper to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity, the availability of some inventories, the ability to shift shipments from alternate markets, and the ability to shift production to or from alternate products.

German producers' capacity utilization decreased for LW and HW jumbo thermal paper. The capacity for LW thermal paper increased, while capacity for HW thermal paper decreased, but production of both LW and HW thermal paper decreased. German producers reported selling to the EU (***) , European countries outside the EU, South and Central America (***) , Asia, and ***. Other products that responding German producers reportedly can produce on the same equipment as thermal paper are ***. ***. ***. ***.

Two purchasers reported that German producers had added capacity since January 1, 2018, and one purchaser reported that German paper availability was not impacted by chemical shortages, unlike other subject countries.²⁶

²⁵ Petitioner Domtar announced that it would increase its production of uncoated freesheet paper which is the base paper for thermal paper. Petitioners' posthearing brief, exh. 1, p. 77.

²⁶ Twelve of 23 purchasers reported there had been changes to the availability of supply from subject countries since January 1, 2018. However, most purchasers did not report changes in individual subject countries' availability of supply.

Subject imports from Japan

Based on the available information, producers of thermal paper from Japan have the ability to respond to changes in demand with large changes in the quantity of shipments of thermal paper to the U.S. market.²⁷ The main contributing factors to this degree of responsiveness of supply are the availability of some unused capacity, the ability to shift shipments from inventories, and the ability to shift production to or from alternate products. Factors mitigating responsiveness of supply include a limited ability to shift shipments from alternate markets.

Japanese producers' LW and HW jumbo roll capacities remained relatively stable, although production decreases in both products led to decreased capacity utilizations. Major export markets for LW and HW thermal paper included ***, and there were no reported barriers to shifting between markets. Other products that responding foreign producers reportedly can produce on the same equipment as thermal paper are ***. *** reported that the factors affecting its ability to shift production to other products include cleaning machinery, time, and cost.²⁸

One purchaser reported a change in the availability of Japanese-produced product, noting that the tariffs have pushed Nippon out of the market.

Subject imports from Korea

Based on available information, the producer of thermal paper from Korea has the ability to respond to changes in demand with large changes in the quantity of shipments of thermal paper to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of some unused capacity, some inventories, ability to shift shipments from alternate markets, and the ability to shift production to or from alternate products.

The Korean producer's capacity utilization decreased for both LW and HW jumbo thermal paper during 2018-20. The capacity for both LW and HW thermal paper increased but production of HW jumbo rolls increased while production of LW jumbo rolls decreased. Major export markets included *** for LW thermal paper and *** for HW thermal paper. The responding Korean producer can also produce ***

²⁷ As noted above, Japanese producer *** responses are from its preliminary phase questionnaire, and *** did not report ***.

²⁸ Japanese producer *** reported that its ***.

on the same equipment as thermal paper. It reported that the leuco dye shortage ***, and COVID-19 caused ***.²⁹

Regarding changes in the availability of product from Korea since January 1, 2018, two purchasers reported that there was additional Korean capacity. One firm reported Korean capacity was curtailed because of a shortage of certain chemicals.

Subject imports from Spain

Based on available information, the producer of thermal paper from Spain has the ability to respond to changes in demand with large changes in the quantity of shipments of thermal paper to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity,³⁰ some ability to shift shipments from alternate markets, and some ability to shift production to or from alternate products. Factors mitigating responsiveness of supply include limited availability of inventories.

The Spanish producer's capacity to produce thermal paper increased from 2018 to 2020, while production decreased; both of these changes led to reduced capacity utilization.³¹ Major export markets included ***. The responding foreign producer can reportedly produce *** on the same equipment as thermal paper. *** reported ***.

Regarding changes in the availability of product from Spain since January 1, 2018, two purchasers (***) reported that there was additional Spanish capacity. One purchaser reported Spanish production was curtailed due to the lack of certain chemicals.

29 ***.

30 ***.

31 ***.

Imports from nonsubject sources

Nonsubject imports accounted for less than 1 percent of total U.S. imports of thermal paper in 2020. The largest sources of nonsubject imports during January 2018-March 2021 were Canada, Mexico and Malaysia.³² Combined, these countries accounted for over 50 percent of nonsubject imports in 2020 on a value basis.

Supply constraints

Between January 1, 2018 and the filing of the petition on October 7, 2020, all three of the responding U.S. producers reported they had not experienced supply constraints of LW jumbo rolls or HW jumbo rolls. However, six responding U.S. producers reported supply constraints with LW converted paper: four of these reported that there have been shortages because of the leuco dye shortage,³³ three reported allocations, (***) reported that since ***, and one (***) reported it was placed on allocation by the mills.³⁴ U.S. producers *** reported placing customers on allocation and limiting new customers.

Since the filing of the petition, six of 10 responding U.S. producers reported supply constraints of thermal paper. U.S. producers reported supply constraints of imported and domestically produced paper.³⁵ U.S. producer *** reported limited domestic availability and that Nippon (Japan) was a key supplier, while *** reported a general 30 percent shortage of materials. U.S. producer *** reported Domtar was unwilling to supply it with paper.

Between January 1, 2018 and October 7, 2020, the majority of U.S. importers (8 of 10) reported they had experienced supply constraints related to LW jumbo rolls, and most responding importers reported no supply constraints with LW converted (3 of 4) or HW jumbo rolls (3 of 3). Five of the eight importers reporting LW jumbo roll supply constraints reported issues related to the leuco dye shortage.³⁶ Importers *** added there was

³² Petitioners stated that they believe imports from Canada, India, Malaysia, Mexico, Taiwan, and Turkey are converted rolls made from jumbo rolls produced in the subject countries. Petition, p. 13. See also, hearing transcript, p. 58 (Burns).

³³ See Part V for a discussion on the leuco dye shortage and its impact on thermal paper prices.

³⁴ *** did not report whether these were domestic or foreign mills.

³⁵ U.S. producer *** reported that Koehler (Germany) and Hansol (Korea) limited imports during the preliminary phase of these investigations, and it also experienced constraints due to container availability.

³⁶ These included importers of product from Germany, Japan, and Korea.

a shortage of BPS during the fourth quarter of 2018. Other reasons for LW jumbo roll supply constraints included international shipping delays (***), “general tightness” in the market in 2018 and the beginning of 2019 (***), and coating material shortage (***).

Since the filing of the petition, eight of 11 responding importers reported supply constraints of thermal paper. Four importers cited the preliminary tariffs in these investigations, specifically limited availability from Spain (***). Importer *** reported that it has no alternative sourcing besides ***. Five importers reported supply constraints due to shipping delays and global freight/container issues.³⁷

Between January 1, 2018 and the filing of the petition, 11 of 23 responding purchasers reported supply constraints of LW jumbo rolls, while a majority of purchasers did not report supply constraints related to LW converted rolls (12 of 20) or HW jumbo rolls (9 of 12). Purchaser *** reported that Appvion had limited capacity, despite *** being “one of the largest customers” and that Appvion could not meet its demand within the required lead times. Purchasers *** reported constraints from U.S. producer Domtar, with *** reporting that Domtar was not running its coater to full capacity, and Domtar was unable to offer any 48 gsm paper in the last 6 to 12 months. *** also reported that Appvion reduced its allocation to focus on label production. Other purchasers reported supply constraints related to chemical shortages, the leuco dye shortage, and general raw material issues in 2018.

Since the filing of the petition, 12 of 23 responding purchasers reported supply constraints of LW jumbo rolls, and a majority of purchasers reported there were no supply constraints related to LW converted rolls (13 of 19)³⁸ or HW jumbo rolls (9 of 11).^{39 40} Purchaser *** identified LW jumbo roll supply constraints from Nippon (Japan), Torraspapel (Spain), and Domtar (United States); purchaser *** also reported that Domtar does not have production capabilities. Purchaser *** reported that Spanish LW jumbo roll

³⁷ Respondents stated that the price of a cargo shipping container increased from about \$2,500 to a minimum of \$12,000” and that this “caused overall thermal paper prices to increase by about 40 percent between February and October 2021,” noting that these cargo shipping container increases do not impact domestic producers of jumbo rolls. Hearing transcript, p. 180, (Endsley).

³⁸ Purchasers included COVID-19, supply chain issues, and container availability as reasons for LW converted roll supply constraints. Purchaser *** also reported that Appvion requested that *** seek alternative sources of supply.

³⁹ Purchaser ***, the only firm to report a reason for HW jumbo roll supply constraints, reported that ocean transportation costs increased more than 467 percent, and that imported LW converted rolls are “too expensive.”

⁴⁰ Only the purchaser questionnaire requested information on supply constraints since the filing of the petition specifically by type of thermal paper product.

producers will no longer supply the U.S. market due to the preliminary ruling in these investigations, and *** reported that Lecta had reduced import quantities. Purchaser *** also reported the preliminary determinations created “uncertainty for import inventory levels,” and that demand has been increasing since March 2021. Purchaser *** reported that 48 and 55 gram rolls are generally unavailable, and some purchasers reported constraints due to COVID-19 and shipping delays.

New suppliers

Seventeen of 26 purchasers indicated that no new suppliers entered the U.S. market since January 1, 2018.⁴¹

U.S. demand

Based on available information, the overall demand for thermal paper is likely to experience small changes in response to changes in price. The main contributing factors are the lack of substitute products and the small cost share of thermal paper in its ultimate end use transaction (i.e., as a receipt for a transaction or airplane or train ticket).

End uses and cost share

U.S. demand for thermal paper depends on the demand for U.S.-produced downstream products. Reported end uses include POS and ATM receipts, tickets (including lottery and casino tickets), medical recording paper, and labels.

Reported cost shares ranged from 80 to 95 percent for POS and ATM receipts, 74 to 85 percent for tickets, 40 to 60 percent for medical recording paper, and 45 to 75 percent for labels. Although thermal paper accounts for a large share of the cost of the POS paper, tickets, or labels, the cost of these intermediate products in their final use (e.g. receipts, boarding passes, or deli labels) is small relative to the total cost of the transaction in which they are used (e.g. groceries, flights, prepacked food). Thus, changes in the price for thermal paper will have a somewhat limited impact on quantity demanded.

⁴¹ Two purchasers cited Hansol, one reported Mitsubishi, one purchaser reported Lollicup, Thermal King, and Methdic, as new suppliers, and “various foreign countries selling finished product.” One purchaser also reported Umur Basim (a converter) as a new supplier. Two purchasers reported expansion of capacity, one reporting Lecta’s new production facility and Oji Holdings in Brazil, as well as Appvion selling its POS business to Domtar.

Business cycles

Seven of 11 U.S. producers, 5 of 11 importers, and 9 of 25 purchasers indicated that the LW thermal paper market was subject to business cycles or distinct conditions of competition. About half of responding U.S. producers (5 of 11) and some importers (3 of 11) and purchasers (6 of 25) reported that the LW thermal paper is subject to seasonality due to POS retail usage during the holiday season. U.S. producer *** reported that e-commerce is minimizing the seasonality/holiday surge. Most responding U.S. producers (7 of 10), importers (5 of 7) and purchasers (9 of 14) reported there had been changes to the conditions of competition for LW thermal paper since January 1, 2018. Most firms reported changes due to the leuco dye shortage in 2018⁴² and the impact of COVID-19, including the market's adoption of paperless and touchless systems. Importers *** also reported industry consolidation was leading to market uncertainty, specifically Domtar's purchase of Appvion, and Paper Excellence/Asia Pulp and Paper's acquisition of Domtar.⁴³

Most responding U.S. producers (6 of 10), and most importers (6 of 10), and purchasers (16 of 24) reported that the HW jumbo market was not subject to business cycles or distinct conditions of competition.⁴⁴

Demand trends

Demand for thermal paper follows consumption trends in the economy. From 2018-20, real GDP fluctuated, increasing throughout 2018 and parts of 2019, before dropping sharply in the second quarter of 2020 due to the COVID-19 pandemic and associated economic

⁴² U.S. producer *** explained that the leuco dye shortage caused a "30 percent increase in jumbo roll prices which were passed to converters." Once the leuco dye factories reopened, thermal paper supply prices normalized.

⁴³ Importer *** reported that "Domtar is in the process of being sold to Paper Excellence, a foreign company that is de facto controlled by Asia Pulp and Paper" while *** reported that Domtar was being sold to a "foreign paper company that is known within the paper industry to be controlled by Asia Pulp and Paper."

⁴⁴ Some firms reported seasonality in the HW jumbo market, with increased demand during the holiday season. Firms also reported increased demand for labels as a result of an increase in e-commerce. Purchaser *** reported that changing consumer patterns increased demand for labels made with HW thermal paper as most online orders come with shipping label on the package, a label listing the contents of the package, and a return label. It also added that when lottery jackpots are over \$500 million, more lottery tickets are sold, which increases demand for HW thermal paper. Purchaser *** reported that a "domestic supplier" filed for bankruptcy and no "suitable alternative" could be sourced domestically for HW thermal paper.

shutdowns.⁴⁵ ⁴⁶ Real GDP recovered throughout the rest of 2020 and the first quarter of 2021, but was still lower than its peak in the fourth quarter of 2019.

Table II-7

Real gross domestic product: Trillions of chained 2012 dollars, quarterly, seasonally adjusted annual rate, by quarter

Value in billions of chained 2012 dollars

Period	Gross Domestic Product Value
2018 Q1	18,530
2018 Q2	18,654
2018 Q3	18,752
2018 Q4	18,814
2019 Q1	18,950
2019 Q2	19,021
2019 Q3	19,142
2019 Q4	19,254
2020 Q1	19,011
2020 Q2	17,303
2020 Q3	18,597
2020 Q4	18,794
2021 Q1	19,086

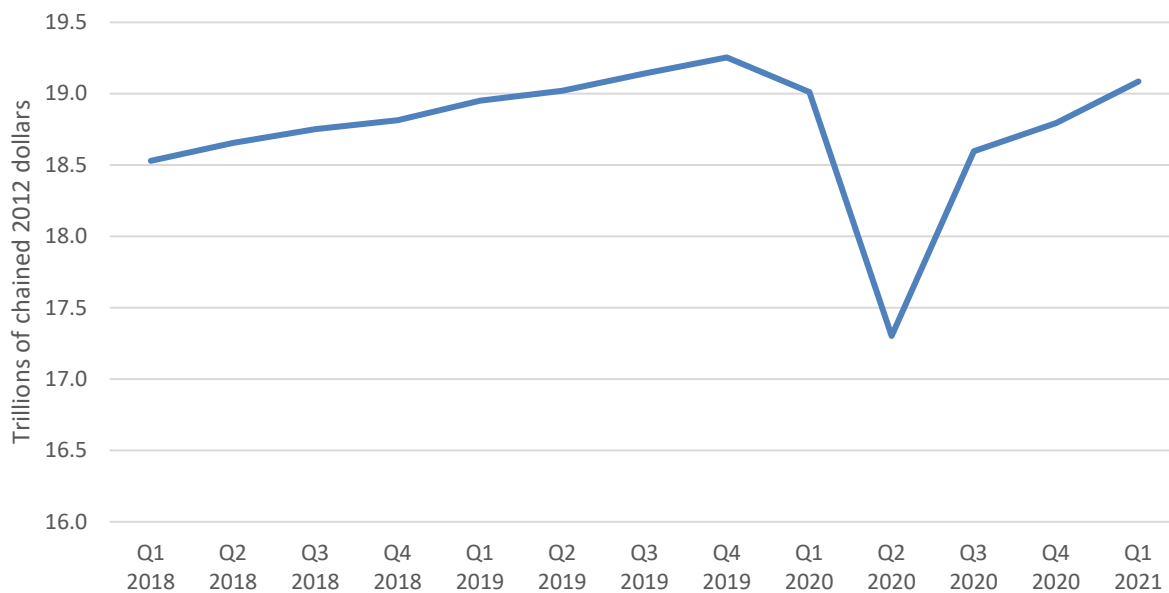
Source: U.S. Bureau of Economic Analysis, Real Gross Domestic Product (GDPC1), retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPC1>, July 8, 2021.

⁴⁵ Real gross domestic product is the inflation adjusted value of the goods and services produced by labor and property located in the United States.

⁴⁶ The National Bureau of Economic Research (“NBER”) reported that the United States entered a recession in February 2020 and the trough of the recession occurred in April 2020, marking the shortest U.S. recession on record. “Determination of the February 2020 Peak in US Economic Activity,” NBER, (June 8, 2020), <https://www.nber.org/news/business-cycle-dating-committee-announcement-june-8-2020>, and “Determination of the April 2020 Trough in U.S. Economic Activity,” NBER, (July 19, 2021), <https://www.nber.org/news/business-cycle-dating-committee-announcement-july-19-2021>.

Figure II-1

Real gross domestic product: Trillions of chained 2012 dollars, quarterly, seasonally adjusted annual rate, Q1 2018-Q1 2021



Source: U.S. Bureau of Economic Analysis, Real Gross Domestic Product (GDPC1), retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPC1>, July 8, 2021.

While demand for thermal paper in general is linked to overall demand trends in the economy, demand for LW thermal paper and HW thermal paper is driven by different demand trends. For LW thermal paper used for POS, the underlying growth in the economy plays an important role and has mitigated some of the negative impact digital receipts have made on demand for thermal paper.⁴⁷ Due to the characteristics of the COVID-19 pandemic on the services sector, demand for certain types of thermal paper decreased. However, demand for shipping labels used in e-commerce, which are typically HW thermal paper, increased.⁴⁸ The widespread adoption of e-receipts and e-tickets would also reduce demand for thermal paper.⁴⁹

A plurality of firms reported an increase in U.S. demand for LW jumbo and HW jumbo rolls since January 1, 2018 (tables II-8-II-10). Most importers reported an increase in U.S. demand for LW converted rolls, but a slight plurality of U.S. producers and purchasers reported a decrease in demand. Most purchasers reported that since January 1, 2018, demand for end

⁴⁷ Conference transcript, p. 52 (Melton).

⁴⁸ Conference transcript, p. 90 (Hefner).

⁴⁹ Petitioner Kanzaki argued that it did not believe that digitization would change the demand for thermal paper, adding that it believes that thermal paper demand will be growing and changing “for the better” in the near term. Hearing transcript, p. 140-141 (Hefner).

use products made from LW jumbo rolls increased or fluctuated, and demand for end use products made from LW converted rolls did not change or fluctuated. Most purchasers reported that demand for end use products made from HW jumbo rolls did not change or fluctuated.

Table II-8
LW jumbo thermal paper: Count of firms' responses regarding overall domestic and foreign demand

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	3	1	2	0
Domestic demand	Importers	4	0	1	2
Domestic demand	Purchasers	6	4	4	2
Foreign demand	U.S. producers	3	2	0	0
Foreign demand	Importers	3	0	0	2
Foreign demand	Purchasers	2	3	0	2
Demand for end use products	Purchasers	3	0	1	3

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-9
LW converted thermal paper: Count of firms' responses regarding overall domestic and foreign demand

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	3	2	4	0
Domestic demand	Importers	2	1	0	2
Domestic demand	Purchasers	5	3	6	2
Foreign demand	U.S. producers	3	2	1	1
Foreign demand	Importers	1	0	0	1
Foreign demand	Purchasers	1	2	3	1
Demand for end use products	Purchasers	2	3	1	3

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-10
HW jumbo thermal paper: Count of firms' responses regarding overall domestic and foreign demand

Market	Firm type	Increase	No change	Decrease	Fluctuate
Domestic demand	U.S. producers	3	2	1	0
Domestic demand	Importers	5	0	0	2
Domestic demand	Purchasers	9	5	3	1
Foreign demand	U.S. producers	3	1	0	0
Foreign demand	Importers	3	0	0	2
Foreign demand	Purchasers	4	2	1	2
Demand for end use products	Purchasers	3	2	0	4

Source: Compiled from data submitted in response to Commission questionnaires.

Firms had mixed responses on the impact of e-commerce on demand for thermal paper. U.S. producer *** reported that the demand for shipping labels increased due to COVID-19 and increased online shopping, while *** reported that e-commerce reduces the need for thermal receipts, estimating a 2 percent rate of decline for demand of all thermal paper. Importer *** reported that the increase in demand for labels for e-commerce have made up for the POS demand declines, leading to an overall increase for thermal paper. Purchasers *** reported that there was overall an increase in package delivery labels for e-commerce. Purchaser *** reported that self-checkout and mobile applications reduced demand for LW converted rolls.

Substitute products

Substitutes for thermal paper are limited. Most U.S. producers (8 of 9) and importers (8 of 10) and purchasers (23 of 26) reported that there were no substitutes.⁵⁰

Substitutability issues

This section will assess the degree to which U.S.-produced thermal paper and imports of thermal paper from subject countries can be substituted for one another by examining the importance of certain purchasing factors and the comparability of thermal paper from domestic and imported sources based on those factors. Based on available data, staff believes that there is a moderate-to-high degree of substitutability between domestically produced thermal paper and thermal paper imported from subject sources of the same product type (i.e., LW jumbo, LW

⁵⁰ Firms reported electronic receipts, bond paper for POS, and thermal transfer paper for labels as substitutes for thermal paper.

converted, HW jumbo).⁵¹ ⁵² Factors contributing to this level of substitutability include similar quality, little preference for particular country of origin or producers, and few differences between domestically produced thermal paper and thermal paper imported from subject countries across multiple purchase factors (with the exception of Spanish thermal paper). Factors reducing substitutability include limited availability of domestic thermal paper, differences in lead times for domestic/subject supply, certain types of thermal paper being available only from subject sources, product meeting supplier certifications, mixed responses regarding interchangeability between thermal paper from domestic and subject sources, and some significant factors other than price that firms consider.

Factors affecting purchasing decisions

Purchaser decisions based on source

As shown in table II-11, most purchasers and their customers sometimes make purchasing decisions based on the producer, while most purchasers and their customers never make purchasing decisions based on the country of origin. Of the 14 purchasers that reported that they sometimes make decisions based on the producer, 8 firms cited quality, other reasons cited include reliability/dependability, price, and lead times.⁵³ Similarly, four of the 11 purchasers reporting that their customers sometimes make decisions based on the producer cited quality, while other firms cited price, availability, and preference for domestic producers. Purchaser *** reported that it prefers to buy domestic product if U.S. producers are competitive with shortened lead times and consistency of deliveries.

⁵¹ There is some evidence, albeit mixed, to suggest that LW jumbo and HW jumbo could be interchangeable, however, this is not the case with LW converted and LW jumbo, or LW converted and HW jumbo thermal paper.

⁵² The degree of substitution between domestic and imported thermal paper depends upon the extent of product differentiation between the domestic and imported products, and reflects how easily purchasers can switch from domestically produced thermal paper to the thermal paper imported from subject countries (or vice versa) when prices change. The degree of substitution may include such factors as relative prices (discounts/rebates), quality differences (e.g., grade standards, defect rates, etc.), and differences in sales conditions (e.g., lead times between order and delivery dates, reliability of supply, product services, etc.).

⁵³ Two of the four purchasers reporting they always purchase thermal paper based on the producer have an exclusive relationship with their supplier; *** reported it “exclusively represents *** on jumbo rolls,” and *** is the exclusive distributor for ***. Purchaser *** reported it only purchases domestically produced product, and *** reported its decision is based on availability.

Table II-11**Thermal paper: Count of purchasing decisions by purchaser or their customer, based on producer and country of origin**

Firm making decision	Decision based on	Always	Usually	Sometimes	Never
Purchaser	Producer	4	2	14	5
Customer	Producer	1	0	11	9
Purchaser	Country	3	1	3	18
Customer	Country	0	2	3	16

Source: Compiled from data submitted in response to Commission questionnaires.

Most responding purchasers (16 of 28) reported that their customers do not have a country preference. Of the 12 purchasers that reported a preference, 5 preferred German product, 5 preferred Korean product, 4 preferred domestic product, 1 preferred Japanese product, and 1 preferred Spanish product.⁵⁴ Purchaser *** reported that the U.S. is the preference, but Hansol (Korea) quality is “top notch and prices are in line with U.S. competitors.” Purchaser *** reported that Hansol (Korea) and Koehler (Germany) have better printing characteristics, and *** noted that it can only source paper from Korea and Japan. Purchaser *** reported it prefers German thermal paper for its quality and performance on its equipment. *** also noted that Korean quality resulted in better printing. Firms preferring domestic product reported shorter lead times (***), and a general preference to buy American (***).

Importance of purchasing domestic product

Eighteen responding purchasers reported that most or all of their purchases did not require purchasing U.S.-produced product. None reported that domestic product was required by law, two reported it was required by their customers (for 1 to 85 percent of their purchases), and 2 reported other preferences for domestic product.⁵⁵

Most important purchase factors

The most often cited top three factors firms consider in their purchasing decisions for thermal paper were price/cost (24 firms), quality (23 firms), and availability/supply (18 firms), as shown in table II-12. Quality was the most frequently cited first-most important factor (cited by 13 firms), followed by price/cost (8 firms); price/cost was the most frequently reported second-most important factor (13 firms); and availability/supply was the most frequently reported third-most important factor (9 firms).

⁵⁴ Some firms reported more than one country preference.

⁵⁵ Purchaser *** reported that the approved grade was manufactured by a domestic thermal mill. *** did not report its reason for preferring domestic product.

Table II-12
Thermal paper: Count of ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Factor	First	Second	Third	Total
Price / Cost	8	13	3	24
Quality	13	7	3	23
Availability / Supply	5	4	9	18
All other factors	2	3	11	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Other factors include financial stability, the ability to match application requirements, lead time, service, willingness to sell long term, commitment to the U.S. market, and customer service.

Purchasers had mixed responses regarding the importance of price as a factor in purchasing. Most purchasers reported that they usually (10 of 23) or sometimes (10) purchase the lowest-priced LW jumbo paper.⁵⁶ Eight of 17 responding purchasers reported they never buy the lowest priced LW converted paper, while 6 purchasers reported they usually do so. Most purchasers sometimes (9 of 22) or usually (8) purchase the lowest-priced HW jumbo paper.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 17 factors in their purchasing decisions (table II-13). The factors rated as very important by more than half of responding purchasers were product consistency (all responding 26 firms), availability, reliability of supply (25 each), price, quality meets industry standard (24 each), delivery time (23), availability of BPA-free paper (19), delivery terms, and discounts offered (14 each).

⁵⁶ Three firms reported they never purchase the lowest priced LW jumbo paper, 1 reported it always and 2 reported it sometimes purchased the lowest priced LW converted paper, and 4 firms reported they never purchase the cheapest HW jumbo paper.

Table II-13
Thermal paper: Count of importance of purchase factors, as reported by U.S. purchasers, by factor

Factor	Very important	Somewhat important	Not important
Availability	25	1	0
Availability of BPA-free paper	19	4	2
Availability of phenol-free paper	7	12	7
Delivery terms	14	12	1
Delivery time	23	3	0
Discounts offered	14	9	3
Minimum quantity requirements	9	11	6
Packaging	7	14	5
Payment terms	11	11	4
Price	24	2	0
Product consistency	26	0	0
Product range	7	15	4
Quality meets industry standards	24	2	0
Quality exceeds industry standards	10	11	4
Reliability of supply	25	1	0
Technical support/service	10	14	2
U.S. transportation costs	10	16	1

Source: Compiled from data submitted in response to Commission questionnaires.

Lead times

U.S. producers and importers both reported primarily selling from inventories, but U.S. producers reported a much larger share of LW thermal sales were produced-to-order. U.S. producers reported that *** percent of LW thermal paper was sold from inventories, with an average lead time of *** days, and *** percent of sales were produced-to-order, with an average lead time of *** days. U.S. producers reported that *** percent of HW jumbo was sold from inventories, with an average lead time of *** days, and the *** percent of HW jumbo produced-to-order had an average lead time of *** days.

Importers reported that *** percent of LW thermal sales were from U.S. inventories, with an average lead times of *** days, and *** percent were produced-to-order with an average lead time of *** days. Regarding HW jumbo sales, importers reported *** percent were from U.S. inventories with an average lead time of *** days, and *** percent of produced-to-order sales with an average lead time of *** days.^{57 58}

⁵⁷ No importers reported selling thermal paper from foreign inventories.

⁵⁸ Firms' lead times by product type were calculated by using the firms reported lead times for all scope product and then weighting by the reported quantities of U.S. commercial shipments by product type (LW jumbo, LW converted, HW jumbo) to derive the individual by product type percentages.

Supplier certification

Sixteen of 26 responding purchasers require their suppliers to become certified or qualified to sell thermal paper to their firm. Most purchasers reported that the time to qualify a new supplier ranged from 30 to 90 days, with three firms (***) reporting one year to qualify a supplier.⁵⁹ The firms reporting 30-90 days for certifying a supplier reported they ask for samples, have internal and customer trials, test prints for print quality, rely on ISO certifications, and review suppliers' reputation and financial health. The three purchasers requiring a one-year supplier certification reported they use more extensive testing and evaluation. *** reported that its supplier certification process includes **. ** reported that it looks for quality, reliability, and performance of the paper. *** reported that it uses lab and industrial testing of materials, "overall compliance and responsibility checks," as well as negotiating volumes and prices.

Two purchasers reported that domestic and foreign suppliers had failed in their attempt to qualify thermal paper, or had lost approved status since 2018. Purchaser *** reported that domestic suppliers *** had not passed its qualification process, nor had foreign suppliers **. Purchaser *** reported that Lecta (Spain) had unacceptable quality.

Minimum quality specifications

As can be seen from table II-14, 12 of 25 responding purchasers reported that domestically produced product always met minimum quality specifications. Most, or a plurality of, responding purchasers reported that thermal paper from the following sources always met minimum quality specifications: 11 of 16 for German thermal paper, 11 of 18 for Korean thermal paper, and 5 of 11 for Spanish thermal paper. Most responding purchasers (4 of 6) reported that Japanese thermal product usually met minimum quality specifications.

⁵⁹ *** reported it takes 7 days to certify a new supplier.

Table II-14
Thermal paper: Count of firms' responses regarding suppliers' ability to meet minimum quality specifications, by source

Source of purchases	Always	Usually	Sometimes	Rarely or never
United States	12	9	3	1
Germany	11	4	1	0
Japan	2	4	0	0
Korea	11	6	1	0
Spain	5	4	2	0
All other sources	1	4	0	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Purchasers were asked how often domestically produced or imported thermal paper meets minimum quality specifications for their own or their customers' uses.

Responding purchasers reported factors that determined quality included printability/print and image quality, consistent coating quality, availability of BPA/phenol-free paper, paper properties (strength, color, smoothness), thermal chemistry performance, and ease of converting.

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2018 (table II-15); reasons reported for changes in sourcing included supply availability and adding sources for business continuity. Purchasers reporting decreased purchases from domestic suppliers cited product availability (***)⁶⁰, a desire to have dual sourcing (***), and an overall decrease in demand (***)⁶¹. Reasons for increasing purchases of Korean product included adding a second source (***), and availability of new products (***). Purchaser *** reported it increased purchases from Germany in 2020 due to supply availability and extended terms. Other purchasers did not report reasons for their increased purchases from Germany. Only two purchasers reported their reasons for increasing purchases of Spanish product: *** reported it changed its focus to jumbos, and *** reported a "spot buy on special loads." No firms reported reasons for increasing purchases from Japan.

⁶⁰ *** reported that it cannot buy from domestic producers as they "will not accept order{s}."

⁶¹ Three purchasers (***) did not report reasons for decreasing purchases from domestic producers.

Table II-15
Thermal paper: Count of changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Decreased	Increased	Constant	Fluctuated	Did not purchase
United States	7	3	6	6	3
Germany	2	5	3	4	7
Japan	4	1	1	0	14
Korea	4	9	1	4	4
Spain	3	5	0	3	10
All other sources	3	2	2	1	10
Sources unknown	0	2	0	0	11

Source: Compiled from data submitted in response to Commission questionnaires.

Eighteen of 26 responding purchasers reported that they had not changed suppliers since January 1, 2018. Reasons for changing suppliers included dropping Paper Resources⁶² due to quality issues (***), and adding Hansol because of supply limitations with Appvion (***). Purchaser *** also reported that Domtar will not accept its orders since Domtar’s acquisition of Appvion.

Purchase factor comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing thermal paper produced in the United States, subject countries, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 17 factors (table II-13) for which they were asked to rate the importance.

Most purchasers reported that U.S. thermal paper and thermal paper from Germany and Korea were comparable on all 17 factors. Compared to the key factors rated as “very important” in table II- 13, most purchasers reported that Japanese paper was comparable on most of the factors except availability,⁶³ and availability of BPA-free paper.⁶⁴ A plurality of purchasers ranked domestic producers as inferior compared to thermal paper from Spain regarding product consistency,⁶⁵ availability, price, quality meets industry standards, availability of BPA-free paper, and discounts offered.

⁶² *** also reported that it was paper from Lecta (Spain) which was sold through Paper Resources.

⁶³ Compared to Japanese product, the domestic product was reported as inferior by two purchasers, comparable by one purchaser, and superior by one purchaser.

⁶⁴ Two purchasers reported that domestic product was inferior compared to Japanese product, and one reported it was superior.

⁶⁵ Product consistency was the factor rated as very important by all 26 responding purchasers.

Most purchasers reported that U.S. and nonsubject thermal paper were comparable on most of the 17 factors, although an equal number of purchasers reported that domestic product was comparable or inferior regarding availability of phenol-free paper. Most purchasers reported that German and Korean thermal paper were comparable to thermal paper from nonsubject sources on all factors. One purchaser reported that Japanese product was comparable to nonsubject sources on most factors, except for availability of phenol-free paper.⁶⁶ Most purchasers reported that thermal paper from Spain was comparable to thermal paper from nonsubject sources on most factors, except for availability of phenol-free paper.

⁶⁶ The one purchaser reported that the availability of phenol-free Japanese product was inferior compared to nonsubject sources.

Table II-16**Thermal paper: Count of purchasers' responses comparing U.S.-produced and imported product from Germany**

Factor	Country pair	Superior	Comparable	Inferior
Availability	United States vs. Germany	1	10	4
Availability of BPA-free paper	United States vs. Germany	1	11	1
Availability of phenol-free paper	United States vs. Germany	0	7	5
Delivery terms	United States vs. Germany	2	12	1
Delivery time	United States vs. Germany	3	10	3
Discounts offered	United States vs. Germany	2	9	1
Minimum quantity requirements	United States vs. Germany	1	14	0
Packaging	United States vs. Germany	1	14	0
Payment terms	United States vs. Germany	1	13	1
Price	United States vs. Germany	0	11	4
Product consistency	United States vs. Germany	0	11	4
Product range	United States vs. Germany	4	11	0
Quality meets industry standards	United States vs. Germany	0	15	1
Quality exceeds industry standards	United States vs. Germany	0	12	3
Reliability of supply	United States vs. Germany	0	12	3
Technical support/service	United States vs. Germany	2	13	1
U.S. transportation costs	United States vs. Germany	1	12	1

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-17
Thermal paper: Count of purchasers' responses comparing U.S.-produced and imported product from Japan

Factor	Country pair	Superior	Comparable	Inferior
Availability	United States vs. Japan	1	1	2
Availability of BPA-free paper	United States vs. Japan	1	0	2
Availability of phenol-free paper	United States vs. Japan	1	0	3
Delivery terms	United States vs. Japan	0	3	2
Delivery time	United States vs. Japan	0	2	3
Discounts offered	United States vs. Japan	0	4	1
Minimum quantity requirements	United States vs. Japan	1	4	0
Packaging	United States vs. Japan	0	4	1
Payment terms	United States vs. Japan	0	4	1
Price	United States vs. Japan	2	2	1
Product consistency	United States vs. Japan	0	2	2
Product range	United States vs. Japan	3	2	0
Quality meets industry standards	United States vs. Japan	0	4	1
Quality exceeds industry standards	United States vs. Japan	1	2	2
Reliability of supply	United States vs. Japan	0	3	2
Technical support/service	United States vs. Japan	1	3	1
U.S. transportation costs	United States vs. Japan	1	3	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-18
Thermal paper: Count of purchasers' responses comparing U.S.-produced and imported product from Korea

Factor	Country pair	Superior	Comparable	Inferior
Availability	United States vs. Korea	0	12	4
Availability of BPA-free paper	United States vs. Korea	2	12	1
Availability of phenol-free paper	United States vs. Korea	0	9	4
Delivery terms	United States vs. Korea	0	14	2
Delivery time	United States vs. Korea	2	11	3
Discounts offered	United States vs. Korea	1	11	1
Minimum quantity requirements	United States vs. Korea	1	15	0
Packaging	United States vs. Korea	0	14	2
Payment terms	United States vs. Korea	1	13	2
Price	United States vs. Korea	1	10	4
Product consistency	United States vs. Korea	0	12	3
Product range	United States vs. Korea	4	11	0
Quality meets industry standards	United States vs. Korea	0	15	1
Quality exceeds industry standards	United States vs. Korea	2	11	2
Reliability of supply	United States vs. Korea	0	11	5
Technical support/service	United States vs. Korea	1	14	1
U.S. transportation costs	United States vs. Korea	1	12	1

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-19
Thermal paper: Count of purchasers' responses comparing U.S.-produced and imported product from Spain

Factor	Country pair	Superior	Comparable	Inferior
Availability	United States vs. Spain	1	4	7
Availability of BPA-free paper	United States vs. Spain	3	3	5
Availability of phenol-free paper	United States vs. Spain	4	5	1
Delivery terms	United States vs. Spain	1	6	5
Delivery time	United States vs. Spain	1	5	6
Discounts offered	United States vs. Spain	1	3	6
Minimum quantity requirements	United States vs. Spain	1	6	5
Packaging	United States vs. Spain	0	5	7
Payment terms	United States vs. Spain	0	5	7
Price	United States vs. Spain	1	2	8
Product consistency	United States vs. Spain	1	2	9
Product range	United States vs. Spain	5	3	4
Quality meets industry standards	United States vs. Spain	1	3	8
Quality exceeds industry standards	United States vs. Spain	1	3	8
Reliability of supply	United States vs. Spain	0	5	6
Technical support/service	United States vs. Spain	4	3	5
U.S. transportation costs	United States vs. Spain	1	4	6

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-20**Thermal paper: Count of purchasers' responses comparing U.S.-produced and imported product from nonsubject sources**

Factor	Country pair	Superior	Comparable	Inferior
Availability	US v. Nonsubject	1	7	0
Availability of BPA-free paper	US v. Nonsubject	0	7	0
Availability of phenol-free paper	US v. Nonsubject	2	3	3
Delivery terms	US v. Nonsubject	1	6	1
Delivery time	US v. Nonsubject	3	5	0
Discounts offered	US v. Nonsubject	0	7	0
Minimum quantity requirements	US v. Nonsubject	2	6	0
Packaging	US v. Nonsubject	0	7	1
Payment terms	US v. Nonsubject	1	7	0
Price	US v. Nonsubject	0	5	3
Product consistency	US v. Nonsubject	0	8	0
Product range	US v. Nonsubject	3	4	0
Quality meets industry standards	US v. Nonsubject	0	8	0
Quality exceeds industry standards	US v. Nonsubject	1	6	0
Reliability of supply	US v. Nonsubject	1	7	0
Technical support/service	US v. Nonsubject	0	8	0
U.S. transportation costs	US v. Nonsubject	2	6	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-21

Thermal paper: Count of purchasers' responses comparing imported product from Germany with imported product from nonsubject sources

Factor	Country pair	Superior	Comparable	Inferior
Availability	Germany vs. Nonsubject	1	3	0
Availability of BPA-free paper	Germany vs. Nonsubject	1	3	0
Availability of phenol-free paper	Germany vs. Nonsubject	1	3	0
Delivery terms	Germany vs. Nonsubject	0	4	0
Delivery time	Germany vs. Nonsubject	0	4	0
Discounts offered	Germany vs. Nonsubject	0	2	1
Minimum quantity requirements	Germany vs. Nonsubject	0	5	0
Packaging	Germany vs. Nonsubject	1	3	0
Payment terms	Germany vs. Nonsubject	1	4	0
Price	Germany vs. Nonsubject	0	5	0
Product consistency	Germany vs. Nonsubject	0	4	0
Product range	Germany vs. Nonsubject	0	4	0
Quality meets industry standards	Germany vs. Nonsubject	1	4	0
Quality exceeds industry standards	Germany vs. Nonsubject	0	4	0
Reliability of supply	Germany vs. Nonsubject	1	2	1
Technical support/service	Germany vs. Nonsubject	0	4	0
U.S. transportation costs	Germany vs. Nonsubject	0	4	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-22**Thermal paper: Count of purchasers' responses comparing imported product from Japan with imported product from nonsubject sources**

Factor	Country pair	Superior	Comparable	Inferior
Availability	Japan vs. Nonsubject	0	1	0
Availability of BPA-free paper	Japan vs. Nonsubject	0	1	0
Availability of phenol-free paper	Japan vs. Nonsubject	0	0	1
Delivery terms	Japan vs. Nonsubject	0	1	0
Delivery time	Japan vs. Nonsubject	0	1	0
Discounts offered	Japan vs. Nonsubject	0	1	0
Minimum quantity requirements	Japan vs. Nonsubject	0	1	0
Packaging	Japan vs. Nonsubject	0	1	0
Payment terms	Japan vs. Nonsubject	0	1	0
Price	Japan vs. Nonsubject	0	1	0
Product consistency	Japan vs. Nonsubject	0	1	0
Product range	Japan vs. Nonsubject	0	1	0
Quality meets industry standards	Japan vs. Nonsubject	0	1	0
Quality exceeds industry standards	Japan vs. Nonsubject	0	1	0
Reliability of supply	Japan vs. Nonsubject	0	1	0
Technical support/service	Japan vs. Nonsubject	0	1	0
U.S. transportation costs	Japan vs. Nonsubject	0	1	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-23
Thermal paper: Count of purchasers' responses comparing imported product from Korea with imported product from nonsubject sources

Factor	Country pair	Superior	Comparable	Inferior
Availability	Korea vs. Nonsubject	0	6	1
Availability of BPA-free paper	Korea vs. Nonsubject	0	6	0
Availability of phenol-free paper	Korea vs. Nonsubject	1	3	2
Delivery terms	Korea vs. Nonsubject	1	6	0
Delivery time	Korea vs. Nonsubject	0	5	2
Discounts offered	Korea vs. Nonsubject	0	6	0
Minimum quantity requirements	Korea vs. Nonsubject	0	7	0
Packaging	Korea vs. Nonsubject	0	7	0
Payment terms	Korea vs. Nonsubject	1	6	0
Price	Korea vs. Nonsubject	1	6	0
Product consistency	Korea vs. Nonsubject	1	5	0
Product range	Korea vs. Nonsubject	0	5	1
Quality meets industry standards	Korea vs. Nonsubject	0	7	0
Quality exceeds industry standards	Korea vs. Nonsubject	0	6	0
Reliability of supply	Korea vs. Nonsubject	0	5	1
Technical support/service	Korea vs. Nonsubject	0	7	0
U.S. transportation costs	Korea vs. Nonsubject	0	7	0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Table II-24**Thermal paper: Count of purchasers' responses comparing imported product from Spain with imported product from nonsubject sources**

Factor	Country pair	Superior	Comparable	Inferior
Availability	Spain vs. Nonsubject	0	4	1
Availability of BPA-free paper	Spain vs. Nonsubject	0	5	0
Availability of phenol-free paper	Spain vs. Nonsubject	0	2	3
Delivery terms	Spain vs. Nonsubject	1	4	0
Delivery time	Spain vs. Nonsubject	1	3	1
Discounts offered	Spain vs. Nonsubject	0	4	1
Minimum quantity requirements	Spain vs. Nonsubject	0	5	0
Packaging	Spain vs. Nonsubject	0	4	1
Payment terms	Spain vs. Nonsubject	1	4	0
Price	Spain vs. Nonsubject	0	3	2
Product consistency	Spain vs. Nonsubject	0	3	2
Product range	Spain vs. Nonsubject	0	5	0
Quality meets industry standards	Spain vs. Nonsubject	0	4	1
Quality exceeds industry standards	Spain vs. Nonsubject	0	4	1
Reliability of supply	Spain vs. Nonsubject	1	3	1
Technical support/service	Spain vs. Nonsubject	1	3	1
U.S. transportation costs	Spain vs. Nonsubject	0	4	1

Source: Compiled from data submitted in response to Commission questionnaires.

Note: A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.

Comparison of U.S.-produced and imported thermal paper

In order to determine whether U.S.-produced LW thermal paper can generally be used in the same applications as imports from Germany, Japan, Korea, and Spain, U.S. producers, importers, and purchasers were asked whether LW thermal paper can always, frequently, sometimes, or never be used interchangeably. As shown in tables II-25 to II-27, most U.S. producers reported that domestic and LW thermal paper from each subject source were always interchangeable, while importers and purchasers' responses were mixed. A majority or plurality of importers reported that domestic LW thermal paper and product from Germany and Korea were frequently interchangeable. An equal number of importers reported domestic LW thermal paper was always, frequently, and sometimes interchangeable with Japanese LW thermal paper. An equal number of importers reported that domestic and Spanish LW thermal paper were frequently, and sometimes interchangeable. A plurality of purchasers reported that domestic LW thermal paper was frequently interchangeable with German, Korean, and Spanish product, and sometimes interchangeable with Japanese product.

Table II-25**LW Thermal paper: Count of U.S. producers reporting the interchangeability between LW thermal paper produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	5	3	0	0
United States vs. Japan	4	0	1	0
United States vs. Korea	4	3	1	0
United States vs. Spain	4	2	1	0
Germany vs. Japan	4	1	0	0
Germany vs. Korea	4	3	1	0
Germany vs. Spain	4	2	2	0
Japan vs. Korea	4	0	1	0
Japan vs. Spain	4	0	1	0
Korea vs. Spain	4	2	1	0
United States vs. Other	1	2	2	0
Germany vs. Other	1	2	2	0
Japan vs. Other	1	1	2	0
Korea vs. Other	1	2	2	0
Spain vs. Other	1	1	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-26**LW Thermal paper: Count of importers reporting the interchangeability between LW thermal paper produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	2	4	3	0
United States vs. Japan	3	3	3	0
United States vs. Korea	2	5	1	0
United States vs. Spain	2	3	3	0
Germany vs. Japan	2	5	2	0
Germany vs. Korea	2	4	1	0
Germany vs. Spain	2	4	1	0
Japan vs. Korea	2	5	1	0
Japan vs. Spain	2	5	1	0
Korea vs. Spain	2	4	1	0
United States vs. Other	3	0	2	0
Germany vs. Other	2	0	2	0
Japan vs. Other	2	0	2	0
Korea vs. Other	2	0	2	0
Spain vs. Other	2	0	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-27**LW Thermal paper: Count of purchasers reporting the interchangeability between LW thermal paper produced in the United States and in other countries, by country pair**

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	5	7	5	0
United States vs. Japan	3	3	4	0
United States vs. Korea	5	8	3	1
United States vs. Spain	4	5	4	1
Germany vs. Japan	3	3	1	0
Germany vs. Korea	5	6	2	0
Germany vs. Spain	5	5	2	1
Japan vs. Korea	3	4	0	0
Japan vs. Spain	3	3	2	0
Korea vs. Spain	4	5	3	1
United States vs. Other	2	4	2	0
Germany vs. Other	2	3	1	0
Japan vs. Other	2	1	1	0
Korea vs. Other	2	3	1	0
Spain vs. Other	2	2	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Some importers reported that product availability limits interchangeability between sources of LW thermal paper. Importer *** reported that domestic producers offer a wider range of heavier weight top coated paper, while foreign producer *** supplies a greater range of phenol-free products than domestic producers. Importer *** also reported a difference in phenol-free available products, and that some customers require a supplier to be certified/qualified which limits interchangeability between sources. Purchasers reported quality as a limiting factor for interchangeability of LW thermal paper. Purchaser *** reported that once product from the U.S., Germany, Japan, and Korea are identified as meeting its quality expectations, it does not change suppliers. Purchasers *** also listed quality as a factor in assessing interchangeability. Purchaser *** reported that Spanish suppliers only sell LW thermal paper through an exclusive relationship with a distributor “making its products less competitive.” Respondent Hansol noted that it is “one of the few thermal companies that offers a phenol-free paper” for POS with the same whiteness and “optical qualities” of traditional thermal paper, and that domestic producers do not offer a similar product.⁶⁷

U.S. producers, importers, and purchasers were asked whether HW jumbo thermal paper can always, frequently, sometimes, or never be used interchangeably with HW jumbo thermal paper from Germany, Japan, Korea, and Spain. As seen in tables II-28 to II-30, most U.S. producers reported that domestic HW jumbo rolls were always interchangeable with HW

⁶⁷ Hearing transcript, p. 185 (Han).

jumbo rolls from each subject source. A plurality of importers reported that domestic and German HW thermal paper were sometimes interchangeable, and an equal number reported that domestic, Korean, Japanese, and Spanish HW thermal paper were frequently or sometimes interchangeable. A plurality of purchasers reported that German and Spanish HW jumbo rolls were frequently interchangeable with domestic product. A majority of purchasers reported that Japanese product was sometimes interchangeable and Korean product was frequently interchangeable with domestic HW jumbo rolls.

Table II-28
HW jumbo thermal paper: Count of U.S. producers reporting the interchangeability between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	4	3	0	0
United States vs. Japan	4	2	0	1
United States vs. Korea	4	3	0	0
United States vs. Spain	4	1	0	0
Germany vs. Japan	4	2	0	0
Germany vs. Korea	4	3	0	0
Germany vs. Spain	4	1	0	0
Japan vs. Korea	4	1	0	0
Japan vs. Spain	4	1	0	0
Korea vs. Spain	4	1	0	0
United States vs. Other	1	1	2	0
Germany vs. Other	1	1	2	0
Japan vs. Other	1	1	2	0
Korea vs. Other	1	1	2	0
Spain vs. Other	1	1	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-29

HW jumbo thermal paper: Count of importers reporting the interchangeability between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	1	3	4	0
United States vs. Japan	1	3	3	0
United States vs. Korea	1	3	3	0
United States vs. Spain	1	3	3	0
Germany vs. Japan	1	5	2	0
Germany vs. Korea	1	4	1	0
Germany vs. Spain	1	4	1	0
Japan vs. Korea	1	5	1	0
Japan vs. Spain	1	5	1	0
Korea vs. Spain	1	4	1	0
United States vs. Other	1	0	3	0
Germany vs. Other	1	0	3	0
Japan vs. Other	1	0	2	0
Korea vs. Other	1	0	2	0
Spain vs. Other	1	0	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-30

HW jumbo thermal paper: Count of purchasers reporting the interchangeability between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	3	6	5	1
United States vs. Japan	1	2	4	0
United States vs. Korea	2	9	3	2
United States vs. Spain	1	3	2	2
Germany vs. Japan	1	3	1	0
Germany vs. Korea	1	6	2	1
Germany vs. Spain	1	4	1	1
Japan vs. Korea	1	4	0	0
Japan vs. Spain	1	3	1	0
Korea vs. Spain	1	4	1	1
United States vs. Other	0	4	1	1
Germany vs. Other	0	3	1	1
Japan vs. Other	0	1	1	0
Korea vs. Other	0	3	1	1
Spain vs. Other	0	2	1	1

Source: Compiled from data submitted in response to Commission questionnaires.

Importer *** reported that German and domestically produced HW jumbo rolls are sometimes not interchangeable due to the availability of different thermal developers (BPA, BPS, phenol), and that certain phenol-free grades and specialized HW jumbo rolls are only available from Germany. Purchaser *** reported that direct thermal products are never interchangeable as there are always differences in product performance “somewhere

within the process chain.”⁶⁸ Purchaser *** reported that all sources must meet comparable quality of printing and converting.

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of LW thermal paper from the United States, subject, or nonsubject countries. As seen in tables II-31 to II-33, most U.S. producers reported that non-price differences were never significant between sources of LW thermal paper. Most importers and purchasers noted that non-price differences are at least sometimes significant, although they also reported that non-price differences were always or frequently significant with some domestic-subject country pairings.

Table II-31
LW thermal paper: Count of U.S. producers reporting the significance of differences other than price between LW thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	0	1	0	7
United States vs. Japan	0	0	0	5
United States vs. Korea	0	1	1	6
United States vs. Spain	0	0	1	6
Germany vs. Japan	0	0	0	5
Germany vs. Korea	0	0	2	7
Germany vs. Spain	0	0	0	7
Japan vs. Korea	0	0	0	5
Japan vs. Spain	0	0	0	5
Korea vs. Spain	0	0	0	7
United States vs. Other	0	0	3	1
Germany vs. Other	0	0	3	2
Japan vs. Other	0	0	3	1
Korea vs. Other	0	0	3	2
Spain vs. Other	0	0	3	2

Source: Compiled from data submitted in response to Commission questionnaires.

⁶⁸ Purchasers *** reported the same factors limiting interchangeability for HW jumbo rolls as they provided for LW thermal paper above.

Table II-32

LW thermal paper: Count of importers reporting the significance of differences other than price between LW thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	3	2	2	0
United States vs. Japan	3	1	4	0
United States vs. Korea	3	0	3	0
United States vs. Spain	3	0	3	0
Germany vs. Japan	1	2	2	0
Germany vs. Korea	1	0	3	0
Germany vs. Spain	3	0	3	0
Japan vs. Korea	1	0	4	0
Japan vs. Spain	1	0	4	0
Korea vs. Spain	3	0	3	0
United States vs. Other	1	0	4	0
Germany vs. Other	1	0	3	0
Japan vs. Other	1	0	2	0
Korea vs. Other	1	0	2	0
Spain vs. Other	1	0	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-33

LW thermal paper: Count of purchasers reporting the significance of differences other than price between LW thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	2	5	5	4
United States vs. Japan	1	3	4	1
United States vs. Korea	3	3	7	4
United States vs. Spain	1	2	9	2
Germany vs. Japan	0	2	2	1
Germany vs. Korea	0	1	6	5
Germany vs. Spain	1	2	6	2
Japan vs. Korea	0	1	2	2
Japan vs. Spain	0	1	3	1
Korea vs. Spain	0	2	7	2
United States vs. Other	0	1	6	0
Germany vs. Other	0	1	3	0
Japan vs. Other	0	1	1	0
Korea vs. Other	0	1	4	0
Spain vs. Other	0	2	3	0

Source: Compiled from data submitted in response to Commission questionnaires.

Importers and purchasers reported that significant differences in non-price factors include the availability of phenol-free or developer-free (BPA, BPS) products, lead times, customer service, and product quality. Purchaser *** reported that domestic paper does not meet its print requirements.⁶⁹

Regarding HW jumbo thermal paper, most U.S. producers reported that differences in non-price factors were never significant between sources of HW thermal paper. Most importers were equally split regarding the significance of differences other than price between domestically produced and German HW jumbo rolls, reporting non-price differences as always or frequently significant. A plurality of importers reported that differences in non-price factors were always significant between domestically produced product and HW jumbo rolls from Japan, Korea, and Spain. Purchaser responses were also mixed. A slight plurality of purchasers reported that non-price differences were sometimes significant between domestic and German, Japanese, and Spanish HW jumbo rolls.

Table II-34
HW thermal paper: Count of U.S. producers reporting the significance of differences other than price between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	0	0	0	7
United States vs. Japan	0	0	0	5
United States vs. Korea	0	0	0	7
United States vs. Spain	0	0	0	5
Germany vs. Japan	0	0	0	5
Germany vs. Korea	0	0	0	7
Germany vs. Spain	0	0	0	5
Japan vs. Korea	0	0	0	5
Japan vs. Spain	0	0	0	5
Korea vs. Spain	0	0	0	5
United States vs. Other	0	0	3	1
Germany vs. Other	0	0	3	1
Japan vs. Other	0	0	3	1
Korea vs. Other	0	0	3	1
Spain vs. Other	0	0	3	1

Source: Compiled from data submitted in response to Commission questionnaires.

⁶⁹ *** was the only purchaser to report a significant non-price factor. Purchasers *** provided the same responses that they reported in the interchangeability discussion. Importer *** provided the same non-price explanations in its purchaser response.

Table II-35

HW thermal paper: Count of U.S. importers reporting the significance of differences other than price between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	3	3	1	0
United States vs. Japan	3	2	2	0
United States vs. Korea	3	1	2	0
United States vs. Spain	3	1	2	0
Germany vs. Japan	1	3	1	0
Germany vs. Korea	1	1	2	0
Germany vs. Spain	3	1	2	0
Japan vs. Korea	1	1	3	0
Japan vs. Spain	1	1	3	0
Korea vs. Spain	3	1	2	0
United States vs. Other	1	0	3	0
Germany vs. Other	1	0	3	0
Japan vs. Other	1	0	2	0
Korea vs. Other	1	0	2	0
Spain vs. Other	1	0	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-36

HW thermal paper: Count of U.S. purchasers reporting the significance of differences other than price between HW jumbo thermal paper produced in the United States and in other countries, by country pair

Country pair	Always	Frequently	Sometimes	Never
United States vs. Germany	4	4	5	2
United States vs. Japan	2	2	4	0
United States vs. Korea	5	2	6	2
United States vs. Spain	1	3	4	2
Germany vs. Japan	1	3	1	0
Germany vs. Korea	1	2	5	1
Germany vs. Spain	1	3	3	1
Japan vs. Korea	1	1	2	1
Japan vs. Spain	1	1	2	1
Korea vs. Spain	2	3	3	1
United States vs. Other	1	1	4	0
Germany vs. Other	1	1	3	0
Japan vs. Other	1	1	1	0
Korea vs. Other	1	1	3	0
Spain vs. Other	1	2	2	0

Source: Compiled from data submitted in response to Commission questionnaires.

Most importers and purchasers reported the same significant non-price factors for HW jumbo paper that they listed for LW thermal paper. Importer *** added that changing a heavyweight grade to a new supplier can take trials from “at least two different production lots,” and that “due to the specialized nature of heavyweight paper” it frequently considers

non-price issues. Purchaser *** also reported that certain grades of thermal paper are unavailable.⁷⁰

U.S. producers, importers, and purchasers were also asked whether the different types of thermal paper (LW jumbo, LW converted, HW jumbo and HW converted)⁷¹ could be used interchangeably.⁷² As shown in tables II-37 to II-39, most (or a plurality of) responding firms reported that in-scope product comparisons other than HW jumbo rolls and LW jumbo rolls are never interchangeable with one another. An equal number of U.S. producers reported that HW jumbo and LW jumbo rolls are frequently or never interchangeable, most importers reported they are sometimes interchangeable, and a plurality of purchasers reported they are never interchangeable. Most U.S. producers reported that LW converted and HW converted are frequently or sometimes interchangeable, most importers reported that they are sometimes interchangeable, and most purchasers reported they are never interchangeable.

Table II-37
Thermal paper: Count of U.S. producers reporting the interchangeability of different types of thermal paper, by product pair

Product Comparison	Always	Frequently	Sometimes	Never
HW jumbo vs. LW jumbo	0	3	1	3
HW jumbo vs. LW converted	0	0	3	4
LW jumbo vs. LW converted	0	4	0	3
HW jumbo vs. HW converted	0	2	1	3
LW jumbo vs. HW converted	0	0	4	2
LW converted vs. HW converted	0	3	3	0

Note: HW converted thermal paper is out-of-scope based on Commerce's scope definition.

Source: Compiled from data submitted in response to Commission questionnaires.

⁷⁰ Purchaser *** did not specify any source related to the unavailability of certain grades of product.

⁷¹ HW converted paper is deemed out-of-scope thermal paper.

⁷² For a discussion on firms' responses to the Commission's domestic like product factors and semi-finished product analysis, see appendices D and E.

Table II-38**Thermal paper: Count of importers reporting the interchangeability of different types of thermal paper, by product pair**

Product Comparison	Always	Frequently	Sometimes	Never
HW jumbo vs. LW jumbo	0	0	7	2
HW jumbo vs. LW converted	0	0	0	8
LW jumbo vs. LW converted	1	1	0	8
HW jumbo vs. HW converted	1	1	0	6
LW jumbo vs. HW converted	0	0	0	8
LW converted vs. HW converted	0	0	6	1

Note: HW converted thermal paper is out-of-scope based on Commerce's scope definition.

Source: Compiled from data submitted in response to Commission questionnaires.

Table II-39**Thermal paper: Count of purchasers reporting the interchangeability of different types of thermal paper, by product pair**

Product Comparison	Always	Frequently	Sometimes	Never
HW jumbo vs. LW jumbo	1	2	9	10
HW jumbo vs. LW converted	0	1	2	9
LW jumbo vs. LW converted	1	2	4	5
HW jumbo vs. HW converted	1	1	2	6
LW jumbo vs. HW converted	0	1	2	8
LW converted vs. HW converted	0	1	3	6

Note: HW converted thermal paper is out-of-scope based on Commerce's scope definition.

Source: Compiled from data submitted in response to Commission questionnaires.

Elasticity estimates

This section discusses elasticity estimates; parties were encouraged to comment on these estimates in their prehearing and posthearing briefs. Petitioners and respondents commented on the U.S. supply elasticity, and petitioners commented on the U.S. demand elasticity. No parties commented on the substitution elasticity.

U.S. supply elasticity

The domestic supply elasticity for thermal paper measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of thermal paper. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced thermal paper. Analysis of these factors above indicates that the U.S. industry has the ability to greatly increase or decrease shipments of LW jumbo and HW jumbo paper to the U.S.

market; an estimate in the range of 5 to 7 is suggested.⁷³ Regarding LW converted paper, the U.S. industry has the ability to somewhat increase or decrease shipments of LW converted paper; an estimate in the range of 3 to 5 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for thermal paper measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of thermal paper. This estimate depends on factors discussed above such as the existence, availability, and commercial viability of substitute products, as well as the component share of the thermal paper in the production of any downstream products. Based on the available information, the aggregate demand for thermal paper is likely to be inelastic; a range of -0.3 to -0.6 is suggested.⁷⁴

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.⁷⁵ Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, etc.) and conditions of sale (e.g., availability, sales terms/discounts/promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced thermal paper and imported thermal paper of the same paper type is likely to be in the range of 4 to 6. Factors leading to this moderate-to-high estimate include availability of domestic product, availability of different types of thermal paper products (including BPA-free and phenol-free paper), most purchasers requiring supplier certifications, and purchasers' mixed responses regarding the interchangeability and the significance of non-price differences between domestic thermal paper and thermal paper from subject sources.

⁷³ Respondent Hansol argued that domestic producers were unable to supply purchasers despite high levels of domestic producers' unused capacity, and purchasers reported experiencing supply constraints after the leuco dye shortage. Respondent Hansol's prehearing brief, pp. 21-25. Petitioners also used a lower supply elasticity in their economic model than the supply elasticity estimated in the prehearing staff report. Thus, staff revised its prehearing estimate of 6 to 8. Petitioner's prehearing brief, Appendix C, p. 25.

⁷⁴ Petitioners argued that the "effective elasticity" is on the lower end of this range, but they "did not object" to the estimated range.

⁷⁵ The substitution elasticity measures the responsiveness of the relative U.S. consumption levels of the subject imports and the domestic like products to changes in their relative prices. This reflects how easily purchasers switch from the U.S. product to the subject products (or vice versa) when prices change.

Part III: U.S. producers' production, shipments, and employment

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the dumping margins was presented in *Part I* of this report and information on the volume and pricing of imports of the subject merchandise is presented in *Part IV* and *Part V*. Information on the other factors specified is presented in this section and/or *Part VI* and (except as noted) is based on the questionnaire responses of ten firms that accounted for between 50 and 75 percent of U.S. production of thermal paper during 2020.¹

¹ Staff sent questionnaire responses to firms identified in the petition as well as companies identified by respondent parties in their comments on the draft questionnaires. Staff obtained questionnaire responses from both petitioning companies as well as Kanzaki Specialty Papers. These three firms are believed to account for *** jumbo roll production in the United States. Petition at Exh. I-1B. Staff also obtained questionnaire responses from independent converters Iconex, **, as well as IndoorMedia, Inc. (“IndoorMedia”), KTR Printing (herein referred to as “Integrity”), Liberty Paper (“Liberty”), Maxwell Paper (“Maxwell”), National Checking Company (“NCCO”), and Pinnacle Coating & Converting, Inc. (“PCC Paper”). In addition to the firms mentioned above, Staff sent a U.S. producer questionnaire to additional potential independent converters, including **. **.

U.S. producers

The Commission issued a U.S. producer questionnaire to 50 firms based on information contained in the petition, as well as companies identified by respondent parties in their comments on the draft questionnaires. Ten firms provided usable data on their operations.² Staff believes that these responses represent between 50 and 75 percent of total U.S. production of thermal paper.³

Table III-1 lists U.S. producers of thermal paper, their production locations, positions on the petition, and shares of total production.

² *** submitted certified responses stating that these firms have not produced thermal paper since January 1, 2018. Additionally, *** submitted questionnaires. However, these firms' data were unusable and are not included in this part of this report.

³ Several producers submitted data regarding the conversion operations of heavyweight thermal paper.

Staff additionally spoke to company representatives from *** to gather additional information on these companies' conversion operations. ***. Email from ***, August 20, 2021.

*** Email from ***, August 23, 2021.

***.

Table III-1

Thermal paper: U.S. producers of thermal paper, their positions on the petition, production locations, and shares of reported production, 2020

Firm	Position on petition	Production location(s)	Share of LW jumbo production	Share of LW converted production	Share of HW jumbo production
Appvion	Petitioner	Appleton, WI West Carrollton, OH	***	***	***
Domtar	Petitioner	West Carrollton, OH Bennettsville, SC Nekoosa, WI	***	***	***
Iconex	***	Morristown, TN Jefferson City, TN Ashland, VA Kansas City, KS Reno, NV	***	***	***
IndoorMedia	***	Houston, TX Lancaster, PA	***	***	***
Integrity	***	Clare, Mi	***	***	***
Kanzaki	***	Ware, MA	***	***	***
Liberty	***	Phoenix, AZ Morristown, TN	***	***	***
Maxwell	***	DALLAS, TX	***	***	***
NCCO	***	St. Paul, MN West St. Paul, MN	***	***	***
PCC Paper	***	Spartanburg, SC	***	***	***
All firms	Various	Various	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-2 presents information on U.S. producers' ownership and related and/or affiliated firms.⁴

Table III-2
Thermal paper: U.S. producers' ownership, related and/or affiliated firms

Reporting firm	Relationship type and related firm	Details of relationship
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

*** U.S. producers are related to foreign producers of the subject merchandise and *** related to U.S. importers of the subject merchandise. U.S. producer

⁴ As noted below, Domtar and Paper Excellence entered into a definitive agreement for Paper Excellence to acquire Domtar. ***. Email from ***, August 27, 2021.

***.⁵ In addition, as discussed in greater detail below, *** U.S. producers purchased the subject merchandise from *** U.S. importers.

⁵ Additional information on these companies' ownership structure and operations can be found in Part VII.

Table III-3 presents U.S. producers' reported changes in operations since January 1, 2018. Two firms reported plant openings, three firms reported relocations, four firms reported acquisitions, one firm reported a consolidation, seven firms reported prolonged shutdowns or curtailments, and one firm reported revised labor agreements.

Table III-3
Thermal paper: U.S. producers' reported changes in operations, since January 1, 2018

Item	Firm name and accompanying narrative response
Plant openings	***
Plant openings	***
Relocations	***
Relocations	***
Relocations	***
Expansions	***
Acquisitions	***
Acquisitions	***
Acquisitions	***
Acquisitions	***
Consolidations	***
Prolonged shutdowns or curtailments	***

Item	Firm name and accompanying narrative response
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Prolonged shutdowns or curtailments	***
Revised labor agreements	***
Other	***
Other	***

Source: Compiled from data submitted in response to Commission questionnaires.

In addition to the changes in operations noted above, the following events in the thermal paper industry were noted in public sources since January 1, 2018:

- In April of 2019, Iconex announced its acquisition of the long-run label and receipt paper businesses of Cenveo, which were located in Jefferson City, Tennessee, Joplin, Missouri, and Vernon, California.^{6,7} In April of 2020, U.S. producer Domtar completed the purchase of Appvion's point of sale ("POS") paper business. This purchase included the equipment at Appvion's West Carrollton, Ohio facility.⁸
- February 2020: Domtar agrees to purchase Appvion's POS business. The agreement includes the acquisition by Domtar of Appvion's coater and related equipment located at the West Carrollton, Ohio, facility as well as a license for all corresponding intellectual property.⁹
- February 2021: Pixelle Specialty Solutions LLC, signs a definitive agreement to acquire the carbonless rolls and security papers business of Appvion.¹⁰
- February 2021: Appvion closes its plant in Roaring Spring, Pennsylvania and lays off employees.¹¹
- May 2021: Paper Excellence enters into a definitive agreement to acquire Domtar.¹²
- July 2021: Domtar and Paper Excellence merger approved by stockholders.¹³
- July 2021: Former Appvion plant in Roaring Spring, Pennsylvania sold to private investors.¹⁴

⁶ Iconex, "Iconex Acquires Long-run Label Assets of Cenveo," <https://www.iconex.com/press-releases/iconex-acquires-cenveo-label-business/> (retrieved November 5, 2020).

⁷ ***.

⁸ PaperAge, "Domtar Completes the Purchase of Appvion Point of Sale Paper Business," https://www.paperage.com/2020news/04_28_2020domtar_completes_appvion_deal.html (retrieved November 5, 2020).

⁹ Appvion press release, "Domtar Agrees to Purchase Appvion Point of Sale Business," February 14, 2020.

¹⁰ Printing Impressions, "Pixelle to Acquire Specialty Business from Appvion," February 16, 2021.

¹¹ Frank, Walt, "Appvion Closing Roaring Spring Mill; 293 Jobs Lost," Altoona Mirror, February 16, 2021.

¹² Domtar press release, "Paper Excellence Enters into Definitive Agreement to Acquire Domtar for \$55.50 Per Share in Cash," May 11, 2021.

¹³ Domtar press release, "Domtar, Paper Excellence Merger Approved by Stockholders," July 29, 2021.

¹⁴ Kibler, William, "Former Appvion Plant Bought," Altoona Mirror, July 25, 2001.

U.S. producers of jumbo rolls and converted rolls were requested to provide data on factors related to their production-related activities; their responses are presented below in tables III-4 through III-6. As shown in table III-4, with respect to the complexity of finishing operations (e.g., conversion operations), *** firms, ***, rated the complexity of finishing operations at a 1, or minimally complex. *** firms rated the complexity of finishing operations between a 3 and a 5, with 5 being the most complex.¹⁵

**Table III-4
Thermal paper: Count of U.S. producers' rating complexity of finishing operations**

Count in number of firms reporting

Item	Rate 1	Rate 2	Rate 3	Rate 4	Rate 5
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Kanzaki	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All producers	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Ratings are on a scale of 1-5 with 1 being the least complex and 5 the most.

¹⁵ Domtar noted that ***

Email from ***, August 27, 2021. Domtar noted that conversion of POS rolls “is a simple process that consists largely of slitting...on the other hand, the conversion process for other applications, such as labels or tags, is much more complex.” Hearing transcript, p. 24.

Table III-5

Thermal paper: U.S. producers' narratives regarding complexity of finishing operations

Firm	Narrative response
Appvion	***
Domtar	***
Iconex	***
IndoorMedia	***
Integrity	***
Kanzaki	***
Liberty	***
NCCO	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-6

Thermal paper: Comparison of U.S. jumbo producers' and U.S. independent converters' sufficient production related activities factors since January 1, 2018

Factor	U.S. jumbo producers	U.S. converters
Capital investments	***	***
Technical expertise	***	***
Value added	***	***
Employment	***	***
Quantity, type and source of parts	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Capital investments are aggregate reported investments from a greenfield perspective. Technical expertise is the range of aggregate annual research and development expenses reported from 2018-2020. Value added data are the range of aggregate annual total conversion costs (i.e., direct labor and other factory costs) divided by total COGS reported from 2018-2020. Employment data are aggregate annual production and related workers (PRWs) range from 2018-2020. Quantity, type and source of parts data are the aggregate annual raw materials costs for 2018-2020 for jumbo producers (assumes all from domestic sources) and converters. However, the U.S. converters' value has been adjusted down to exclude jumbo roll raw material costs from import sources.

U.S. production, capacity, and capacity utilization

Table III-7 and figure III-1 present U.S. producers' production, capacity, and capacity utilization of LW jumbo thermal paper.¹⁶ While capacity remained the same in 2018 and 2019, from 2019 to 2020 U.S. LW jumbo roll producers' capacity declined by *** percent, when Appvion's West Carrollton facility was acquired by Domtar. U.S. LW jumbo roll producers' production declined by *** percent during 2018-20 and was *** percent lower in January-March 2021 than in January-March 2020. ***. U.S. LW jumbo roll producers' capacity utilization decreased overall during 2018-20 by *** percentage points, though it reached a period low in 2019 *** and was higher in January-March 2021 than in January-March 2020.¹⁷

Table III-7
LW jumbo thermal paper: U.S. producers' capacity, by firm and period

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

¹⁶ Appvion reported that, prior to the sale of its West Carrollton facility to Domtar in April 2020, ***. Email from ***, August 25, 2021. Domtar reported in its questionnaire that its capacity was calculated based on ***. Domtar's U.S. producer questionnaire at Question II-7, footnote 1. Kanzaki reported that its capacity was reported based on operating ***. Kanzaki's U.S. Producers' Questionnaire at Question II-7, footnote 1.

¹⁷ Hansol argued that the Commission should place little weight on domestic producers' reported capacity and capacity utilization, stating that regardless of their claimed capacity, domestic producers have been unable or unwilling to supply at least some of their customers during 2018-20. Hansol's prehearing brief, p. 58.

Table III-7 Continued
LW jumbo thermal paper: U.S. producers' production, by firm and period

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-7 Continued
LW jumbo thermal paper: U.S. producers' capacity utilization, by firm and period

Capacity utilization ratio is production to production capacity in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-7 Continued
LW jumbo thermal paper: U.S. producers' share of production, by firm and period

Share of production in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure III-1
LW jumbo thermal paper: U.S. producers' capacity, production, and capacity utilization, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-8 and figure III-2 present U.S. LW converters' capacity, production, and capacity utilization. U.S. LW converters' capacity decreased during 2018-20 by *** percent, and was *** percent lower in January-March 2021 than in January-March 2020. ***. U.S. LW converters' production also decreased each year during 2018-20 with the steepest decline between 2019 and 2020, overall by *** percent. This in turn resulted in a decline of capacity utilization of *** percentage points by 2020. LW converters' capacity utilization was *** percentage points lower during January-March 2021 than in January-March 2020.

Table III-8
LW converted thermal paper: U.S. producers' capacity, by firm and period

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-8 Continued
LW converted thermal paper: U.S. producers' production, by firm and period

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-8 Continued
LW converted thermal paper: U.S. producers' capacity utilization, by firm and period

Capacity utilization ratio is production to production capacity in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-8 Continued

LW converted thermal paper: U.S. producers' share of production, by firm and period

Share of production in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure III-2

LW converted thermal paper: U.S. producers' capacity, production, and capacity utilization, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-9 and figure III-3 present U.S. capacity, production, and capacity utilization for HW jumbo thermal paper. Total HW jumbo capacity increased during 2018-20 by *** percent; as *** capacity declined during 2018-20, *** capacity remained steady during that period and ***. Capacity was *** percent higher in January-March 2021 than in January-March 2020, as ***. HW jumbo thermal paper production decreased during 2018-20 by *** percent. While *** reported an increase in HW jumbo thermal paper production between 2018 and 2019, its production then fell between 2019 and 2020, and decreased overall during 2018-20. Despite *** production being lower in January-March 2021 than in January-March 2020, total production was slightly higher in January-March 2021 than in January-March 2020 with the *** during January-March 2021. U.S. HW jumbo thermal paper producers' capacity utilization decreased during 2018-20 by *** percentage points, and was *** percentage points lower in January-March 2021 than in January-March 2020.¹⁸

**Table III-9
HW jumbo thermal paper: U.S. producers' capacity, by firm and period**

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

¹⁸ In response to staff questions, ***. Email message from ***, August 26, 2021.

Table III-9 Continued
HW jumbo thermal paper: U.S. producers' production, by firm and period

Quantity in short tons.

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-9 Continued
HW jumbo thermal paper: U.S. producers' capacity utilization, by firm and period

Capacity utilization ratio is production to production capacity in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table III-9 Continued
HW jumbo thermal paper: U.S. producers' share of production, by firm and period

Share of production in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure III-3
HW jumbo thermal paper: U.S. producers' capacity, production, and capacity utilization, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

The primary constraints on production listed by LW and HW jumbo roll producers and LW converters were technical limitations of machinery and labor availability.¹⁹

¹⁹ U.S. producer questionnaire responses, sections II-3d and II-4d.

Alternative products

Table III-10 presents U.S. jumbo roll producers' overall capacity and production on the same machinery as jumbo thermal paper production. During 2018-20, jumbo thermal paper production accounted for the vast majority (***) percent) of overall production, with HW jumbo rolls accounting for the majority of total jumbo roll production. *** during 2018-20. The firm reported producing *** on the same machinery as thermal paper. ***'s out-of-scope production increased by *** percent during 2018-20 and was *** in January-March 2021 than in January-March 2020.

Table III-10
Jumbo thermal paper: U.S. producers' overall plant capacity and production on the same equipment as jumbo thermal paper production, by period

Quantity in short tons; ratio and share in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall capacity	Quantity	***	***	***	***	***
LW jumbo production	Quantity	***	***	***	***	***
HW jumbo production	Quantity	***	***	***	***	***
All jumbo production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW jumbo production	Share	***	***	***	***	***
HW jumbo production	Share	***	***	***	***	***
All jumbo production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Ratio is production to overall production capacity in percent; share is share of total production in percent.

As shown below in table III-11, LW converted production accounted for the majority of overall converted production. HW converted production accounted for a *** share of overall production during 2018-20. ***, reported producing other products on the same machinery as LW converted thermal paper, which accounted for *** of total overall production during 2018-20. ***, reported converting HW thermal paper on the same machinery as LW converted thermal paper, which accounted for *** of total overall production during 2018-20.

Table III-11
LW converted thermal paper: U.S. producers' overall plant capacity and production on the same equipment as LW converted thermal paper production, by period

Quantity in short tons; ratio and share in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall conversion capacity	Quantity	***	***	***	***	***
LW converted production	Quantity	***	***	***	***	***
HW converted production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
All out of scope production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW converted production	Share	***	***	***	***	***
HW converted production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
All out of scope production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Ratio is production to converted production capacity in percent; share is share of total production in percent.

U.S. producers' U.S. shipments and exports

Tables III-12, III-13, and III-14 present U.S. shipments, export shipments, and total shipments of LW jumbo producers and LW converters.²⁰ U.S. shipments of LW jumbo and LW converted thermal paper accounted for the vast majority of total shipments of each product type. By nearly every measure, U.S. shipments, export shipments, and total shipments of LW jumbo thermal paper decreased during 2018-20.^{21 22}

Table III-12
LW jumbo thermal paper: U.S. producers' shipments, by destination and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton; share in percent.

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Export shipments	Share of quantity	***	***	***	***	***
Total shipments	Share of quantity	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***
Export shipments	Share of value	***	***	***	***	***
Total shipments	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of total shipments by quantity in percent; share of value is the share of total shipments by value in percent. Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

²⁰ ***.

²¹ The unit value of export shipments ***.

²² ***.

As shown in table III-13, the quantity and value of U.S. shipments decreased during 2018-20, by *** percent and *** percent, respectively.²³ The quantity of export shipments decreased by *** percent during 2018-20, while the value decreased by *** percent, resulting in an increase in unit value during 2018-20 of *** percent. While the unit value of U.S. shipments of LW jumbo thermal paper ranged from \$*** per short ton to \$*** per short ton, the unit value of U.S. shipments of LW converted thermal paper ranged from \$*** per short ton to \$*** per short ton during 2018-20.

Table III-13
LW converted thermal paper: U.S. producers' U.S. shipments, by destination and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton; share in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Export shipments	Share of quantity	***	***	***	***	***
Total shipments	Share of quantity	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***
Export shipments	Share of value	***	***	***	***	***
Total shipments	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of total shipments by quantity in percent; share of value is the share of total shipments by value in percent.

The value of U.S. shipments of all LW thermal paper, including the value added to imported jumbo rolls converted by U.S. producers, steadily declined between 2018-2020 and was lower in January-March 2021 than in January-March 2020 (table III-14). While the value added by the conversion of imported jumbo rolls declined, its share of total domestic value rose 2018-2020 and was higher in January-March 2021 than in January-March 2020.

²³ ***, which accounted for *** percent of the quantity of U.S. shipments of LW converted thermal paper, reported a *** percent decrease in the quantity of its U.S. shipments.

Table III-14**All LW thermal paper: U.S. producers' U.S. shipments for use in LW consumption by period**

Quantity in short tons; value in 1,000 dollars

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
U.S. shipments fully domestic	Value	***	***	***	***	***
U.S. shipments value added to imports	Value	***	***	***	***	***
U.S. shipments total	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of LW jumbo thermal paper sold in the United States by U.S. LW jumbo producers. The value for U.S. producers' U.S. shipments reflects the value of LW jumbo rolls sold in the United States by U.S. LW jumbo producers plus the additional value added to U.S.-produced and imported LW jumbo rolls by U.S. LW converters based on U.S. conversion operations. In measuring consumption this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Table III-15 presents U.S. shipments, export shipments, and total shipments of HW jumbo producers. By nearly every measure, U.S. shipments, export shipments, and total shipments of HW jumbo thermal paper decreased overall during 2018-20, though the quantity of U.S. shipments as well as the quantity of total shipments were slightly higher in January-March 2021 than in January-March 2020.

Table III-15
HW jumbo thermal paper: U.S. producers' U.S. shipments, by destination and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Export shipments	Share of quantity	***	***	***	***	***
Total shipments	Share of quantity	***	***	***	***	***
U.S. shipments	Share of value	***	***	***	***	***
Export shipments	Share of value	***	***	***	***	***
Total shipments	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

U.S. producers' inventories

Table III-16 presents U.S. LW jumbo thermal paper producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. U.S. LW jumbo thermal paper producers' end-of-period inventories decreased by *** percent between 2018 and 2019, then increased by *** percent between 2019 and 2020, and were higher in January-March 2021 than in January-March 2020. During 2018-20, the ratio of LW jumbo thermal paper producers' end-of-period inventories to their production ranged from a period low in 2019 at *** percent to a period high in 2020 at *** percent and was *** percent in January-March 2021, compared with *** percent in January-March 2020. The ratio of LW jumbo thermal paper producers' end-of-period inventories to their U.S. shipments ranged from a period low in 2019 at *** percent to a period high in 2020 at *** percent during 2017-19 and was *** percent in January-March 2020, compared with *** percent in January-March 2019. During 2018-20 the ratio of end-of-period inventories to total shipments was slightly lower than U.S. shipments, ranging from a period low in 2019 at *** percent to *** percent in 2020. The inventory ratio to total shipments was *** percent in January-March 2021, compared to *** percent in January-March 2020.

Table III-16
LW jumbo thermal paper: U.S. producers' inventories and their ratio to select items, by period

Quantity in short tons; ratio are inventories to production and shipments

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-17 presents U.S. LW thermal paper converters' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. The ratios of inventories to U.S. production, U.S. shipments, and total shipments were higher than those of LW jumbo thermal paper and, as discussed below, HW jumbo thermal paper. U.S. LW thermal paper converters' end-of-period inventories decreased each year for a total decrease of *** percent, and unlike those of LW jumbo thermal paper, were *** percent lower in January-March 2021 than in January-March 2020. During 2018-20, the ratio of LW thermal paper converters' end-of-period inventories to production decreased each year: from *** percent in 2018, to *** percent in 2019, to *** percent in 2020, for an overall decrease of *** percentage points. The ratio of inventories to production was *** percent in January-March 2021, compared with *** percent in January-March 2020. Similarly, the ratio of LW thermal paper converters' inventories to total shipments decreased each year, though to a slightly greater degree: from *** percent in 2018, to *** percent in 2019, to *** percent in 2020, for an overall decrease of *** percentage points. The ratio of inventories to total shipments was *** percent in January-March 2021, compared with *** percent in January-March 2020.

Table III-17
LW converted thermal paper: U.S. producers' inventories and their ratio to select items, by period

Quantity in short tons; ratio are inventories to production and shipments

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table III-18 presents U.S. HW jumbo thermal paper producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. U.S. HW jumbo thermal paper producers' end-of-period inventories decreased by *** percent between 2018 and 2019, then increased by *** percent between 2019 and 2020 for an overall increase of *** percent and were higher in January-March 2021 than in January-March 2020. During 2018-20, the ratio of HW jumbo thermal paper producers' end-of-period inventories to their production increased from *** percent in 2018 and 2019 to *** percent in 2020, and was *** percent in January-March 2021, compared with *** percent in January-March 2020. The ratio of HW jumbo thermal paper producers' end-of-period inventories to their U.S. shipments decreased from *** percent in 2018, to *** percent in 2019, then rose to *** percent in 2020 and was *** percent in January-March 2021, compared with *** percent in January-March 2020. During 2018-20 the ratio of end-of-period inventories to total shipments was slightly lower than the inventory ratio to U.S. shipments, and rose from *** percent in 2018 and 2019 to *** percent in 2020. The inventory ratio to total shipments was *** percent in January-March 2021, compared to *** percent in January-March 2020.

Table III-18
HW jumbo thermal paper: U.S. producers' inventories and their ratio to select items, by period

Quantity in short tons; ratio are inventories to production and shipments

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. producers' purchases

U.S. producers' purchases of LW thermal paper are presented in table III-19. ***. Other than ***, firms generally reported purchasing most of their LW jumbo thermal paper each year from ***. ***, which collectively accounted for *** percent of purchases from *** during 2018-20, reported decreases in their purchases of *** of *** percent, *** percent, and *** percent, respectively, during 2018-20.²⁴ With the exception of ***, all firms' purchases of LW jumbo thermal paper were lower in January-March 2021 than in January-March 2020. Reported purchases from *** declined by *** during 2018-20, with nearly all firms reporting decreased purchases.²⁵

²⁴ *** accounted for the largest share of U.S. producers' purchases from *** during 2018-20. ***. In any given year, *** reported *** the volume of purchases as the next largest purchaser.

²⁵ *** for the largest share of purchases from *** during 2018-20. *** reported purchasing *** short tons of *** LW jumbo thermal paper in 2018, compared to *** short tons in 2020. ***, the *** purchaser of *** LW jumbo thermal paper, reported decreased purchases during 2018-20 by *** percent.

Table III-19

Thermal paper: U.S. converters' quantity of LW converted production and purchases of LW jumbo thermal paper by source

Quantity in short tons

Firm	Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from nonsubject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***
***	U.S. production	***	***	***	***	***
***	Purchases from domestic sources	***	***	***	***	***
***	Purchases from subject sources	***	***	***	***	***
***	Purchases from nonsubject sources	***	***	***	***	***
***	Purchases from all sources	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. employment, wages, and productivity

U.S. LW jumbo roll producers' employment-related data is presented in table III-20. U.S. LW jumbo roll producers' production and related workers ("PRWs") initially decreased between 2018 and 2019 by *** percent, then increased between 2019 and 2020 by *** percent, for an overall decrease of *** percent, and were *** percent lower in January-March 2021 than in January-March 2020. Total hours worked, hours worked per PRW, and total wages paid decreased by *** percent, *** percent, and *** percent, respectively, although hourly wages increased by \$*** per hour during 2018-20. Productivity decreased during 2018-20 by *** percent, and unit labor costs increased by *** percent. While hourly wages were higher in January-March 2021 than in January-March 2020, productivity was lower and unit labor costs higher.

Table III-20

LW jumbo thermal paper: U.S. producers' employment related information, by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. LW converted thermal paper producers' employment-related data is presented in table III-21. In contrast to the trend of LW jumbo roll producers' PRWs, U.S. LW converted thermal paper producers' production and related workers ("PRWs") initially increased between 2018 and 2019 by *** percent, then decreased between 2019 and 2020 by *** percent, for an overall decrease of *** percent during 2018-20, and were *** percent lower in January-March 2021 than in January-March 2020. Total hours worked and total wages paid increased by *** percent and *** percent during 2018-20, respectively, although hourly wages decreased by \$*** per hour. Productivity decreased during 2018-20 by *** percent, and unit labor costs increased by *** percent, but productivity was higher in January-March 2021 than in January-March 2020.

Table III-21
LW converted thermal paper: U.S. producers' employment related information, by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: ***.

Table III-22
All LW thermal paper: U.S. producers' employment related information, by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: ***.

U.S. HW jumbo thermal paper producers' employment-related data is presented below in table III-23. Production and related workers ("PRWs") increased each year during 2018-20 for an overall increase of *** percent, though they were *** percent lower in January-March 2021 than in January-March 2020. Despite an increase in hourly wages of *** percent during 2018-20, total wages paid decreased by *** percent during that same time, as did total hours worked (*** percent) and hours worked per PRW (*** percent). As production and total hours worked decreased unevenly in relation to each other, productivity increased overall by *** percent during 2018-20 after initially decreasing by *** percent between 2018 and 2019. Unit labor costs increased steadily during 2018-20, and were higher in January-March 2021 than in January-March 2020 by \$*** per short ton. Productivity, hourly wages, and total wages paid were all higher in January-March 2021 than in January-March 2020.

Table III-23
HW jumbo thermal paper: U.S. producers' employment related information, by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (short tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per short ton)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Part IV: U.S. imports, apparent U.S. consumption, and market shares

U.S. importers

The Commission issued importer questionnaires to 35 firms believed to be importers of subject thermal paper, as well as to all U.S. producers of thermal paper.¹ Usable questionnaire responses were received from 11 companies, representing *** percent of U.S. imports from Germany, *** percent of U.S. imports from Japan,² *** percent of U.S. imports from Korea, under HTS statistical reporting numbers 4811.90.9030 and 4811.90.8030, and *** U.S. imports from Spain of subject thermal paper in 2020.^{3 4}

¹ The Commission issued questionnaires to those firms identified in the petition, along with firms that, based on a review of data from third-party sources, may have accounted for more than one percent of total imports under HTS subheadings 4811.90.90 and 4811.90.80 in 2020.

² When compared to exports reported in Part VII of this report, usable U.S. importer questionnaire responses account for *** reported exports of subject thermal paper, based on the responses of Japanese foreign producers. ***

³ Counsel for Torraspapel S.A. ***. See Torraspapel's post-conference brief, pp. 2-3 and Exhibit 2.

⁴ Staff received responses from the following firms certifying that they have not imported thermal paper since January 1, 2018: ***. Additionally, the Commission received a response to the U.S. importer questionnaire from ***, however the firm's data was incomplete and the firm was unwilling to provide any additional information to better develop its response. Therefore, it is not included in this data set. The Commission also received a response to the U.S. importer questionnaire from ***.

The HTS statistical reporting numbers are “basket categories”, and may contain out-of-scope merchandise. Tables IV-1 and IV-2 list all responding U.S. importers of all LW thermal paper and HW jumbo thermal paper from Germany, Japan, Korea, Spain, and other sources, their locations, and their shares of U.S. imports, in 2020.⁵

⁵ The subject foreign producers from Japan, Korea, and Spain export thermal paper ***
***. Email from ***, August 11, 2021.
While ***.

Table IV-1
All LW thermal paper: U.S. importers, their headquarters, and share of total imports by source,
2020

Share in percent

Firm	Headquarters	Germany	Japan	Korea	Spain	Subject sources	Nonsubject sources	All import sources
Condat	Le Plessis Robinson, France,	***	***	***	***	***	***	***
General Office	San Juan, PR	***	***	***	***	***	***	***
Hansol	Fort Lee, NJ	***	***	***	***	***	***	***
Japan Pulp & Paper	Monterey Park, CA	***	***	***	***	***	***	***
Koehler	Oberkirch, Germany	***	***	***	***	***	***	***
Matra	Lake Success, NY	***	***	***	***	***	***	***
Mitsubishi Imaging	Rye, NY	***	***	***	***	***	***	***
Paper Products Marketing ("PPM")	Portland, OR	***	***	***	***	***	***	***
Shinsei	Torrance, CA	***	***	***	***	***	***	***
Tiffin	Tiffin, OH	***	***	***	***	***	***	***
Torraspapel	Getafe (Madrid), Spain,	***	***	***	***	***	***	***
All firms	Various	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Table IV-2
HW jumbo thermal paper: U.S. importers, their headquarters, and share of total imports by source, 2020

Share in percent

Firm	Headquarters	Germany	Japan	Korea	Spain	Subject sources	Nonsubject sources	All import sources
Condat	Le Plessis Robinson, France,	***	***	***	***	***	***	***
General Office	San Juan, PR	***	***	***	***	***	***	***
Hansol	Fort Lee, NJ	***	***	***	***	***	***	***
Japan Pulp & Paper	Monterey Park, CA	***	***	***	***	***	***	***
Koehler	Oberkirch, Germany,	***	***	***	***	***	***	***
Matra	Lake Success, NY	***	***	***	***	***	***	***
Mitsubishi Imaging	Rye, NY	***	***	***	***	***	***	***
Paper Products Marketing ("PPM")	Portland, OR	***	***	***	***	***	***	***
Shinsei	Torrance, CA	***	***	***	***	***	***	***
Tiffin	Tiffin, OH	***	***	***	***	***	***	***
Torraspapel	Getafe (Madrid), Spain,	***	***	***	***	***	***	***
All firms	Various	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. imports

Table IV-3 and figure IV-1 present data for U.S. imports of all LW thermal paper from Germany, Japan, Korea, Spain, and all other sources. *** U.S. imports of LW thermal paper during 2018-20 from all sources were of jumbo rolls. There were *** imported during 2018-20 from *** Korea.⁶ Overall, U.S. imports of LW thermal paper from subject sources accounted for *** of total U.S. imports of thermal paper during 2018-20. Subject imports' share of total U.S. imports increased each year during 2018-20, ending *** percentage points higher in 2020 than in 2018. By quantity, U.S. imports of thermal paper from Germany accounted for the largest share of total imports of LW thermal paper during 2018-20, followed by imports of thermal paper from Korea. Imports from Spain held a *** rising share of U.S. imports of LW thermal paper during 2018-20, although its share was lower in January-March 2021 than in January-March 2020. Imports from Japan held *** decreasing share of U.S. imports of LW thermal paper during 2018-20, and the share was lower in January-March 2021 than in January-March 2020.

Overall, the quantity of subject imports decreased by *** percent during 2018-20. While ***, reported a large increase of subject imports from *** in 2019, this was mainly due to the firm ***. The overall decrease in subject imports was driven in part by the decrease in U.S. imports of LW thermal paper from Korea between 2018 and 2020.⁷

During 2018-20, the quantity of U.S. imports of LW thermal paper from Germany first decreased by *** percent between 2018 and 2019, then increased by *** percent from 2019 to 2020, ending *** percent higher in 2020 than in 2018.⁸ The quantity of U.S. imports of

⁶ One firm, ***, reported importing LW converted thermal paper from Korea. However, there were ***, and *** reported that these imports of LW converted thermal paper were ***.

⁷ ***.

⁸ Although staff did not receive a U.S. importer questionnaire from ***, Mitsubishi HiTec reported exporting *** short tons of LW thermal paper in 2018, *** short tons in 2019, and *** short tons in 2020. Using these exports in place of imports reported by Mitsubishi Imaging, the quantity of U.S. imports of LW thermal paper from Germany decreased during 2018-20 by *** percent.

LW thermal paper from Germany was *** percent lower in January-March 2021 than in January-March 2020. U.S. imports of LW thermal paper from Japan declined each year, and decreased overall by *** percent and were *** percent lower in January-March 2021 than in January-March 2020. The quantity of U.S. imports of LW thermal paper from Korea first increased between 2018 and 2019 by *** percent, then decreased between 2019 and 2020 by *** percent, for an overall decrease of *** percent during 2018-20. Subject imports from Korea were *** percent higher in January-March 2021 than in January-March 2020. The quantity of U.S. imports of LW thermal paper from Spain increased each year during 2018-20, increasing overall by *** percent, but was *** percent lower in January-March 2021 than in January-March 2020. The quantity of U.S. imports of LW thermal paper from nonsubject sources decreased by *** percent during 2018-20.⁹

By value, U.S. imports of LW thermal paper from Germany, Japan, and Korea declined each year during 2018-20 for an overall decrease of *** percent, *** percent, and *** percent, respectively. While the values of U.S. imports from Germany and Japan were lower in January-March 2021 than they were in January-March 2020, imports from Korea were higher in the latter interim period. While the value of U.S. imports of LW thermal paper from Spain fluctuated, it increased overall during 2018-20 by *** percent, but was *** percent lower in January-March 2021 than in January-March 2020. Overall, the value of U.S. imports of LW thermal paper from subject sources decreased by *** percent from 2018 to 2020. The value of U.S. imports of LW thermal paper from nonsubject sources decreased by *** percent during 2018-20, and was higher in January-March 2021 than in January-March 2020.

The uneven decreases in the quantity and value of subject imports from Germany are reflected in the fluctuating unit values, which first increased from \$*** per short ton in 2018 to \$*** per short ton in 2019, then decreased in 2020 to \$*** per short ton. The unit value of U.S. imports from Japan decreased during 2018-20 by *** percent; from \$*** per short ton in 2018 to \$*** per short ton in 2020, though it was slightly higher in January-March 2021 than in January-March 2020. The unit value of U.S. imports from Korea decreased during 2018-20 by *** percent and was lower in January-March 2021 than in January-March 2020. The unit value of U.S. imports from Spain decreased overall during 2018-20 by *** percent, though was *** percent higher in January-March 2021 than in January-March 2020.

⁹ The firms that reported imports of LW thermal paper from nonsubject sources were *** and ***. ***. ***.

Overall, the unit value of U.S. imports from subject sources decreased during 2018-20 by *** percent, from \$*** per short ton in 2018 to \$*** per short ton in 2020. It was \$*** per short ton in January-March 2021, compared with \$*** per short ton in January-March 2020. The unit value of U.S. imports from nonsubject sources decreased during 2018-20 by *** percent, with the greatest decrease occurring between 2019 and 2020.

Table IV-3
All LW thermal paper: U.S. imports by source and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued on next page.

Table IV-3 Continued
All LW thermal paper: Share of U.S. imports by source and period

Share in percent.

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of U.S. imports by quantity in percent; share of value is the share of U.S. imports by value in percent.

Figure IV-1
All LW thermal paper: U.S. imports quantity and average unit value, by source and period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-4 and figure IV-2 present U.S. imports of HW jumbo thermal paper from all sources.¹⁰

By quantity, U.S. imports of thermal paper from Korea accounted for the largest share of total imports of HW jumbo thermal paper during 2018-20, followed by imports from Germany. Imports from Spain held a *** rising share of U.S. imports of HW jumbo thermal paper. Imports from Japan held *** decreasing share of U.S. imports of HW jumbo thermal paper during 2018-20, and its share was higher in January-March 2021 than in January-March 2020.

Overall, during 2018-20 the quantity of subject imports increased by *** percent and the value of subject imports increased by *** percent. The increase was driven primarily by the large increase in U.S. imports of HW jumbo thermal paper from Korea between 2018 and 2020.

¹⁰ As noted below in the “Negligibility” section of Part IV, since imports of HW jumbo thermal paper from Japan and Spain each account for ***, data for subject and nonsubject sources are presented with and without data from those countries.

During 2018-20, the quantity of U.S. imports of HW jumbo thermal paper from all subject sources ***, and was higher in January-March 2021 than in January-March 2020. The quantity of U.S. imports from Germany increased each year during 2018-20, ending ***.¹¹ The quantity of U.S. imports of HW jumbo thermal paper from Germany was *** percent lower in January-March 2021 than in January-March 2020. U.S. imports of HW jumbo thermal paper from Japan declined each year, and decreased overall by *** percent during 2018-20, though were *** percent higher in January-March 2021 than in January-March 2020. The quantity of U.S. imports of HW jumbo thermal paper from Korea increased from *** short tons in 2018 to *** short tons in 2020 for an overall increase of *** percent during 2018-20. Subject imports from Korea were *** percent higher in January-March 2021 than in January-March 2020. Although the share quantity of U.S. imports of HW jumbo thermal paper from Spain *** in 2018, the quantity increased each year during 2018-20, increasing overall by *** percent.¹²

By value, U.S. imports of HW jumbo thermal paper from all subject sources *** during 2018-20. Imports from Germany and Korea increased each year during 2018-20 for an overall increase of *** percent and *** percent, respectively. The value of U.S. imports of HW jumbo thermal paper from Japan decreased during 2018-20 by *** percent. While the values of U.S. imports from Japan and Korea were higher in January-March 2021 than they were in January-March 2020, the value of imports from Germany was lower in January-March 2021 compared to January-March 2020. The value of U.S. imports of HW jumbo thermal paper from Spain increased each year during 2018-20 for an overall increase of *** percent.

While the unit value of imports from Germany increased each year during 2018-20, and was higher in January-March 2021 than in January-March 2020, all other subject countries reported the opposite trend; the unit value of subject imports of HW thermal paper from Japan, Korea, and Spain decreased during 2018-20 by *** percent, *** percent, and *** percent, respectively, and the unit value of subject imports from Japan and Korea was lower in January-March 2021 than in January-March 2020. As a ratio to U.S. production, subject imports ranged from *** percent to *** percent, with the ratio of U.S. imports from each subject country except Japan to U.S. production increasing each year during 2018-20.

¹¹ Although staff did not receive a U.S. importer questionnaire from ***, Mitsubishi HiTec reported exporting *** short tons of HW thermal paper in 2018, *** short tons in 2019, and *** short tons in 2020. Using these exports in place of imports reported by Mitsubishi Imaging, the quantity of U.S. imports of HW thermal paper from Germany decreased during 2018-20 by *** percent.

¹² There were ***.

Table IV-4
HW jumbo thermal paper: U.S. imports by source and period

Quantity in short tons; value in 1,000 dollars; unit value in dollars per short ton

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Subject sources less Japan and Spain	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Subject sources less Japan and Spain	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Subject sources less Japan and Spain	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued on next page.

Table IV-4 Continued
HW jumbo thermal paper: Share of U.S. imports by source and period

Shares and ratios are in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Subject sources less Japan and Spain	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Subject sources less Japan and Spain	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
Germany	Ratio	***	***	***	***	***
Japan	Ratio	***	***	***	***	***
Korea	Ratio	***	***	***	***	***
Spain	Ratio	***	***	***	***	***
Subject sources	Ratio	***	***	***	***	***
Subject sources less Japan and Spain	Ratio	***	***	***	***	***
Nonsubject sources	Ratio	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Ratio	***	***	***	***	***
All import sources	Ratio	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of U.S. imports by quantity in percent; share of value is the share of U.S. imports by value in percent; ratio are U.S. imports to production in percent.

Figure IV-2
HW jumbo thermal paper: U.S. imports quantity and average unit value, by source and period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Critical circumstances

On September 30, 2021, Commerce issued its final determination that “critical circumstances” exist with regard to imports from Germany of thermal paper from Koehler Germany, and imports from Korea of thermal paper from Hansol Paper Company.¹³ In these investigations, if both Commerce and the Commission make affirmative final critical circumstances determinations, certain subject imports may be subject to antidumping duties retroactive by 90 days from May 12, 2021, the effective date of Commerce’s preliminary affirmative LTFV determination. Tables IV-5 through IV-12 and figures IV-3 through IV-6 present these data.

Table IV-5
All LW thermal paper: U.S. imports from Germany subject to Commerce’s affirmative final critical circumstances determination, by period

Quantity in short tons

Month	Relation to petition	Quantity
April 2020	Before	***
May 2020	Before	***
June 2020	Before	***
July 2020	Before	***
August 2020	Before	***
September 2020	Before	***
October 2020	After	***
November 2020	After	***
December 2020	After	***
January 2021	After	***
February 2021	After	***
March 2021	After	***

Table continued.

¹³86 FR 54157 and 86 FR 54154, September 30, 2021, referenced in app. A. When petitioners file timely allegations of critical circumstances, Commerce examines whether there is a reasonable basis to believe or suspect that (1) either there is a history of dumping and material injury by reason of dumped imports in the United States or elsewhere of the subject merchandise, or the person by whom, or for whose account, the merchandise was imported knew or should have known that the exporter was selling the subject merchandise at LTFV and that there was likely to be material injury by reason of such sales; and (2) there have been massive imports of the subject merchandise over a relatively short period.

Table IV-5 Continued

All LW thermal paper: U.S. imports from Germany subject to Commerce's affirmative final critical circumstances determination, by period

Quantity in short tons

Comparison pre-post petition period	Before period quantity	After period quantity	Difference in percent
1 month	***	***	***
2 months	***	***	***
3 months	***	***	***
4 months	***	***	***
5 months	***	***	***
6 months	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure IV-3

All LW thermal paper: U.S. imports from Germany subject to Commerce's final critical circumstances determination, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-6**All LW thermal paper: U.S. importers' end-of-period inventories from Germany subject to Commerce's affirmative final critical circumstances determination**

Quantity in short tons; n/a is not applicable or available.

Month	Quantity	Index
July 31, 2020	***	***
August 31, 2020	***	***
September 30, 2020	***	***
October 31, 2020	***	***
November 30, 2020	***	***
December 31, 2020	***	***
January 31, 2021	***	***
February 28, 2021	***	***
March 31, 2021	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-7**HW jumbo thermal paper: U.S. imports from Germany subject to Commerce's affirmative final critical circumstances determination, by period**

Quantity in short tons

Month	Relation to petition	Quantity
April 2020	Before	***
May 2020	Before	***
June 2020	Before	***
July 2020	Before	***
August 2020	Before	***
September 2020	Before	***
October 2020	After	***
November 2020	After	***
December 2020	After	***
January 2021	After	***
February 2021	After	***
March 2021	After	***

Table continued.

Table IV-7 Continued

HW jumbo thermal paper: U.S. imports from Germany subject to Commerce's affirmative final critical circumstances determination, by period

Quantity in short tons

Comparison pre-post petition period	Before period quantity	After period quantity	Difference in percent
1 month	***	***	***
2 months	***	***	***
3 months	***	***	***
4 months	***	***	***
5 months	***	***	***
6 months	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure IV-4

HW jumbo thermal paper: U.S. imports from Germany subject to Commerce's final critical circumstances determination, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-8**HW jumbo thermal paper: U.S. importers' end-of-period inventories from Germany subject to Commerce's affirmative final critical circumstances determination**

Quantity in short tons; n/a is not applicable or available.

Month	Quantity	Index
July 31, 2020	***	***
August 31, 2020	***	***
September 30, 2020	***	***
October 31, 2020	***	***
November 30, 2020	***	***
December 31, 2020	***	***
January 31, 2021	***	***
February 28, 2021	***	***
March 31, 2021	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-9**All LW thermal paper: U.S. imports from Korea subject to Commerce's affirmative final critical circumstances determination, by period**

Quantity in short tons

Month	Relation to petition	Quantity
April 2020	Before	***
May 2020	Before	***
June 2020	Before	***
July 2020	Before	***
August 2020	Before	***
September 2020	Before	***
October 2020	After	***
November 2020	After	***
December 2020	After	***
January 2021	After	***
February 2021	After	***
March 2021	After	***

Table continued.

Table IV-9 Continued

All LW thermal paper: U.S. imports from Korea subject to Commerce’s affirmative final critical circumstances determination, by period

Quantity in short tons

Comparison pre-post petition period	Before period quantity	After period quantity	Difference in percent
1 month	***	***	***
2 months	***	***	***
3 months	***	***	***
4 months	***	***	***
5 months	***	***	***
6 months	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure IV-5

All LW thermal paper: U.S. imports from Korea subject to Commerce’s final critical circumstances determination, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-10**All LW thermal paper: U.S. importers' end-of-period inventories from Korea subject to Commerce's affirmative final critical circumstances determination**

Quantity in short tons; n/a is not applicable or available.

Month	Quantity	Index
July 31, 2020	***	***
August 31, 2020	***	***
September 30, 2020	***	***
October 31, 2020	***	***
November 30, 2020	***	***
December 31, 2020	***	***
January 31, 2021	***	***
February 28, 2021	***	***
March 31, 2021	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-11**HW jumbo thermal paper: U.S. imports from Korea subject to Commerce's affirmative final critical circumstances determination, by period**

Quantity in short tons

Month	Relation to petition	Quantity
April 2020	Before	***
May 2020	Before	***
June 2020	Before	***
July 2020	Before	***
August 2020	Before	***
September 2020	Before	***
October 2020	After	***
November 2020	After	***
December 2020	After	***
January 2021	After	***
February 2021	After	***
March 2021	After	***

Table continued.

Table IV-11 Continued

HW jumbo thermal paper: U.S. imports from Korea subject to Commerce's affirmative final critical circumstances determination, by period

Quantity in short tons

Comparison pre-post petition period	Before period quantity	After period quantity	Difference in percent
1 month	***	***	***
2 months	***	***	***
3 months	***	***	***
4 months	***	***	***
5 months	***	***	***
6 months	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure IV-6

HW jumbo thermal paper: U.S. imports from Korea subject to Commerce's final critical circumstances determination, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-12

HW jumbo thermal paper: U.S. importers' end-of-period inventories from Korea subject to Commerce's affirmative final critical circumstances determination

Quantity in short tons; n/a is not applicable or available.

Month	Quantity	Index
July 31, 2020	***	***
August 31, 2020	***	***
September 30, 2020	***	***
October 31, 2020	***	***
November 30, 2020	***	***
December 31, 2020	***	***
January 31, 2021	***	***
February 28, 2021	***	***
March 31, 2021	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.¹⁴ Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.¹⁵ By quantity, imports from Germany, Japan, Korea, and Spain accounted for *** percent, *** percent, *** percent and *** percent of total imports of all LW thermal paper, respectively, during October 2019 to September 2020 (table IV-13). Imports from Germany, Japan, Korea, and Spain accounted for *** percent, *** percent, *** percent and *** percent of total imports of all HW jumbo thermal paper, respectively, during October 2019 to September 2020 (table IV-14).^{16 17}

¹⁴ Sections 703(a)(1), 705(b)(1), 733(a)(1), and 735(b)(1) of the Act (19 U.S.C. §§ 1671b(a)(1), 1671d(b)(1), 1673b(a)(1), and 1673d(b)(1)).

¹⁵ Section 771 (24) of the Act (19 U.S.C § 1677(24)).

¹⁶ Reported imports from Japan and Spain include nearly all exports to the United States from these subject countries as reported in Part VII.

¹⁷ Additional presentations of data with respect to negligibility can be found in Appendix G.

Table IV-13

All LW thermal paper: U.S. imports in the twelve-month period preceding the filing of the petition, October 2019 through September 2020

Quantity in short tons; share in percent

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of total imports by quantity in percent.

Table IV-14

HW jumbo thermal paper: U.S. imports in the twelve-month period preceding the filing of the petition, October 2019 through September 2020

Quantity in short tons; share in percent

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of total imports by quantity in percent.

Cumulation considerations

In assessing whether imports should be cumulated, the Commission determines whether U.S. imports from the subject countries compete with each other and with the domestic like product and has generally considered four factors: (1) fungibility, (2) presence of sales or offers to sell in the same geographical markets, (3) common or similar channels of distribution, and (4) simultaneous presence in the market. Information regarding channels of distribution, market areas, and interchangeability appear in Part II. Additional information concerning fungibility, geographical markets, and simultaneous presence in the market is presented below.

Fungibility

Table IV-15 and figure IV-7 present data on U.S. producers' and U.S. importers' U.S. shipments of LW jumbo thermal paper by basis weight. The *** category for both U.S. producers' and U.S. importers' U.S. shipments of LW jumbo thermal paper from all sources had a basis weight of ***.

Table IV-16 and figure IV-8 present data on U.S. producers' and U.S. importers' U.S. shipments of LW converted thermal paper by basis weight. The *** U.S. importer to report LW converted thermal paper by basis weight was ***. It reported *** short tons of LW converted thermal paper at a basis weight of ***. The largest share of U.S. producers' U.S. shipments of LW converted thermal paper also were at a basis weight of ***.

Table IV-17 and figure IV-9 present data on U.S. producers' and U.S. importers' U.S. shipments of HW jumbo thermal paper by basis weight. U.S. producers' U.S. shipments of HW jumbo thermal paper were mostly in the basis weight range of ***. This is also true for U.S. importers' U.S. shipments of HW jumbo thermal paper from ***.

Table IV-15**LW jumbo thermal paper: Quantity of U.S. producers' and U.S. importers' U.S. shipments by basis weight, 2020**

Quantity in short tons; basis weight in grams per square meter

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Table continued.

Table IV-15 Continued**LW jumbo thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within source category, 2020**

Share across in percent

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Table continued.

Table IV-15 Continued

LW jumbo thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within source category, 2020

Share down in percent

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure IV-7

LW jumbo thermal paper: U.S. producers' and U.S. importers' U.S. shipments by item, 2020

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-16**LW converted thermal paper: Quantity of U.S. producers' and U.S. importers' U.S. shipments by basis weight, 2020**

Quantity in short tons; basis weight in grams per square meter

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Table continued.

Table IV-16 Continued**LW converted thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within source category, 2020**

Share across in percent

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Table continued.

Table IV-16 Continued

LW converted thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within source category, 2020

Share down in percent

Source	Less than 49.9	49.9 to 60	60 to 70	All items
U.S. producers	***	***	***	***
Germany	***	***	***	***
Japan	***	***	***	***
Korea	***	***	***	***
Spain	***	***	***	***
Subject sources	***	***	***	***
Nonsubject sources	***	***	***	***
All import sources	***	***	***	***
All sources	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure IV-8

LW converted thermal paper: U.S. producers' and U.S. importers' U.S. shipments by item, 2020

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table IV-17
HW jumbo thermal paper: Quantity of U.S. producers' and U.S. importers' U.S. shipments by basis weight, 2020

Quantity in short tons; basis weight in grams per square meter

Source	70 to 79.9	80 to 89.9	90 to 99.5	100 and over	All items
U.S. producers	***	***	***	***	***
Germany	***	***	***	***	***
Japan	***	***	***	***	***
Korea	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Subject sources less Japan and Spain	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
Nonsubject sources plus Japan and Spain	***	***	***	***	***
All import sources	***	***	***	***	***
All sources	***	***	***	***	***

Table continued.

Table IV-17 Continued
HW jumbo thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within source category, 2020

Share across in percent

Source	70 to 79.9	80 to 89.9	90 to 99.5	100 and over	All items
U.S. producers	***	***	***	***	***
Germany	***	***	***	***	***
Japan	***	***	***	***	***
Korea	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Subject sources less Japan and Spain	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
Nonsubject sources plus Japan and Spain	***	***	***	***	***
All import sources	***	***	***	***	***
All sources	***	***	***	***	***

Table continued.

Table IV-17 Continued
HW jumbo thermal paper: Share of U.S. producers' and U.S. importers' U.S. shipments within
source category, 2020

Share down in percent

Source	70 to 79.9	80 to 89.9	90 to 99.5	100 and over	All items
U.S. producers	***	***	***	***	***
Germany	***	***	***	***	***
Japan	***	***	***	***	***
Korea	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Subject sources less Japan and Spain	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
Nonsubject sources plus Japan and Spain	***	***	***	***	***
All import sources	***	***	***	***	***
All sources	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure IV-9
HW jumbo thermal paper: U.S. producers' and U.S. importers' U.S. shipments by item, 2020

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Geographical markets

Table IV-18 presents data on U.S. imports of all thermal paper by border of entry in 2020. According to official U.S. import statistics, Eastern points of entry were common points of entry for imports of subject sources. The majority of U.S. imports from Germany, Japan, and Spain entered the United States in 2020 through Eastern ports of entry, while the largest share of U.S. imports from Korea entered the United States in 2020 through Western ports of entry.¹⁸

Table IV-18
Thermal paper: Quantity of U.S. imports by border of entry, 2020

Quantity in short tons

Source	East	North	South	West	All borders
Germany	39,365	1,581	23,299	3,451	67,696
Japan	22,912	1	1	7,843	30,757
Korea	16,318	10,032	11,548	22,021	59,918
Spain	10,259	368	8,014	16	18,657
Subject sources	88,853	11,982	42,862	33,331	177,028
Nonsubject sources	5,655	3,137	6,394	3,183	18,370
All import sources	94,508	15,119	49,256	36,514	195,397

Table continued.

¹⁸ The top three ports of entry for U.S. imports of thermal paper from Germany classified under HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 in 2019 were Charleston, South Carolina, Houston-Galveston, Texas, and Los Angeles, California. The top two ports of entry for U.S. imports of thermal paper from Japan classified under HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 in 2020 were Los Angeles, California and Savannah, Georgia. The top three ports of entry for U.S. imports of thermal paper from Korea classified under HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 in 2020 were Savannah, Georgia, Nogales, Arizona, and Los Angeles, California. The top two ports of entry for U.S. imports of thermal paper from Spain classified under HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 in 2020 were Houston-Galveston, Texas and New York, New York.

Table IV-18 Continued
Thermal paper: Share of quantity of U.S. imports by border of entry region, 2020

Share across in percent

Source	East	North	South	West	All borders
Germany	58.1	2.3	34.4	5.1	100.0
Japan	74.5	0.0	0.0	25.5	100.0
Korea	27.2	16.7	19.3	36.8	100.0
Spain	55.0	2.0	43.0	0.1	100.0
Subject sources	50.2	6.8	24.2	18.8	100.0
Nonsubject sources	30.8	17.1	34.8	17.3	100.0
All import sources	48.4	7.7	25.2	18.7	100.0

Table continued.

Table IV-18 Continued
Thermal paper: Share of quantity of U.S. imports by source, 2020

Share down in percent

Source	East	North	South	West	All borders
Germany	41.7	10.5	47.3	9.5	34.6
Japan	24.2	0.0	0.0	21.5	15.7
Korea	17.3	66.4	23.4	60.3	30.7
Spain	10.9	2.4	16.3	0.0	9.5
Subject sources	94.0	79.2	87.0	91.3	90.6
Nonsubject sources	6.0	20.8	13.0	8.7	9.4
All import sources	100.0	100.0	100.0	100.0	100.0

Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 for all sources except Spain and HTS subheading 4811.90 for Spain, accessed July 21, 2021.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Presence in the market

Table IV-19 and figures IV-10 and IV-11 present U.S. imports of thermal paper from individual and aggregated subject sources and nonsubject sources, by month, from January 2018 through May 2021. U.S. imports from all subject and nonsubject sources were present during each of the 41 months.

Table IV-19
Thermal paper: Quantity of U.S. imports, by year and month

Quantity in short tons

Year	Month	Germany	Japan	Korea	Spain	Subject sources	Nonsubject sources	All import sources
2018	January	5,333	3,301	4,569	208	13,412	1,579	14,991
2018	February	7,037	3,426	4,895	366	15,724	1,025	16,749
2018	March	4,414	3,322	5,532	205	13,474	1,496	14,970
2018	April	6,163	3,987	5,439	105	15,694	1,347	17,041
2018	May	7,457	3,159	4,535	216	15,366	2,310	17,676
2018	June	6,271	2,699	5,216	247	14,433	1,754	16,186
2018	July	6,835	3,655	5,336	558	16,385	2,019	18,404
2018	August	5,456	3,285	5,124	536	14,400	1,630	16,031
2018	September	5,915	2,478	3,827	354	12,573	2,150	14,723
2018	October	7,193	2,958	6,095	327	16,574	1,592	18,166
2018	November	4,392	2,665	6,481	79	13,618	1,302	14,920
2018	December	5,871	3,307	5,508	498	15,184	1,207	16,391
2019	January	7,663	3,859	6,429	218	18,168	1,461	19,630
2019	February	5,694	3,912	5,889	2,546	18,041	900	18,941
2019	March	7,083	3,103	6,263	2,854	19,304	1,400	20,704
2019	April	6,042	3,371	4,295	837	14,546	1,337	15,882
2019	May	5,637	3,256	5,631	2,046	16,570	1,388	17,958
2019	June	2,578	3,113	5,660	2,488	13,840	1,234	15,073
2019	July	3,429	3,129	4,841	1,338	12,737	1,571	14,308
2019	August	4,945	4,011	5,549	512	15,018	1,835	16,853
2019	September	3,785	2,315	5,329	416	11,844	1,888	13,732
2019	October	6,527	3,900	7,375	1,140	18,942	1,404	20,346
2019	November	6,096	2,600	6,773	496	15,964	1,969	17,933
2019	December	5,517	2,293	6,263	306	14,378	2,060	16,438

Table continued.

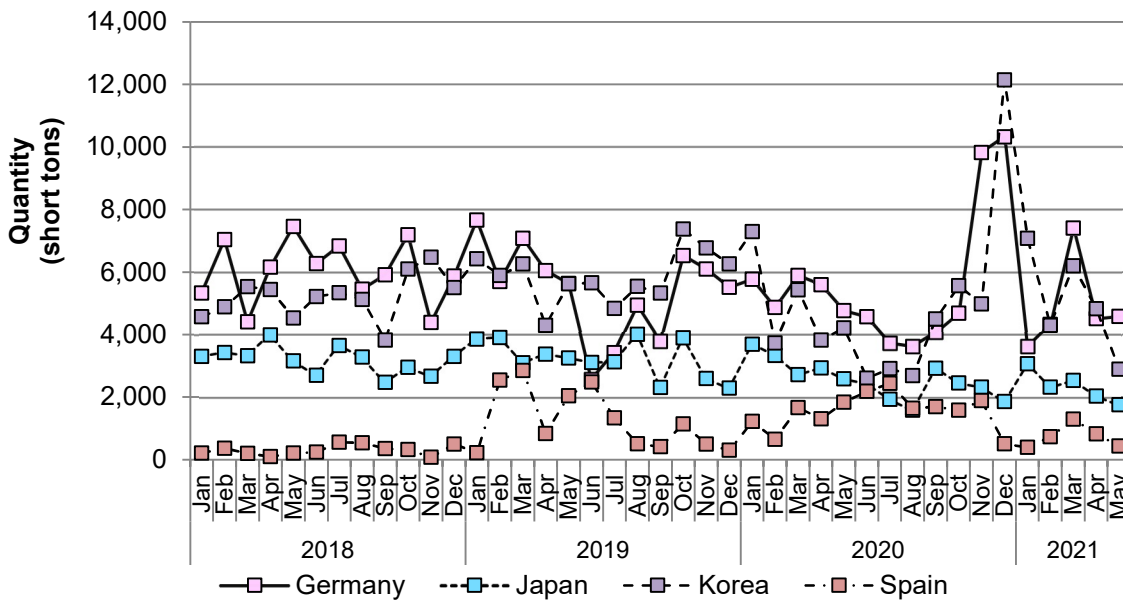
Table IV-19 Continued
Thermal paper: Quantity of U.S. imports, by year and month

Quantity in short tons

Year	Month	Germany	Japan	Korea	Spain	Subject sources	Nonsubject sources	All import sources
2020	January	5,768	3,692	7,294	1,229	17,984	1,888	19,872
2020	February	4,870	3,330	3,731	652	12,583	1,682	14,266
2020	March	5,891	2,725	5,436	1,663	15,715	1,524	17,238
2020	April	5,594	2,938	3,831	1,307	13,669	1,764	15,433
2020	May	4,763	2,586	4,217	1,838	13,404	1,352	14,756
2020	June	4,571	2,429	2,608	2,189	11,797	1,177	12,974
2020	July	3,723	1,927	2,913	2,443	11,006	1,826	12,832
2020	August	3,617	1,586	2,687	1,648	9,538	1,419	10,957
2020	September	4,067	2,920	4,500	1,696	13,183	1,422	14,604
2020	October	4,685	2,452	5,569	1,587	14,293	1,597	15,890
2020	November	9,821	2,316	4,982	1,895	19,013	1,318	20,331
2020	December	10,327	1,856	12,149	510	24,843	1,401	26,243
2021	January	3,621	3,069	7,085	396	14,172	1,701	15,873
2021	February	4,332	2,324	4,299	731	11,686	1,248	12,934
2021	March	7,406	2,541	6,204	1,294	17,445	1,473	18,918
2021	April	4,514	2,034	4,826	823	12,197	1,556	13,753
2021	May	4,585	1,762	2,897	438	9,682	1,682	11,364

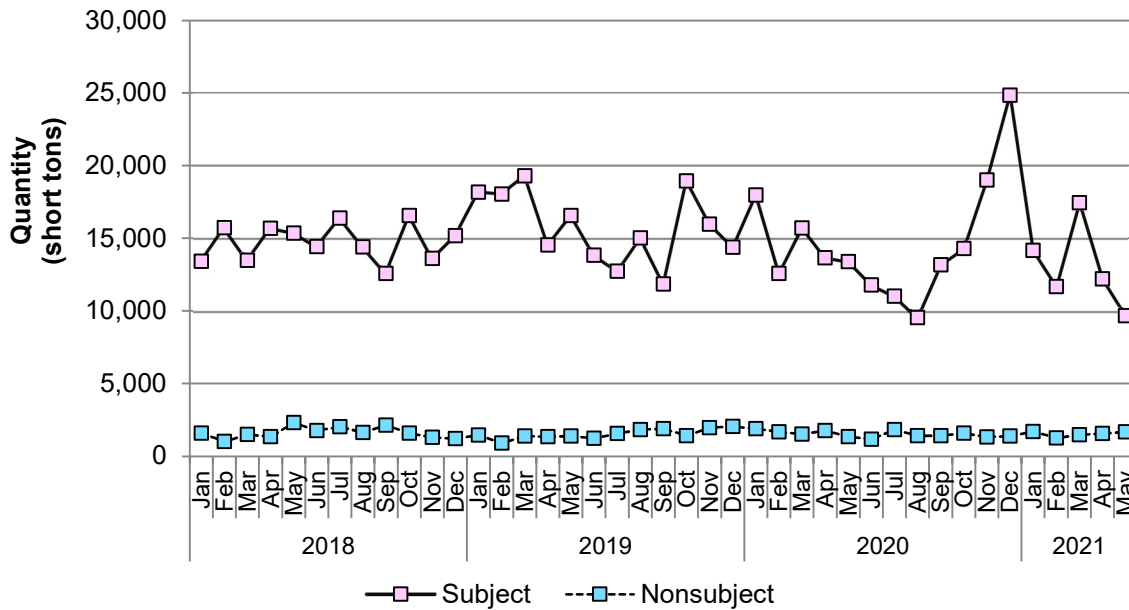
Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 for all sources except Spain and HTS subheading 4811.90 for Spain, accessed July 21, 2021.

Figure IV-10
Thermal paper: U.S. imports from individual subject sources by year and month



Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 for all sources except Spain and HTS subheading 4811.90 for Spain, accessed July 21, 2021.

Figure IV-11
Thermal paper: U.S. imports from individual subject sources by year and month



Source: Compiled from official U.S. import statistics using HTS statistical reporting numbers 4811.90.8030 and 4811.90.9030 for all sources except Spain and HTS subheading 4811.90 for Spain, accessed July 21, 2021.

Apparent U.S. consumption and U.S. market shares

Tables IV-20 and IV-21 and figure IV-12 present data on apparent U.S. consumption and U.S. market shares for all LW thermal paper.¹⁹ The quantity of total apparent LW thermal paper consumption decreased during 2018-20 by *** percent, and was *** percent lower in January-March 2021 than in January-March 2020. The value of total LW thermal paper apparent consumption decreased during 2018-20 by *** percent. The value of apparent consumption was *** percent lower in January-March 2021 than in January-March 2020.²⁰ The quantity and value of U.S producers' U.S. shipments, as well as nearly all U.S. shipments of imports from subject sources, decreased each year during 2018-20.²¹

¹⁹ Hansol contended that the trends in overall apparent consumption during 2018-20 are largely attributable to “the fact that this POI is bookended by unusual market events,” these events being the leuco dye supply disruption in 2018, and the impact of COVID-19 in 2020. Hansol’s prehearing brief, pp. 13-15.

²⁰ ***.

²¹ The exception to this is U.S. shipments of imports from Spain, the quantity of which increased between 2019 and 2020 by *** percent.

Table IV-20
All LW thermal paper: Apparent U.S. consumption, by source and period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers fully domestic value	Value	***	***	***	***	***
U.S. producers value added to imports	Value	***	***	***	***	***
U.S. producers total	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: The quantity for U.S. producers' U.S. shipments reflects the quantity of LW jumbo thermal paper sold in the United States by U.S. LW jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of LW jumbo rolls sold in the United States by U.S. LW jumbo producers plus the additional value added to U.S.-produced and imported LW jumbo rolls of thermal paper by U.S. LW converters based on U.S.-conversion operations. In measuring consumption and market share, this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Figure IV-12
All LW thermal paper: Apparent U.S. consumption, by source and period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires

As shown in table IV-21, U.S. shipments of subject imports collectively accounted for the majority share of the U.S. market of all LW thermal paper by quantity, which increased from *** percent in 2018 to *** percent in 2020, for an overall gain of *** percentage points. The market share held by subject LW thermal paper imports was *** percentage points higher in January-March 2021 than in January-March 2020. U.S. producers' market share decreased from *** percent in 2018 to *** percent in 2020, for an overall decrease of *** percentage points. The market share held by U.S. shipments of imports from Germany, ***, increased from *** percent in 2018 to *** percent in 2020, and was *** percentage points higher in January-March 2021 than in January-March 2020. U.S. shipments of imports from Japan decreased from *** percent in 2018 to *** percent in 2020, and were *** percentage points lower in January-March 2021 than in January-March 2020. The market share of U.S. shipments of imports from Korea fluctuated during 2018-20, but decreased overall by *** percentage points, though it was *** percentage points higher in January-March 2021 than in January-March 2020. The market share held by U.S. shipments of imports from Spain increased from *** percent in 2018 to *** percent in 2020, though it was *** percentage points lower in January-March 2021 than in January-March 2020.

Table IV-21
All LW thermal paper: U.S. market shares, by source and period

Share in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers fully domestic value	Share of value	***	***	***	***	***
U.S. producers value added to imports	Share of value	***	***	***	***	***
U.S. producers total	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of apparent U.S. consumption by quantity in percent; share of value is the share of apparent U.S. consumption by value in percent

As shown below in table IV-22 and in figure IV-13, the quantity of total apparent consumption of HW jumbo thermal paper increased during 2018-20 by *** percent, with most of the increase occurring between 2019 and 2020, though was *** percent lower in January-March 2021 than in January-March 2020. The value of total apparent consumption of HW jumbo thermal paper also increased during 2018-20, by *** percent, though was *** percent lower in January-March 2021 than in January-March 2020.

Table IV-22
HW jumbo thermal paper: Apparent U.S. consumption, by source and period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Subject sources less Japan and Spain	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers total	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Subject sources less Japan and Spain	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure IV-13
HW jumbo thermal paper: Apparent U.S. consumption, by source and period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires

In contrast to the trends discussed above with regard to market shares of all LW thermal paper, as shown in table IV-23 U.S. producers' U.S. shipments accounted for the majority share of the HW jumbo thermal paper U.S. market by quantity in each year and interim period, accounting for *** percent in 2018, *** percent in 2019, and *** percent in 2020, and its share was *** percentage points higher in January-March 2021 than in January-March 2020. U.S. shipments of imports from subject sources accounted for a rising share, accounting for *** percent in 2018, *** percent in 2019, and *** percent in 2020, though its share was *** percentage points lower in January-March 2021 than in January-March 2020.

Table IV-23
HW jumbo thermal paper: U.S. market shares, by source and period

Share in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Subject sources less Japan and Spain	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Subject sources less Japan and Spain	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
Nonsubject sources plus Japan and Spain	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Share of quantity is the share of apparent U.S. consumption by quantity in percent; share of value is the share of apparent U.S. consumption by value in percent

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Part V: Pricing data

Factors affecting prices

Raw material costs

Raw materials used to produce jumbo rolls of thermal paper are virgin pulp/paper and chemicals used in the coating process.¹ These chemicals can include developers, such as Bisphenol A (“BPA”) and Bisphenol S (“BPS”), although there is a movement towards BPA-free, BPS-free, and phenol-free thermal paper. U.S. producers reported that they did not use any recycled paper as it creates a lower quality thermal paper.² Raw materials, as a share of cost of goods sold (“COGS”) before offsets from by-product revenue,³ ranged between *** percent during 2018-20 for lightweight (“LW”) jumbo rolls and *** percent for heavyweight (“HW”) jumbo rolls. Raw materials as a share of COGS for LW converted paper ranged from *** percent for the same time period.⁴ Jumbo rolls (either domestically produced or imported) are a major component of the COGS for independent LW converters, accounting for *** percent of total raw material costs from 2018-20.

During 2018-19, there were two major raw material price shocks: wood pulp prices increased due to an increase in demand for virgin pulp in China, and the price of leuco dye increased dramatically due to plant closures in China, creating a supply shortage.

As shown by table V-1 and figure V-1, the price of wood pulp fluctuated from January 2018 to May 2021, with prices peaking in December 2018 and falling steadily through January 2020, and remaining stable for the rest of 2020. Wood pulp prices increased in 2021, but were lower than they were in 2018.⁵

¹ These chemicals include “wet and dry coating components,” and coatings are typically blended in-house from solid and liquid raw materials from third-party vendors. Petition, p. 9. See also Petition exh. I-2, ***, for more information on the chemicals involved in thermal paper production.

² Conference transcript, p. 109 (Hefner).

³ See Part VI for a discussion on U.S. producers’ by-product revenue for LW and HW jumbo rolls.

⁴ See Part VI for more information.

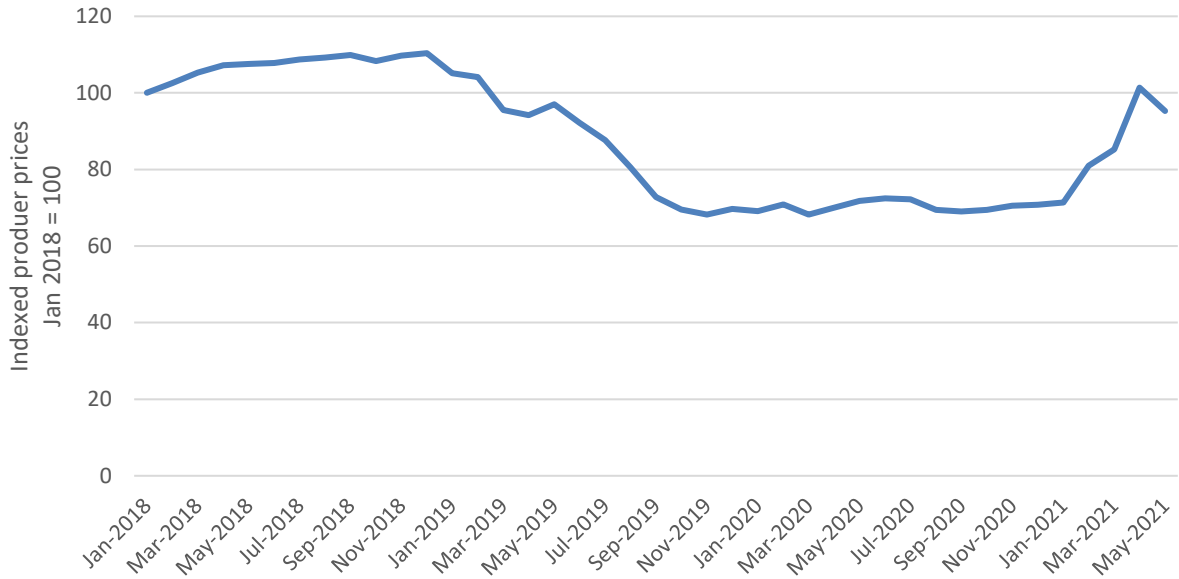
⁵ Respondent Koehler provided an economic model to explain Koehler’s thermal paper prices with regards to raw materials and other inputs. See Respondent Koehler’s prehearing brief, exhibit 3.

Table V-1**Raw materials: Producer price index of wood pulp, monthly, not seasonally adjusted, January 2018 = 100, by period**

Period	Indexed producer price
January 2018	100.0
February 2018	102.6
March 2018	105.3
April 2018	107.2
May 2018	107.5
June 2018	107.8
July 2018	108.7
August 2018	109.2
September 2018	109.9
October 2018	108.3
November 2018	109.7
December 2018	110.4
January 2019	105.1
February 2019	104.1
March 2019	95.5
April 2019	94.2
May 2019	97.0
June 2019	92.2
July 2019	87.7
August 2019	80.6
September 2019	72.8
October 2019	69.6
November 2019	68.2
December 2019	69.7
January 2020	69.1
February 2020	70.9
March 2020	68.2
April 2020	70.1
May 2020	71.8
June 2020	72.4
July 2020	72.2
August 2020	69.5
September 2020	69.1
October 2020	69.4
November 2020	70.5
December 2020	70.8
January 2021	71.4
February 2021	81.0
March 2021	85.3
April 2021	101.3
May 2021	95.3

Source: U.S. Bureau of Labor Statistics, Producer Price Index by Commodity: Pulp, Paper, and Allied Products: Wood Pulp (WPU0911), retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WPU0911>, July 8, 2021.

Figure V-1
Raw materials: Producer price index of wood pulp, monthly, not seasonally adjusted, January 2018 = 100, January 2018-May 2021



Source: U.S. Bureau of Labor Statistics, Producer Price Index by Commodity: Pulp, Paper, and Allied Products: Wood Pulp (WPU0911), retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WPU0911>, July 8, 2021.

Leuco dye shortage

The shortage of leuco dye,⁶ which began at the end of 2017 and ended in late 2018,⁷ caused large increases in the price of leuco dye.⁸ Seven of 10 responding U.S. producers,⁹ 4 of 5 responding foreign producers, and 6 of 11 responding importers reported that the leuco dye shortage impacted their sales of thermal paper. Eighteen of the 26 responding purchasers reported that it impacted their purchases of thermal paper.

U.S. producer *** reported that all thermal producers use leuco dye and buy from the same suppliers. The operational impact for Appvion was between January to February 2018, with occasional operational shutdowns, but after March 1 “Appvion experienced no production constraints and no interruption to our production schedules”.^{10 11} U.S. producer *** reported that it was put on allocation and suffered from decreased revenues. U.S. producers *** reported price increases, with *** reporting that it had to raise prices “significantly.”¹² U.S. producer *** also reported that it sold less converted paper because the leuco dye shortage reduced its supply of jumbo rolls. Importers reporting effects of the leuco dye shortage reported limiting sales (***) and general production and supply disruptions in 2018 ***. Importer ***

⁶ Leuco dye is considered “critical” to the production of thermal paper, as it is “the chemical coating applied on the base paper that appears colorless at room temperature and changes to a visible color upon the application of heat through the thermal head of the printing unit.” Koehler’s postconference brief, p. 8.

⁷ The Chinese government closed the largest Chinese leuco dye producer in September 2017 due to environmental protection laws, and also “simultaneously shuttered several other manufacturers.” Approximately 80 percent of global leuco dye production comes from China, with Japan and the United States making up the remaining 20 percent of production. Koehler’s prehearing brief, p. 9 and hearing transcript, p. 64 (Hudson).

⁸ According to respondent Koehler, the price of leuco dye increased by *** percent. Respondent Koehler’s prehearing brief, p. 12. *See also*, Conference transcript, p. 192 (DeBusk). Petitioner *** provided data showing that leuco dye prices increased from approximately *** per pound in the first quarter of 2017 to *** per pound by the third quarter of 2018, a *** percent increase. Petitioner’s post-conference brief, exh. 30.

⁹ U.S. producer and petitioner Kanzaki reported that it did not have any issues purchasing leuco dye but had passed along the leuco dye price increases to its customers. Hearing transcript, p. 130 (Hefner).

¹⁰ Petitioner Appvion added that there was a temporary increase in thermal paper prices that lasted through 2018, but prices had decreased by 2019 and continued into 2020. Hearing transcript, pp. 64-65 (Hodson).

¹¹ Respondent Koehler asserted that the leuco dye shortage was “severe” and that Appvion air freighted leuco dye from China to maintain thermal paper production. Respondent Koehler’s posthearing brief, p. 10.

¹² U.S. producer *** reported that it was not in the ***.

added that converters over purchased jumbo rolls during the shortage leading to an “all-time high” of inventories in 2018 and the beginning of 2019.¹³ Foreign producer *** added that the leuco dye shortage caused supply disruptions from 2017 to 2018. Foreign producer *** reported that the price of the dye was up to seven to eight times higher than normal, and it used “alternative color formers” instead of black images.

Respondent and foreign producer/importer Koehler stated that it had “more inventory on hand” and was a “favored customer” with its Chinese producer of leuco dye, and was able to procure leuco dye when other producers could not.¹⁴ Respondent and foreign producer/importer Hansol explained that it had developed “innovations” in its thermal coating during the shortage to maintain its supply of thermal paper,¹⁵ and that due to its proximity to China it was able to recover its sourcing of leuco dye quickly.¹⁶

Nine purchasers mentioned increased thermal paper prices resulted from the leuco dye shortage, and *** reported that U.S. producer Kanzaki raised prices 35 percent in 2018.¹⁷ Other effects of the shortage included limited availability of supply, with *** reporting that Hansol did not ship paper for 3 months at the end of 2017 and *** reporting that its supplier from *** also ran out of product. Purchaser *** also reported that “U.S. purchasers of thermal paper jumbo rolls (converters) purchased large bulk amounts of products in anticipation of reduced supply.”

Transportation costs to the U.S. market

Transportation costs as a share of landed duty-paid value for thermal paper¹⁸ shipped from subject countries to the United States averaged 6.6 percent for Germany during 2020, 9.2 percent for Japan, 0.2 percent for South Korea, and 1.1 percent for Spain. These estimates were derived from official import data and represent the transportation and other charges on imports.¹⁹

¹³ *** added that converter purchases were also “frenzied” because of Appvion’s bankruptcy which occurred at the same time as the leuco dye shortage.

¹⁴ Hearing transcript, p. 230 (DeBusk).

¹⁵ Hansol added that the “alternative coating formulation” launched in mid-2018 and “lessened the impact of the dye prices on Hansol’s customers.” Hearing transcript, p. 185 (Han).

¹⁶ Hearing transcript, pp. 230-231 (Han).

¹⁷ *** also reported that Kanzaki raised prices 10 percent in 2021.

¹⁸ Unless otherwise specified, thermal paper refers to LW jumbo rolls, LW converted rolls, and HW jumbo rolls. LW thermal paper refers to LW jumbo rolls and LW converted rolls.

¹⁹ The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2020 and then dividing by the customs value based on the HTS statistical reporting number 4811.90.8030 and 4811.90.9030.

U.S. inland transportation costs

Seven of eight responding U.S. producers and all responding importers reported that they typically arrange transportation to their customers. Most U.S. producers reported inland transportation costs of 2.5 to 5.4 percent for LW thermal paper and most reported the same range for HW jumbo rolls.²⁰ Most importers reported inland transportation costs of 1.5 to 5.2 percent for LW thermal paper, and all responding importers reported inland transportation costs of 1.3 percent to 4.0 percent for HW jumbo paper.²¹

Pricing practices

Pricing methods

U.S. producers and importers reported setting prices using a variety of methods, with almost all responding U.S. producers and a majority of importers using transaction-by-transaction negotiations (table V-2).

Table V-2
Thermal paper: U.S. producers' and importers' reported price setting methods, by count

Method	U.S. producers	Importers
Transaction-by-transaction	9	7
Contract	7	1
Set price list	4	1
Other	0	4
Responding firms	10	11

Source: Compiled from data submitted in response to Commission questionnaires.

Note: The sum of responses down may not add up to the total number of responding firms as each firm was instructed to check all applicable price setting methods employed.

U.S. producers reported selling nearly all of their LW jumbo paper through short-term contracts and spot sales, with less than *** percent of sales made through annual contracts, while they mostly sold LW converted paper through long-term contracts and spot sales (tables V-3 and V-4).²² Importers reported selling the vast majority of their LW jumbo rolls through short-term contracts, and one importer reported its LW converted paper was sold exclusively

²⁰ U.S. producers *** reported inland transportation costs of 10.0 percent for LW thermal paper and *** reported 15.0 percent for HW thermal paper.

²¹ Importers *** reported inland transportation costs of 6.0 and 18.0 percent, respectively, for LW thermal paper.

²² Firms' shares were calculated by using the firms reported percentages for contract types for all scope product and then weighting by the reported quantities of U.S. commercial shipments by product type (LW jumbo, LW converted, HW jumbo) to derive the individual percentages by product type.

through ***. U.S. producers and importers reported selling the majority of their HW jumbo rolls through short-term contracts with some spot sales and even fewer sales made through annual contracts (table V-5).

Table V-3
LW jumbo thermal paper: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2020

Share in percent

Method	U.S. producers	Importers
Long-term contracts	***	***
Annual contracts	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Because of rounding, figures may not add to the totals shown.

Table V-4
LW converted thermal paper: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2020

Share in percent

Method	U.S. producers	Importers
Long-term contracts	***	***
Annual contracts	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Because of rounding, figures may not add to the totals shown.

**Table V-5
HW jumbo thermal paper: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2020**

Share in percent

Method	U.S. producers	Importers
Long-term contracts	***	***
Annual contracts	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Because of rounding, figures may not add to the totals shown.

U.S. producers' average short-term contract duration ranged from 30 to 180 days, while long-term contracts averaged 2 years.²³ Most U.S. producers allowed for price renegotiations, regardless of contract length, and producers had varying responses regarding fixed price and quantity provisions.²⁴ Most U.S. producers reported that they did not index prices to raw materials for short-term and annual contracts but reported that they did index prices to raw materials for long-term contracts.²⁵

Importers reported that their short-term contracts were for an average of 30 to 90 days. Five of eight responding importers reported that they do not allow price renegotiations and had fixed price and quantity provisions,²⁶ and no importers indexed prices to raw material costs in their short-term contracts. For annual contracts, one importer reported price renegotiations, a fixed quantity provision, and it did not index prices to raw materials.

Ten purchasers each reported that they purchase product monthly and weekly, 7 purchase daily, and 4 purchase quarterly.²⁷ Twenty-one of 28 responding purchasers reported

²³ U.S. producers and importers were not asked to report contract durations or other contract provisions by thermal paper product.

²⁴ For short term contracts, one U.S. producer reported it had a fixed quantity provision, one had fixed price, and one reported fixed quantity and prices. For annual contracts, one U.S. producer reported fixed quantity, two reported fixed price, and one reported fixed quantity and price provisions. For long term contracts, one U.S. producer reported fixed quantity, one reported fixed price, and two reported fixed price and quantity provisions.

²⁵ U.S. producers reported using RISI (generally) and the RISI LW thermal index as their raw material indices. U.S. producer ***, however, noted the RISI price index is "based off of answers to a survey that they send to the mills and converters. The information is not based on factual invoices but a simple survey and the results are not always accurate."

²⁶ Three importers reported fixed quantity provisions in their short-term contracts.

²⁷ Purchasers *** reported more than one purchasing frequency. *** explained that it purchased weekly for LW paper and quarterly for HW paper.

that their purchasing frequency had not changed since 2018.²⁸ Most (22 of 26) purchasers contact 1 to 5 suppliers before making a purchase.

Sales terms and discounts

U.S. producers and importers typically quote prices on a delivered basis. A majority of producers offer quantity or total volume discounts,²⁹ while most importers did not provide any discounts or offered “other” discounts. Other discounts offered included payment term discounts and on-time payment discounts.³⁰

Price leadership

Purchasers reported the following as price leaders, with most purchasers explaining that these firms exhibited price leadership by initiating price increases:³¹

- Appvion (7 purchasers)
- Domtar (6 purchasers)
- Hansol (6 purchasers)
- Koehler (6 purchasers)
- Matra (3 purchasers)
- Iconex (2 purchasers)
- Lecta (2 purchasers)
- Torraspapel (1 purchaser)

Purchaser *** reported that Appvion is the largest supplier of heavyweight thermal paper and it initiates market prices, and *** reported that Domtar initiated the “most and highest price increases” in 2021 and also reduced the number of thermal paper mills. Purchaser *** reported that Domtar is the largest domestic producer and has the most leverage but the worst quality. *** reported that prior to its sale to Domtar, Appvion was a “value-added” supplier and was priced at a premium. Purchaser

²⁸ Purchasers reporting changes in their frequency of purchases reported decreased purchases due to the COVID-19 pandemic and the preliminary duties in these investigations.

²⁹ Seven of 10 U.S. producers reported offering a quantity discount, 5 offered a total volume discount, 2 offered no discounts, and 1 producer offered other discounts such as “year-end, quantity discounts, quarterly rebates or one-time retention bonuses.” Multiple producers reported more than one type of discount.

³⁰ Five of 11 responding importers reported no discount policies, 6 reported other discounts, 1 reported quantity discounts, and 1 reported total volume discounts.

³¹ Multiple purchasers reported more than one price leader.

*** reported that Koehler and Hansol have the most pricing leverage, that Domtar follows price movements, and that Torras is trying to “gain traction” in the U.S. market.

Price data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and delivered value³² of the following thermal paper products shipped to unrelated U.S. customers during January 2018-March 2021.

Product 1.-- Thermal paper in jumbo rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Product 2.-- Thermal paper in jumbo rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Product 3.-- Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Product 4.-- Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Product 5.-- Thermal paper in converted rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

³² The Commission collected price data in the preliminary phase of these investigations on an F.O.B. basis. Petitioners requested the price data collection be reported on a delivered basis. The Commission used delivered values in the full review of thermal paper from China and Germany. While delivered values can lead to distortions in the calculated margins, given the structure of the thermal paper market and the difficulty for firms to estimate the cost of inland freight during the preliminary phase of these investigations, the Commission requested delivered values in the final phase investigations. See Petitioners’ comments on draft questionnaires; *Lightweight Thermal Paper from China and Germany*, Inv. Nos. 701-TA-451 and 731-TA-1126-1127 (Review), USITC Publication 4511, January 2015 (“First review publication”), pp. V-4 to V-8; and *Thermal Paper from Germany, Japan, Korea, and Spain*, Inv. Nos. 731-TA-1546-1549 (Preliminary), USITC Pub. 5141 (Dec. 2020) at V-4, fn. 7.

Product 6.-- Thermal paper in converted rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Product 7.-- Thermal paper in jumbo rolls, with a target caliper of 3.23 to 4.33 mils (82 to 110 microns), with a target basis weight greater than 80 g/m², not topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Product 8.-- Thermal paper in jumbo rolls, with a target caliper of 3.23 to 9.65 mils (82 to 245 microns), with a target basis weight greater than 80 g/m², topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Five U.S. producers^{33 34} and 10 importers provided usable pricing data for sales of the requested products,³⁵ although not all firms reported pricing for all products for all quarters.³⁶ Pricing data reported by these firms accounted for approximately 75.0 percent of U.S. producers' shipments of thermal paper on a value basis³⁷ and 85.0 percent of U.S. shipments of subject imports from Germany, 102.4 percent from Japan, 91.7 percent from Korea,³⁸ and 103.2 from Spain in 2020 on a value basis.³⁹ No importers reported price data for product 6.

³³ These producers were ***.

³⁴ *** provided price data for products 4 and 8, but noted that not all of its sales were reported on a delivered basis and it was unable to adjust ***. Its price data was not included in the tables and analyses below.

³⁵ Importers reported price data for the following countries: Germany (***), Japan (***), Korea (***), and Spain (***).

³⁶ Per-unit pricing data are calculated from total quantity and total value data provided by U.S. producers and importers. The precision and variation of these figures may be affected by rounding, limited quantities, and producer or importer estimates.

³⁷ By product type, products concerning jumbo rolls (products 1-4 and 7-8) accounted for *** percent of U.S. producers' LW and HW jumbo shipments, and *** percent of LW converted shipments, on a value basis.

³⁸ By product type, products concerning jumbo rolls (products 1-4 and 7-8) accounted for *** percent of importers shipments of Korean LW and HW jumbo rolls, and *** percent of Korean LW converted shipments. Importers did not report shipments of LW converted thermal paper from other subject sources.

³⁹ Pricing coverage is based on the value of U.S. shipments reported in questionnaires. The pricing coverage will be overstated or greater than 100 percent as the price data values are reported on a delivered basis (which includes transportation and logistical costs) and the U.S. shipments values are reported on an F.O.B. basis.

Price data for products 1-8 are presented in tables V-6 to V-13 and figures V-2 to V-9.

Table V-6

Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin	Japan price	Japan quantity	Japan margin
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***

Period	Korea price	Korea quantity	Korea margin	Spain price	Spain quantity	Spain margin	Subject sources price	Subject sources quantity	Subject sources margin
2018 Q1	***	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 1: Thermal paper in jumbo rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Table V-7

Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin	Japan price	Japan quantity	Japan margin
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	10.81	250,239	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***

Period	Korea price	Korea quantity	Korea margin	Spain price	Spain quantity	Spain margin	Subject sources price	Subject sources quantity	Subject sources margin
2018 Q1	***	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	12.24	215,055	***
2018 Q4	***	***	***	***	***	***	12.71	122,452	***
2019 Q1	***	***	***	***	***	***	12.04	133,895	***
2019 Q2	***	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	8.35	246,871	***
2021 Q1	***	***	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 2: Thermal paper in jumbo rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Table V-8
Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin	Japan price	Japan quantity	Japan margin
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***

Period	Korea price	Korea quantity	Korea margin	Spain price	Spain quantity	Spain margin	Subject sources price	Subject sources quantity	Subject sources margin
2018 Q1	***	***	***	***	***	***	12.94	199,093	***
2018 Q2	***	***	***	***	***	***	13.51	187,780	***
2018 Q3	***	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	12.92	437,819	***
2020 Q1	***	***	***	***	***	***	12.80	477,408	***
2020 Q2	***	***	***	***	***	***	12.18	437,266	***
2020 Q3	***	***	***	***	***	***	12.10	476,717	***
2020 Q4	***	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	12.37	420,987	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 3: Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Table V-9

Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 4 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin	Korea price	Korea quantity	Korea margin
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***

Period	Subject sources price	Subject sources quantity	Subject sources margin
2018 Q1	***	***	***
2018 Q2	***	***	***
2018 Q3	***	***	***
2018 Q4	***	***	***
2019 Q1	***	***	***
2019 Q2	***	***	***
2019 Q3	***	***	***
2019 Q4	***	***	***
2020 Q1	***	***	***
2020 Q2	***	***	***
2020 Q3	***	***	***
2021 Q1	***	***	***
2021 Q2	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 4: Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Note: No importer reported price data for product 4 from Japan or Spain.

Table V-10**Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 5 and margins of underselling/(overselling), by quarter**

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Korea price	Korea quantity	Korea margin
2018 Q1	***	***	***	***	***
2018 Q2	***	***	***	***	***
2018 Q3	***	***	***	***	***
2018 Q4	***	***	***	***	***
2019 Q1	***	***	***	***	***
2019 Q2	***	***	***	***	***
2019 Q3	***	***	***	***	***
2019 Q4	***	***	***	***	***
2020 Q1	***	***	***	***	***
2020 Q2	***	***	***	***	***
2020 Q3	***	***	***	***	***
2020 Q4	***	***	***	***	***
2021 Q1	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 5: Thermal paper in converted rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Note: No importer reported price data for product 5 from Germany, Japan, or Spain. Importer ***. See email from *** August 23, 2021.

Table V-11
Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 6 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity
2018 Q1	***	***
2018 Q2	***	***
2018 Q3	***	***
2018 Q4	***	***
2019 Q1	***	***
2019 Q2	***	***
2019 Q3	***	***
2019 Q4	***	***
2020 Q1	***	***
2020 Q2	***	***
2020 Q3	***	***
2020 Q4	***	***
2021 Q1	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 6: Thermal paper in converted rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Note: No importer reported price data for product 6 from any subject country.

Table V-12

Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 7 and margins of underselling/(overselling), by quarter

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin	Japan price	Japan quantity	Japan margin
2018 Q1	***	***	***	***	***	***	***	***
2018 Q2	***	***	***	***	***	***	***	***
2018 Q3	***	***	***	***	***	***	***	***
2018 Q4	***	***	***	***	***	***	***	***
2019 Q1	***	***	***	***	***	***	***	***
2019 Q2	***	***	***	***	***	***	***	***
2019 Q3	***	***	***	***	***	***	***	***
2019 Q4	***	***	***	***	***	***	***	***
2020 Q1	***	***	***	***	***	***	***	***
2020 Q2	***	***	***	***	***	***	***	***
2020 Q3	***	***	***	***	***	***	***	***
2020 Q4	***	***	***	***	***	***	***	***
2021 Q1	***	***	***	***	***	***	***	***

Period	Subject sources price	Subject sources quantity	Subject sources margin
2018 Q1	***	***	***
2018 Q2	***	***	***
2018 Q3	***	***	***
2018 Q4	***	***	***
2019 Q1	***	***	***
2019 Q2	***	***	***
2019 Q3	***	***	***
2019 Q4	***	***	***
2020 Q1	***	***	***
2020 Q2	***	***	***
2020 Q3	***	***	***
2020 Q4	***	***	***
2021 Q1	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 7: Thermal paper in jumbo rolls, with a target caliper of 3.23 to 4.33 mils (82 to 110 microns), with a target basis weight greater than 80 g/m², not topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Note: U.S. producer *** explained that it sold ***. Email from *** August 13, 2021. Importer *** confirmed that its price in ***. Email from *** September 3, 2021.

Table V-13**Thermal paper: Weighted-average delivered prices and quantities of domestic and imported product 8 and margins of underselling/(overselling), by quarter**

Price in dollars per thousands of square feet; quantity in thousands of square feet; margin in percent

Period	US price	US quantity	Germany price	Germany quantity	Germany margin
2018 Q1	***	***	***	***	***
2018 Q2	***	***	***	***	***
2018 Q3	***	***	***	***	***
2018 Q4	***	***	***	***	***
2019 Q1	***	***	***	***	***
2019 Q2	***	***	***	***	***
2019 Q3	***	***	***	***	***
2019 Q4	***	***	***	***	***
2020 Q1	***	***	***	***	***
2020 Q2	***	***	***	***	***
2020 Q3	***	***	***	***	***
2020 Q4	***	***	***	***	***
2021 Q1	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 8: Thermal paper in jumbo rolls, with a target caliper of 3.23 to 9.65 mils (82 to 245 microns), with a target basis weight greater than 80 g/m², topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Note: U.S. producer *** explained the price increase in 2020 Q2 was due to ***." Email from ***, July 16, 2021. Importer *** confirmed that its price in ***. Email from *** September 3, 2021.

Figure V-2

Thermal paper: Weighted-average prices and quantities of domestic and imported product 1, by quarter

Price of product 1

* * * * *

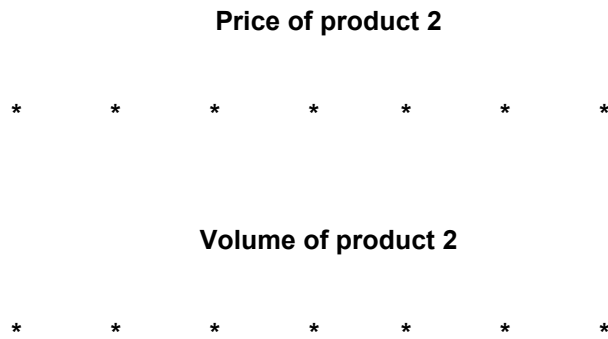
Volume of product 1

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 1: Thermal paper in jumbo rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-3
Thermal paper: Weighted-average prices and quantities of domestic and imported product 2, by quarter



Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 2: Thermal paper in jumbo rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-4
Thermal paper: Weighted-average prices and quantities of domestic and imported product 3, by quarter

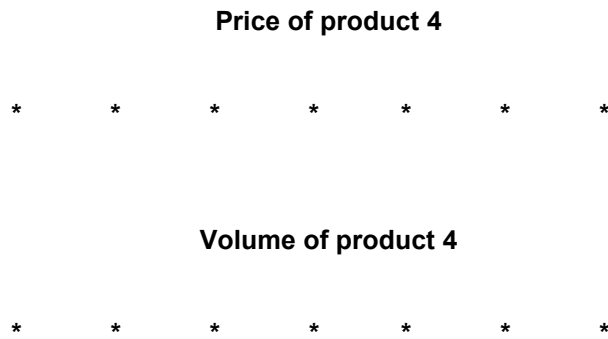
Price of product 3						
*	*	*	*	*	*	*

Volume of product 3						
*	*	*	*	*	*	*

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 3: Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-5
Thermal paper: Weighted-average prices and quantities of domestic and imported product 4, by quarter



Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 4: Thermal paper in jumbo rolls, with a target caliper of 2.9 to 3.4 mils (76.0 to 84.0 microns), with a target basis weight of at least 70 g/m² and up to 80 g/m², top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-6

Thermal paper: Weighted-average prices and quantities of domestic and imported product 5, by quarter

Price of product 5

* * * * *

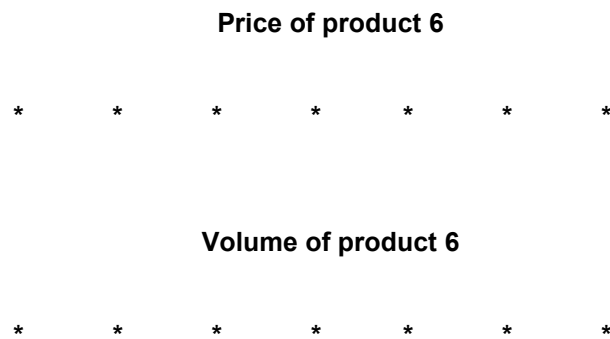
Volume of product 5

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 5: Thermal paper in converted rolls, with a target caliper of less than 2.2 mils (less than 55.9 microns), with a target basis weight of less than 49.9 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-7
Thermal paper: Weighted-average prices and quantities of domestic and imported product 6, by quarter



Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 6: Thermal paper in converted rolls, with a target caliper of 2.2 to 2.5 mils (55.9 to 63.5 microns), with a target basis weight of at least 49.9 g/m² and up to 70 g/m², not top-coated, white/non-colored paper, black image color, not printed on the non-thermal coated side, standard sensitivity.

Figure V-8
Thermal paper: Weighted-average prices and quantities of domestic and imported product 7, by quarter

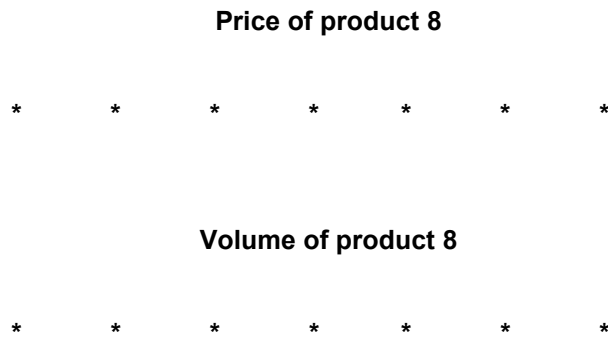
Price of product 7						
*	*	*	*	*	*	*

Volume of product 7						
*	*	*	*	*	*	*

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 7: Thermal paper in jumbo rolls, with a target caliper of 3.23 to 4.33 mils (82 to 110 microns), with a target basis weight greater than 80 g/m², not topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Figure V-9
Thermal paper: Weighted-average prices and quantities of domestic and imported product 8, by quarter



Source: Compiled from data submitted in response to Commission questionnaires.

Note: Product 8: Thermal paper in jumbo rolls, with a target caliper of 3.23 to 9.65 mils (82 to 245 microns), with a target basis weight greater than 80 g/m², topcoated, white/non-colored paper, black image color, not printed on the nonthermal coated side, high sensitivity.

Price trends

In general, prices decreased during January 2018-March 2021. Table V-14 summarizes the price trends, by country and by product. As shown in the table, domestic price decreases ranged from *** percent to *** percent during January 2018-March 2021 while import price decreases ranged from *** percent (Japan) to *** percent (Korea). Domestic price increases occurred in *** and ranged from *** percent to *** percent, and subject price increases ranged from *** percent (Korea) to *** percent (Japan).

Table V-14
Thermal paper: Number of quarters containing observations, volume of shipments, low price, high price, first quarter price, last quarter price, and change in price over period, by product and source

Volume in 1,000 square feet; price in dollars per 1,000 square feet; change in percent

Product	Source	Number of quarters	Volume of shipments	Low price	High price	First quarter price	Last quarter price	Change in price between first and last quarter
Product 1	United States	***	***	***	***	***	***	***
Product 1	Germany	***	***	***	***	***	***	***
Product 1	Japan	***	***	***	***	***	***	***
Product 1	Korea	***	***	***	***	***	***	***
Product 1	Spain	***	***	***	***	***	***	***
Product 2	United States	***	***	***	***	***	***	***
Product 2	Germany	***	***	***	***	***	***	***
Product 2	Japan	***	***	***	***	***	***	***
Product 2	Korea	***	***	***	***	***	***	***
Product 2	Spain	***	***	***	***	***	***	***
Product 3	United States	***	***	***	***	***	***	***
Product 3	Germany	***	***	***	***	***	***	***
Product 3	Japan	***	***	***	***	***	***	***
Product 3	Korea	***	***	***	***	***	***	***
Product 3	Spain	***	***	***	***	***	***	***
Product 4	United States	***	***	***	***	***	***	***
Product 4	Germany	***	***	***	***	***	***	***
Product 4	Japan	***	***	***	***	***	***	***
Product 4	Korea	***	***	***	***	***	***	***
Product 4	Spain	***	***	***	***	***	***	***

Table continued.

Table V-14 continued

Thermal paper: Number of quarters containing observations, volume of shipments, low price, high price, first quarter price, last quarter price, and change in price over period, by product and source

Volume in 1,000 square feet; price in dollars per 1,000 square feet; change in percent

Product	Source	Number of quarters	Volume of shipments	Low price	High price	First quarter price	Last quarter price	Percent change in price between first and last quarter
Product 5	United States	***	***	***	***	***	***	***
Product 5	Germany	***	***	***	***	***	***	***
Product 5	Japan	***	***	***	***	***	***	***
Product 5	Korea	***	***	***	***	***	***	***
Product 5	Spain	***	***	***	***	***	***	***
Product 6	United States	***	***	***	***	***	***	***
Product 6	Germany	***	***	***	***	***	***	***
Product 6	Japan	***	***	***	***	***	***	***
Product 6	Korea	***	***	***	***	***	***	***
Product 6	Spain	***	***	***	***	***	***	***
Product 7	United States	***	***	***	***	***	***	***
Product 7	Germany	***	***	***	***	***	***	***
Product 7	Japan	***	***	***	***	***	***	***
Product 7	Korea	***	***	***	***	***	***	***
Product 7	Spain	***	***	***	***	***	***	***
Product 8	United States	***	***	***	***	***	***	***
Product 8	Germany	***	***	***	***	***	***	***
Product 8	Japan	***	***	***	***	***	***	***
Product 8	Korea	***	***	***	***	***	***	***
Product 8	Spain	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Percentage change from the first quarter in which data were available in 2018 to the last quarter in which price data were available in 2021.

Price comparisons

As shown in table V-15 and V-16, prices for product imported from subject countries were below those for U.S.-produced product in 95 of 188 instances (33.7 billion feet); margins of underselling ranged from 0.4 to 24.7 percent. By subject country, prices of German product were below domestic products in *** instances (*** billion feet) with underselling margins from *** percent to *** percent; Japanese product was priced below domestic product in *** instances (*** billion feet) with underselling margins from *** to *** percent; Korean product was priced below domestic product in *** instances (*** billion feet) with underselling margins ranging from *** to *** percent; Spanish product was priced below domestic product in *** instances (*** billion feet) with underselling margins of *** to *** percent.

Product imported from subject countries was priced above domestic product in 93 of 188 instances (48.3 billion feet); margins of overselling ranged from 0.1 percent to 72.5 percent (tables V-17 and V-18).⁴⁰ By subject country, prices of German product were above domestic products in *** instances (*** billion feet) with overselling margins from *** to *** percent; Japanese product was priced above domestic product in *** instances (*** billion feet) with margins from *** to *** percent; Korean product was priced above domestic product in *** instances (*** billion feet) with margins ranging from *** to *** percent; Spanish product was priced above domestic product in *** instances (*** billion feet) with margins of *** to *** percent.

⁴⁰ The instance of overselling with a 72.5 percent margin occurred in product ***. Product *** accounted for ***. Importer *** also reported the increase in price in ***. Email from *** (September 3, 2021).

Table V-15
Thermal paper: Instances of underselling and overselling and the range and average of margins, by product

Quantity in 1,000 square feet; margin in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Product 1	Underselling	***	***	***	***	***
Product 2	Underselling	***	***	***	***	***
Product 3	Underselling	***	***	***	***	***
Product 4	Underselling	***	***	***	***	***
Product 5	Underselling	***	***	***	***	***
Product 6	Underselling	***	***	***	***	***
Product 7	Underselling	***	***	***	***	***
Product 8	Underselling	***	***	***	***	***
Total, underselling	Underselling	95	33,673,932	10.3	0.4	24.7
Product 1	Overselling	***	***	***	***	***
Product 2	Overselling	***	***	***	***	***
Product 3	Overselling	***	***	***	***	***
Product 4	Overselling	***	***	***	***	***
Product 5	Overselling	***	***	***	***	***
Product 6	Overselling	***	***	***	***	***
Product 7	Overselling	***	***	***	***	***
Product 8	Overselling	***	***	***	***	***
Total, overselling	Overselling	93	48,312,460	(14.7)	(0.1)	(72.5)

Source: Compiled from data submitted in response to Commission questionnaires.

Note: These data include only quarters in which there is a comparison between the U.S. and subject product.

Table V-16
Thermal paper: Instances of underselling and overselling and the range and average of margins, by source

Quantity in 1,000 square feet; margin in percent

Item	Type	Number of quarters	Quantity	Average margin	Minimum margin	Maximum margin
Germany	Underselling	***	***	***	***	***
Japan	Underselling	***	***	***	***	***
Korea	Underselling	***	***	***	***	***
Spain	Underselling	***	***	***	***	***
Total, underselling	Underselling	95	33,673,932	10.3	0.4	24.7
Germany	Overselling	***	***	***	***	***
Japan	Overselling	***	***	***	***	***
Korea	Overselling	***	***	***	***	***
Spain	Overselling	***	***	***	***	***
Total, overselling	Overselling	93	48,312,460	(14.7)	(0.1)	(72.5)

Source: Compiled from data submitted in response to Commission questionnaires.

Note: These data include only quarters in which there is a comparison between the U.S. and subject product.

Lost sales and lost revenue

In the preliminary phase of these investigations, the Commission requested that U.S. producers of thermal paper report purchasers with which they experienced instances of lost sales or revenue due to competition from imports of thermal paper from Germany, Japan, Korea and Spain during January 2017-June 2020. Four U.S. producers submitted lost sales and lost revenue allegations, and identified 37 firms with which they lost sales or revenue (22 consisting of lost sales allegations, 9 consisting of lost revenue allegations, and 6 consisting of both types of allegations).⁴¹

In the final phase of these investigations, of the seven responding U.S. producers, 3 reported that they had to reduce prices, roll back announced price increases, and lost sales allegations for LW jumbo paper. For LW converted thermal paper, of the eight responding U.S. producers, 6 reported they had to reduce prices, 5 reported reduced prices, and 5 reported lost sales allegations. For HW jumbo paper, of the seven responding U.S. producers, 3 reported that

⁴¹ Petitioners also provided price negotiation emails with customers, which petitioners argued are examples of lost sales, lost revenue, and underselling by subject imports. See Petitioners' prehearing brief, pp. 52-57.

they had to reduce prices, 2 reported that they had to roll back announced price increases, and 3 reported lost sales allegations.⁴²

Staff contacted 100 purchasers and received responses from 28 purchasers. Of the 28 responding purchasers, 21 purchased domestic thermal paper, 14 purchased imports of the subject merchandise from Germany, 8 from Japan, 18 from Korea, 12 from Spain, and 9 purchased imports of thermal paper from other sources.⁴³

LW jumbo thermal paper

Responding purchasers reported purchasing and importing 665,978 short tons of LW jumbo paper during January 2018-March 2021 (table V-17).⁴⁴ Of the 23 responding U.S. purchasers, 17 reported purchasing subject imports instead of domestic (table V-18.) Ten of these purchasers reported that subject import prices were lower than U.S.-produced LW jumbo thermal paper, and six of these purchasers reported that price was a primary reason for the decision to purchase imported product from subject countries rather than U.S.-produced product.⁴⁵

Purchasers estimated the quantity of LW jumbo thermal paper purchased from subject countries instead of domestic as follows: three purchasers' German LW jumbo paper quantities ranged from *** short tons to *** short tons; one purchaser's Japanese LW jumbo paper quantity was ***; five purchasers' Korean LW jumbo paper quantities ranged from *** short tons to *** short tons; five purchasers' Spanish LW jumbo paper quantities ranged from *** short tons to *** short tons.⁴⁶ Purchasers identified quality, availability, and adding foreign suppliers to increase the diversity of supply as non-price reasons for purchasing imported rather than U.S.-produced product.

⁴² Petitioners also provided contemporaneous business documents alleging further lost sales and lost revenues. Petitioners' prehearing brief, pp. 52-56 and exhs. 9-11.

⁴³ Multiple purchasers reported purchasing from more than one source, and three purchasers reported purchases from sources unknown.

⁴⁴ Petitioners provided an economic model to quantify the impact of the LW jumbo and HW jumbo thermal paper lost sales on U.S. prices and the domestic industry's financial indicia. Petitioners' prehearing brief, Appendix C.

⁴⁵ By subject country, four reported that German imports of LW jumbo thermal paper were priced lower and three reported that price was a primary reason; two reported that Japanese product was priced lower, and one reported that price was a primary reason; eight reported that Korean product was priced lower and five reported that price was a primary reason; and seven reported that Spanish LW jumbo thermal paper was priced lower and five reported that price was a primary reason (table V-19).

⁴⁶ No purchasers reported purchasing Japanese product instead of domestic product due to price as a primary reason.

Table V-18

LW jumbo thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued.

Table V-18 continued

LW jumbo thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued.

Table V-18 continued

LW jumbo thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***					***

Table continued.

Table V-18 continued

LW jumbo thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	Yes--17; No--6	Yes--10; No--5	Yes--6; No--11	51,049	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Purchaser *** reported that it did not know if the imported prices were lower than the domestic prices as it had not been solicited by any domestic producer for its business in the past five years, see email from ***, July 20, 2021.

Table V-19

LW jumbo thermal paper: Purchasers' responses to purchasing subject instead of domestic, by country

Quantity in short tons

Source / Product type	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity
Germany	11	4	3	***
Japan	4	2	1	***
Korea	13	8	5	***
Spain	11	7	5	***
Subject sources	17	10	6	51,049

Source: Compiled from data submitted in response to Commission questionnaires.

Of the 24 responding U.S. purchasers, 4 reported that U.S. producers had reduced prices of LW jumbo rolls in order to compete with lower-priced imports from Germany, 1 reported lowered prices due to Japanese product; 3 reported lowered prices due to Korean product; and 3 reported lowered prices due to Spanish product.⁴⁷ Most purchasers reported that they did not know (table V-20). The reported estimated price reduction was *** percent, with three firms noting that they could not estimate the price reductions due to market volatility and price fluctuations.

Table V-20
LW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by firm

Number of firms reporting; price reductions in percent

Firm	Producers lowered prices	Price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***

Table continued.

⁴⁷ Most firms reported more than one subject source as the reason for domestic producers' price decreases.

Table V-20 continued
LW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by firm

Number of firms reporting; price reductions in percent

Firm	Producers lowered prices	Price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
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***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
All firms	Yes--4; No--8	***	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Table V-21
LW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by firm

Number of firms reporting; price reductions in percent

Source	Producers lowered prices	Average price reduction	Range of price reductions
Germany	***	***	***
Japan	***	***	***
Korea	***	***	***
Spain	***	***	***
Subject sources	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

LW converted thermal paper

Six responding purchasers reported purchasing and importing a total of 21,791 short tons of LW converted paper during January 2018-March 2021 (table V-22).⁴⁸ Two of these reported that they had purchased imported LW converted thermal paper from subject sources instead of U.S.-produced LW converted thermal paper. *** reported purchasing LW converted paper from Korea and *** reported purchasing LW converted paper from Germany, Korea, and Spain instead of domestic LW converted thermal paper. *** reported that Spanish prices were lower than domestic prices, and also reported that price was the primary reason for purchasing product from ***.⁴⁹

⁴⁸ Purchaser ***, ***, reported the value of its purchases instead of quantities in short tons. Its reported purchases and imports are not included in the tables below. Staff telephone interview with *** October 4, 2021.

⁴⁹ Purchaser *** explained that it does not purchase LW converted thermal paper rolls from domestic producers because it “does not have the volume to get the pricing we need to compete” and that “U.S. converters can be competitive with foreign produced finished rolls but choose not to be. Instead, they try and hold their margin and then ask the jumbo roll producers (Spain, Korea, Japan, Germany, and U.S.) to reduce their pricing so they (converters) can retain their margin.” Email from *** September 8, 2021.

Table V-23

LW converted thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
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***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued.

Table V-23 continued

LW converted thermal paper: Purchasers' responses to purchasing subject instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
All firms	Yes--2; No--16	Yes--1; No--6	Yes--1; No--3	965	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Note: *** reported that its purchases of *** product were based on price, but price was not the primary reason for its purchases from ***, although the ***.

Note: *** reported that it did not know if the *** product was cheaper than domestic, as it ***. See email from ***, July 15, 2021.

Note: *** did not respond to the question regarding purchasing subject imports instead of domestic product. *** purchased from domestic and nonsubject sources, and *** reported they purchased only domestic product during 2018-March 2021.

Table V-24

LW converted thermal paper: Purchasers' responses to purchasing subject instead of domestic, by country

Quantity in short tons

Source / Product type	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity
Germany	***	***	***	***
Japan	***	***	***	---
Korea	***	***	***	***
Spain	***	***	***	---
Subject sources	2	1	1	965

Source: Compiled from data submitted in response to Commission questionnaires.

No firms reported that U.S. producers had reduced prices of LW converted rolls in order to compete with lower-priced imports from any subject country, and 16 firms reported that they did not know if domestic producers lowered prices of LW converted rolls.⁵⁰

HW jumbo thermal paper

Responding purchasers reported purchasing and importing 292,245 short tons of HW jumbo paper during January 2018-March 2021 (table V-25). Of the 21 responding purchasers, 14 purchasers reported that, since 2018, they had purchased and/or imported HW jumbo thermal paper from subject countries instead of purchasing domestic product (table V-26). Nine purchasers reported purchasing HW jumbo thermal paper from Germany, two reported they had purchased Japanese product, nine reported they had purchased Korean product, and three reported they had purchased Spanish product instead of U.S.-produced HW jumbo thermal paper (table V-27). Eight of these purchasers reported that subject import prices were lower than U.S.-produced LW jumbo thermal paper, and five of these purchasers reported that price was a primary reason for the decision to purchase imported product from subject countries rather than U.S.-produced product.⁵¹

Purchasers estimated the quantity of HW jumbo thermal paper purchased from subject countries instead of domestic as follows: three purchasers' German HW jumbo paper quantities ranged from *** short tons to *** short tons;⁵² one purchaser estimated *** short tons of Japanese product;⁵³ two purchasers' Korean HW jumbo paper quantities ranged from *** short tons to *** short tons; one purchaser estimated *** tons of Spanish product. Purchasers

⁵⁰ Purchaser *** reported that U.S. producers had reduced their prices of domestically produced LW converted rolls to compete with product from ***. However, *** did not report purchases or imports of LW converted roll, and ***. Its responses regarding LW converted rolls were not included in the price reduction analysis.

⁵¹ By subject country, six reported that German imports of HW jumbo thermal paper were priced lower and four reported that price was a primary reason; no firms reported that Japanese product was priced lower, and one reported that price was a primary reason; five reported that Korean product was priced lower and three reported that price was a primary reason; and two reported that Spanish HW jumbo thermal paper was priced lower and 1 reported that price was a primary reason (table V-27).

⁵² Purchaser *** did not report the estimated quantities of *** product purchased instead of domestic product nor did it respond to staff's request to supply such information. See emails to ***, July 15, 2021 and August 13, 2021.

⁵³ Purchaser *** reported that the Japanese price was not lower, but that it purchased Japanese product instead of domestic product and that price was a primary reason. It also noted that it purchased Japanese product due to ***.

identified quality, availability, and adding foreign suppliers to increase the diversity of supply as non-price reasons for purchasing imported rather than U.S.-produced product.

Table V-26

HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	*****

Table continued.

Table V-26 continued

HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued.

Table V-26 continued

HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued.

Table V-26 continued
HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***	***	***	***	***	***

Table continued.

Table V-26 continued

HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by firm

Quantity in short tons

Firm	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity	Explanation
***					***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
All firms	Yes--14; No--8	Yes--8; No--8	Yes--5; No--9	9,416	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Note: *** did not respond to staff's requests to estimate the quantities purchased of imported product from subject countries.

Table V-27**HW jumbo thermal paper: Purchasers' responses to purchasing subject imports instead of domestic, by country**

Number of firms reporting, quantity in short tons

Source	Purchased subject imports instead of domestic	Imports priced lower	Choice based on price	Quantity
Germany	9	6	4	8,093
Japan	2	---	1	3
Korea	9	5	3	1,280
Spain	3	2	1	40
Subject sources	14	8	5	9,416

Source: Compiled from data submitted in response to Commission questionnaires.

Of the 23 responding purchasers, 2 reported that U.S. producers had reduced prices in order to compete with lower-priced imports from Germany, 1 reported price reductions due to Japanese product, 3 reported price reductions due to Korean product, and 2 reported price reductions due to Spanish product,⁵⁴ and most purchasers reported that they did not know (table V-28). The reported estimated price reduction was 5.9 percent, and other purchasers reported that they could not estimate the price reduction due to market volatility and price fluctuations.

⁵⁴ Most firms reported more than one subject source as the reason for domestic producers' price decreases.

Table V-28

HW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by firm

Number of firms reporting; price reductions in percent

Firm	Producers lowered prices	Price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***

Table continued.

Table V-28 continued

HW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by firm

Number of firms reporting; price reductions in percent

Firm	Producers lowered prices	Price reduction	Explanation
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
All firms	Yes--3; No--6	5.9	NA

Source: Compiled from data submitted in response to Commission questionnaires.

Table V-29

HW jumbo thermal paper: Purchasers' responses to U.S. producer price reductions, by country

Number of firms reporting; price reductions in percent

Source	Producers lowered prices	Average price reduction	Range of price reductions
Germany	***	***	***
Japan	***	***	***
Korea	***	***	***
Spain	***	***	***
Subject sources	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

In responding to the purchasers' questionnaire, some purchasers provided additional information on purchases and market dynamics. Purchasers *** reported that a significant problem in the U.S. market is availability. *** stated that there are only three *** and *** has had issues with obtaining adequate supply from domestic producers since Appvion's bankruptcy.⁵⁵

⁵⁵ *** reported that the third producer is a ***. It also reported that it had a ***.

Part VI: Financial experience of U.S. producers

Background¹

Eleven U.S. producers, Appvion, Domtar, Kanzaki, Iconex, IndoorMedia, Integrity, Liberty, Maxwell, NCCO, PCC Paper, and Ricoh provided usable financial data on their operations on LW and HW thermal paper. Four firms coat base paper and produce jumbo rolls of thermal paper: Domtar, which is the sole integrated producer² that produces pulp and base paper, and coats the paper; Appvion, Kanzaki and Ricoh, which purchase the base paper that they coat to make thermal paper in jumbo rolls;³ and seven independent converters, Iconex, IndoorMedia, Integrity, Liberty, Maxwell, NCCO and PCC Paper, which slit jumbo rolls into smaller rolls of desired width, length, and packaging that are suitable for use in thermal

¹ The following abbreviations may be used in the tables and/or text of this section: generally accepted accounting principles (“GAAP”), fiscal year (“FY”), net sales (“NS”), cost of goods sold (“COGS”), selling, general, and administrative expenses (“SG&A expenses”), average unit values (“AUVs”), research and development expenses (“R&D expenses”), and return on assets (“ROA”).

² Domtar is referred to as an integrated producer because it produces both the pulp and the base paper to make thermal paper. The firm transfers base paper from its mills in ***. Domtar’s U.S. producer questionnaire, sections II-2a and II-19.

³ Petition, pp. 9-10, notes 15 and 16.

printers. Firms that produce and convert LW jumbo rolls are presented together.^{4 5 6 7} Producers of HW jumbo rolls are presented separately. *** responding U.S. producers reported financial data on the basis of GAAP and *** responding U.S. producers provided their financial data on a calendar year except ***.⁸

Operations on thermal paper

Figure VI-1 presents all LW thermal paper producers' share of the total net sales quantity in 2020, while figure VI-2 presents that of HW jumbo thermal paper producers.

Table VI-1 presents aggregated data on U.S. producers' operations in relation to all LW jumbo and converted thermal paper, while table VI-4 presents aggregated data on U.S. producers' operations in relation to HW jumbo thermal paper. Tables VI-2 and VI-5 present changes in the AUVs for the data presented in tables VI-1 and VI-3, respectively. Tables VI-3 and VI-6 present selected company-specific financial data.

⁴ ***. Emails from ***, August 9, September 1, September 30, and October 5, 2021.

⁵ ***. ***. U.S. producers' questionnaire response, question III-11k.

⁶ ***.

⁷ ***. Email from *** October 6, 2021.

⁸ Staff conducted a verification of the financial data, and selected elements of the trade data, of *** U.S. producer questionnaire. Data changes pursuant to verification are reflected in the financial section of this report. Staff verification report, ***, August 19, 2021, ***.

Figure VI-1
All LW thermal paper: Share of net sales quantity by firm, 2020

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Figure VI-2
HW jumbo thermal paper: Share of net sales quantity by firm, 2020

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-1
All LW thermal paper: Results of operations of U.S. producers, by item and period

Quantity in short tons; value in 1,000 dollars; ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table VI-1 Continued**All LW thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-2
All LW thermal paper: Changes in AUVs between comparison periods

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▲***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▼***	▼***	▼***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***

Table continued.

Table VI-2 Continued
All LW thermal paper: Changes in AUVs between comparison periods

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▲***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▲***	▲***	▲***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▼***	▼***	▲***	▼***
SG&A expense	▲***	▲***	▼***	▼***
Operating income or (loss)	▼***	▼***	▲***	▼***
Net income or (loss)	▼***	▼***	▲***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-3
All LW thermal paper: Firm-by-firm total net sales quantity, by period

Net sales quantity

Quantity in short tons

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm total net sales value, by period

Net sales value

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm COGS, by period
COGS

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm gross profit or (loss), by period
Gross profit or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm SG&A expenses, by period

SG&A expenses

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm operating income or (loss), by period

Operating income or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm net income or (loss), by period
Net income or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm ratio of raw material costs to net sales value, by period
Raw material costs to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of direct labor costs to net sales value, by period

Direct labor costs to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of other factory costs to net sales value, by period

Other factory costs to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of COGS to net sales value, by period

COGS to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of gross profit or (loss) to net sales value, by period

Gross profit or (loss) to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of SG&A expenses to net sales value, by period

SG&A expenses to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued

All LW thermal paper: Firm-by-firm ratio of operating income or (loss) to net sales value, by period

Operating income or (loss) to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued**All LW thermal paper: Firm-by-firm ratio of net income or (loss) to net sales value, by period****Net income or (loss) to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued**All LW thermal paper: Firm-by-firm unit net sales value, by period****Unit net sales value**

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit raw material cost, by period

Unit raw material costs

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit direct labor cost, by period

Unit direct labor costs

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit other factory costs, by period

Unit other factory costs

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm: Unit Less: By-product revenue, by firm and period

Unit by-product revenue

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit COGS, by period

Unit COGS

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit gross profit or (loss), by period

Unit gross profit or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit SG&A expenses, by period

Unit SG&A expenses

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit operating income or (loss), by period

Unit operating income or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-3 Continued
All LW thermal paper: Firm-by-firm unit net income or (loss), by period

Unit net income or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-4
HW jumbo thermal paper: Results of operations of U.S. producers, by item and period

Quantity in short tons; value in 1,000 dollars; ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table VI-4 Continued**HW jumbo thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-5**HW jumbo thermal paper: Changes in AUVs between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▲***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▼***	▲***	▼***	▼***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***

Table continued on next page.

Table VI-5 Continued
HW jumbo thermal paper: Changes in AUVs between comparison periods

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▲***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▼***	▲***	▼***	▼***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▲***	▲***	▲***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▲***	▲***	▼***	▲***
SG&A expense	▼***	▼***	▲***	▲***
Operating income or (loss)	▲***	▲***	▼***	▲***
Net income or (loss)	▼***	▲***	▼***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-6
HW jumbo thermal paper: Firm-by-firm total net sales quantity, by period

Net sales quantity

Quantity in short tons

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm total net sales value, by period

Net sales value

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm cost of goods sold (“COGS”), by period

COGS

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm gross profit or (loss), by period

Gross profit or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm selling, general, and administrative (“SG&A”) expenses, by period

SG&A expenses

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm operating income or (loss), by period
Operating income or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm net income or (loss), by period
Net income or (loss)

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm ratio of raw material costs to net sales value, by period
Raw material costs to net sales ratio

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of direct labor costs to net sales value, by period****Direct labor costs to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of other factory costs to net sales value, by period****Other factory costs to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of COGS to net sales value, by period****COGS to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of gross profit or (loss) to net sales value, by period****Gross profit or (loss) to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of SG&A expenses to net sales value, by period****SG&A expenses to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of operating income or (loss) to net sales value, by period****Operating income or (loss) to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm ratio of net income or (loss) to net sales value, by period****Net income or (loss) to net sales ratio**

Ratios in percent

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm unit net sales value, by period****Unit net sales value**

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm unit raw material cost, by period****Unit raw material costs**

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued**HW jumbo thermal paper: Firm-by-firm unit direct labor cost, by period****Unit direct labor costs**

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit other factory costs, by period

Unit other factory costs

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm: Unit Less: By-product revenue, by firm and period

Unit by-product revenue

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit COGS, by period

Unit COGS

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit gross profit or (loss), by period

Unit gross profit or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued on next page.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit SG&A expenses, by period

Unit SG&A expenses

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit operating income or (loss), by period

Unit operating income or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Table continued.

Table VI-6 Continued
HW jumbo thermal paper: Firm-by-firm unit net income or (loss), by period

Unit net income or (loss)

Unit values in dollars per short ton

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Net sales

As shown in table VI-1 the total net sales quantity of all LW thermal paper declined by *** percent from 2018 to 2020 and was lower by *** percent in interim 2021 than in interim 2020. The value of total net sales followed a similar trend and declined by *** percent from 2018 to 2020 and was *** percent lower in interim 2021 than in interim 2020. As shown in table VI-3, the net sales quantity and value of *** LW jumbo producers declined overall from 2018 to 2020, and were lower in interim 2021 than in interim 2020.^{9 10} The overall net sales quantity and value of LW converters also declined from 2018 to 2020 and were lower in interim 2021 than in in interim 2020.^{11 12 13 14} On an average per short ton basis, net sales values decreased overall from \$*** in 2018 to \$*** in 2020 and were lower in interim 2021 at \$*** than interim 2020 at \$***.

As shown in table VI-4 total net sales quantity for HW jumbo rolls declined by *** percent from 2018 to 2020 and was *** percent higher in interim 2021 than in interim 2020. The value of total net sales followed a similar trend and declined by *** percent from 2018 to 2020 and was *** percent higher in interim 2021 than in interim 2020. *** reported an overall decline in their net sales quantities and values from 2018 to 2020, and in interim 2021 compared to interim 2020; while *** reported opposite trends during the

⁹ ***.

¹⁰ ***. *** U.S. producers' questionnaire response, question II-20c, III-9a and III-10a.

¹¹ ***. Emails from ***, July 21 and August 8, 2021.

¹² ***. Email from ***, July 28, 2021.

¹³ ***. ***'s U.S. producers' questionnaire response, question IV-19.

¹⁴ ***. Email from ***, July 17, 2021.

same periods (see table VI-6).¹⁵ On an average per short ton basis, the company-specific trends were not uniform. *** reported an overall decline in their unit values in 2018-20, and a lower unit value in interim 2021 compared to interim 2020. Conversely, ***'s unit values increased overall in 2018-20 and were higher in interim 2021 compared to interim 2020.

Cost of goods sold and gross profit or loss

Raw materials

For all LW thermal paper producers and converters, raw material costs are the largest single component of COGS ranging from *** percent to *** percent between 2018 and 2020. Raw materials for LW jumbo producers consist of base paper, coating, packaging and converting materials, while for LW converters raw materials are a combination of domestic and imported jumbo thermal paper. Raw material costs declined by *** percent from 2018 and 2020 and were lower by *** percent in interim 2021 than in interim 2020, driven primarily by the reported data of *** for LW jumbo producers, and *** for LW converters. On an average per short ton basis, raw material costs decreased overall from \$*** in 2018 to \$*** in 2020 and were lower in interim 2021 at \$*** than in interim 2020 at \$***. As a ratio to net sales, raw material costs declined from *** percent in 2018 to *** percent in 2020 and were lower in interim 2021 at *** percent than in interim 2020 at *** percent.

For HW jumbo thermal paper, raw material costs are also the largest single component of COGS ranging from *** percent to *** percent between 2018 and 2020 and consist of the same components as LW jumbo producers. Raw material costs declined by *** percent between 2018 and 2020 and were *** percent higher in interim 2021 than interim 2020. The declining trend was primarily driven by the reported data of *** reflecting the decline in its sales quantity. On an average per short ton basis, raw material costs decreased from \$*** in 2018 to \$*** in 2020 and were lower at \$*** in interim 2021 than \$*** in interim 2020. As a ratio to net sales, raw material costs declined overall from *** percent in 2018 to *** percent in 2020 and were lower in interim 2021 at *** percent than in interim 2020 at *** percent.

¹⁵ As mentioned previously, ***.

Tables VI-7, VI-8 and VI-9 present raw materials, by type, for LW jumbo, LW converted, and HW jumbo thermal paper, respectively. For both LW and HW jumbo producers, the cost of coating materials in 2018 was higher than in any subsequent year or time period, both absolutely and as a share of total costs. Domestically produced jumbo paper declined as a cost for LW converters more sharply than for subject imported jumbo paper.

Table VI-7

LW jumbo thermal paper: Raw material costs by item and period

Value in 1,000 dollars; unit values in dollars per short ton of total net sales; share of value in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Base paper	Value	***	***	***	***	***
Coating materials	Value	***	***	***	***	***
Converting/packaging	Value	***	***	***	***	***
Other materials	Value	***	***	***	***	***
All raw materials	Value	***	***	***	***	***
Base paper	Unit Value	***	***	***	***	***
Coating materials	Unit Value	***	***	***	***	***
Converting/packaging	Unit Value	***	***	***	***	***
Other materials	Unit Value	***	***	***	***	***
All raw materials	Unit Value	***	***	***	***	***
Base paper	Share	***	***	***	***	***
Coating materials	Share	***	***	***	***	***
Converting/packaging	Share	***	***	***	***	***
Other materials	Share	***	***	***	***	***
All raw materials	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-8
LW converted thermal paper: Raw material costs by item and period

Value in 1,000 dollars; unit values in dollars per short ton of total net sales; share of value in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Domestic jumbo thermal paper	Value	***	***	***	***	***
Subject sources jumbo thermal paper	Value	***	***	***	***	***
Nonsubject sources jumbo thermal paper	Value	***	***	***	***	***
Other materials	Value	***	***	***	***	***
All raw materials	Value	***	***	***	***	***
Domestic jumbo thermal paper	Unit Value	***	***	***	***	***
Subject sources jumbo thermal paper	Unit Value	***	***	***	***	***
Nonsubject sources jumbo thermal paper	Unit Value	***	***	***	***	***
Other materials	Unit Value	***	***	***	***	***
All raw materials	Unit Value	***	***	***	***	***
Domestic jumbo thermal paper	Share	***	***	***	***	***
Subject sources jumbo thermal paper	Share	***	***	***	***	***
Nonsubject sources jumbo thermal paper	Share	***	***	***	***	***
Other materials	Share	***	***	***	***	***
All raw materials	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-9
HW jumbo thermal paper: Raw material costs by item and period

Value in 1,000 dollars; unit values in dollars per short ton of total net sales; share of value in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Base paper	Value	***	***	***	***	***
Coating materials	Value	***	***	***	***	***
Converting/packageging	Value	***	***	***	***	***
Other materials	Value	***	***	***	***	***
All raw materials	Value	***	***	***	***	***
Base paper	Unit Value	***	***	***	***	***
Coating materials	Unit Value	***	***	***	***	***
Converting/packageging	Unit Value	***	***	***	***	***
Other materials	Unit Value	***	***	***	***	***
All raw materials	Unit Value	***	***	***	***	***
Base paper	Share	***	***	***	***	***
Coating materials	Share	***	***	***	***	***
Converting/packageging	Share	***	***	***	***	***
Other materials	Share	***	***	***	***	***
All raw materials	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Direct labor and other factory costs

Other factory costs represented between *** and *** percent of total COGS between 2018 and 2020 for all LW thermal paper, and between *** and *** percent of total COGS for HW jumbo thermal paper.¹⁶ For all LW thermal paper, other factory costs declined between 2018 and 2020 and were lower in interim 2021 than in interim 2020. *** LW jumbo producers reported a decline in their other factory costs in 2018-20 and in interim 2021 compared to interim 2020. ***'s data accounted for the majority of the decline in 2020, due to the ***. LW converters *** reported an increase between 2018 and 2020, and ***¹⁷ reported an increase in interim 2021 compared to interim 2020. On an

¹⁶ ***.

¹⁷ ***. Email from ***, August 19, 2021.

average per short ton basis, other factory costs increased overall from \$*** in 2018 to \$*** in 2020 and were higher in interim 2021 at \$*** than in interim 2020 at \$***.

For HW jumbo thermal paper, other factory costs increased overall between 2018 and 2020 and were lower in interim 2021 than in interim 2020. On an average per short ton basis, other factory costs increased irregularly from \$*** in 2018 to \$*** in 2020 and were lower in interim 2021 at \$*** than in interim 2020 at \$***.¹⁸

Direct labor costs are the smallest component of COGS, ranging between *** and *** percent of total COGS between 2018 and 2020 for all LW thermal paper, and between *** and *** percent of total COGS for HW jumbo thermal paper. For all LW thermal paper (table VI-1), direct labor costs declined between 2018 and 2020 and were lower in interim 2021 than in interim 2020. On a per short ton basis, direct labor costs increased from \$*** in 2018 to \$*** in 2020 and were higher at \$*** in interim 2021 than in interim 2020 at \$***. *** producers of LW jumbo rolls reported a decline in 2018-20 and in interim 2021 compared to interim 2020, while *** LW converters reported an overall increase in direct labor costs in 2018-20 and *** reported a decline in interim 2021 compared to interim 2020.

For HW jumbo thermal paper (table VI-4), direct labor costs decreased overall between 2018 and 2020 and were lower in interim 2021 than in interim 2020. On a per short ton basis, direct labor costs decreased overall from \$*** in 2018 to \$*** in 2020 and were lower in interim 2021 at \$*** than in interim 2020 at \$***.

By-product revenue, consisting of the sale of trim, waste paper, and scrap paper from thermal paper manufacturing was \$***, equivalent to *** percent of total net sales revenue in 2020 for producers of all LW thermal paper. By-product revenue for producers of HW jumbo rolls of thermal paper was \$***, equivalent to *** percent of total net sales revenue in 2020. Only *** and *** reported scrap/by-product revenue.¹⁹ By-products may be sold or reused in the production process and they are accounted for at fair market value. The Commission's questionnaire requested reporting U.S. producers to offset the COGS with the value of the reported by-products.

¹⁸ ***. Staff verification report, ***, August 19, 2021, ***.

¹⁹ U.S. producers' questionnaire responses, questions III-8a and III-8b.

COGS

As shown in table VI-1, total COGS for all LW thermal paper declined by *** percent between 2018 and 2020 and was *** percent lower in interim 2021 than in interim 2020. On a company-specific basis, *** LW jumbo rolls producers and the majority of LW converters reported a *** in their total COGS. *** reported an increase in their total COGS in either 2019 or 2020, consistent with the increase of their sales quantities during the same periods. On an average per short ton basis, total COGS for both LW jumbo producers and LW converters decreased overall between 2018 and 2020 and was lower in interim 2021 than in interim 2020. As a ratio to net sales, total COGS increased for LW jumbo producers in 2018-20 and was lower in interim 2021 than in interim 2020. For LW converters, it decreased in 2018-20 and was higher in interim 2021 than in interim 2020.

For HW jumbo thermal paper, total COGS decreased by *** percent between 2018 and 2020 and was *** percent lower in interim 2021 than in interim 2020. Total COGS also declined overall on an average per short ton basis between 2018 and 2020 and was lower in interim 2021 than in interim 2020. As a ratio to net sales, total COGS decreased overall between 2018 and 2020 and was lower in interim 2021 than in interim 2020.

Gross profit or loss

For all LW thermal paper, the overall decline in net sales was greater than the decline in COGS, thus gross profit declined from \$*** in 2018 to \$*** in 2020 and was lower at \$*** in interim 2021 than in interim 2020 at \$***. LW jumbo roll producers reported an *** percent decline in gross profits in 2018-20 and a *** percent increase in interim 2021 compared to interim 2020, driven primarily by ***'s data.^{20 21} *** LW converters except *** and *** reported a decline in their gross profits between 2018 and 2020 and in interim 2021 compared to interim 2020.

For HW jumbo thermal paper, gross profits increased from \$*** in 2018 to \$*** in 2019, and decreased to \$*** in 2020. It was higher in interim 2021

²⁰ ***. *** U.S. producers' questionnaire responses, question II-2a.

²¹ As mentioned previously, ***.

at \$*** than in interim 2020 at \$***. On a company-specific basis, the increase in gross profits between 2018 and 2019 largely reflects the results of ***.

SG&A expenses and operating income or loss

As seen in table VI-1, total SG&A expenses for all LW thermal paper increased from \$*** in 2018 to \$*** in 2019 then declined to \$*** in 2020 and were lower in interim 2021 at \$*** than in interim 2020 at \$***. As shown in table VI-3, on a company-specific basis, *** accounted for a plurality of total SG&A expenses, the majority of the increase in total SG&A expenses between 2018 and 2019 as well as a majority of the decrease in 2020 as well as the decrease between interim periods.²² Similarly, other producers and converters of all LW thermal paper, except ***, reported a decline in their total SG&A expenses between 2019 and 2020. The SG&A expense ratio (SG&A expenses as a share of net sales) for all LW thermal paper increased overall from *** percent in 2018 to *** percent in 2020 and was lower in interim 2021 at *** percent compared to interim 2020 at *** percent.

As shown in table VI-4 total SG&A expenses reported by U.S. producers of HW jumbo rolls declined from \$*** in 2018 to \$*** in 2020 and were higher in interim 2021 at \$*** than in interim 2020 at \$***. The SG&A expense ratio decreased overall from *** percent in 2018 to *** percent in 2020 and was *** percentage points higher in interim 2021 (**% percent) than in interim 2020 (**% percent).²³ As shown in table VI-6, on a firm-by-firm basis, ***.

Operating income for all LW thermal paper declined from \$*** in 2018 to \$*** in 2019, then increased to \$*** in 2020 and was lower in interim 2021 at \$*** than in interim 2020 at \$***. The increase in operating income from 2019 to 2020 is in contrast with the industry's gross profit trend and is mainly attributable to the decrease in SG&A expenses during that same period. The ratio of operating income to sales

²² ***. ***'s U.S. producers' questionnaire response, questions III-11d and III-11e.

²³ ***. Staff verification report, ***, August 19, 2021, ***.

decreased from *** percent in 2018 to *** percent in 2019 then increased to *** percent in 2020 and was lower in interim 2021 at *** percent than in interim 2020 at *** percent. On a company-specific basis, *** LW jumbo producers *** reported operating losses in 2020. *** reporting converters reported operating income throughout the period examined while *** reported operating losses throughout the period of investigation. *** LW jumbo producers reported worsening operating income from 2018 to 2020, whereas *** reporting converters reported an overall increase in operating income from 2018 to 2020. These data are shown in table VI-3.

For HW jumbo roll producers, operating income increased from \$*** in 2018 to \$*** in 2019, decreased to \$*** in 2020, and was higher in interim 2021 at \$*** than in interim 2020 at \$***. *** reported operating losses in 2018, and accounted for most of the changes, and the majority of the operating income of HW jumbo roll producers in 2019 and 2020, and in both interim periods. The ratio of operating income to net sales increased from *** percent in 2018 to *** percent in 2019, decreased to *** percent in 2020, and was higher in interim 2021 at *** percent than in interim 2020 at *** percent.

All other expenses and net income or loss

Classified below the operating income level are interest expense, other expense and other income. For all LW thermal paper, *** producers reported interest expense, which decreased by *** percent from 2018 to 2020 and was *** percent lower in interim 2021 than in interim 2020. The decrease in interest expense was mainly attributable to ***'s data.²⁴ The *** majority of other expenses for all LW thermal paper were reported by *** and increased by *** percent from 2018 to 2020 and were *** percent lower in interim 2021 than interim 2020.²⁵ Other income declined by *** percent between 2018 and 2020. Only \$*** was reported in interim 2020 and *** other income was reported in interim 2021. *** reported other income.²⁶

With regard to the data for HW jumbo thermal paper, interest expense declined by *** percent between 2018 and 2020 and was *** percent lower in interim 2021 than in interim 2020. ***. All other expenses increased by *** percent between 2018 and 2020 but were *** percent lower in interim 2021 than in interim 2020. The increase was driven primarily by ***.²⁸ All other income, ***, declined by *** percent between 2018 and 2020 and was *** percent lower in interim 2021 than in interim 2020.

²⁴ ***. Email from ***, July 17, 2021. While *** accounted for the majority of interest expense in 2018, *** reported the majority of interest expense in each of the remaining full years and interim periods.

²⁵ ***. ***'s U.S. producers' questionnaire response, questions III-9d and III-9e.

²⁶ ***. Email from ***, August 3, 2021.

²⁷ ***. Email from ***, July 20, 2021.

²⁸ ***. ***'s U.S. producers' questionnaire response, questions III-10d and III-10e.

For all LW thermal paper, net income declined from \$*** in 2018 to a loss of \$*** in 2019, before improving to a loss of \$*** in 2020. It increased from a loss of \$*** in interim 2020 to a positive net income of \$*** in interim 2021. LW jumbo roll producers reported net losses in 2018-20 and in interim 2020 and a positive net income in interim 2021 while LW converters reported an overall decrease in net income in 2018-20, and lower net income in interim 2021 than in interim 2020. ***. The ratio of net income or loss to total net sales and the per short ton value of net income or loss followed the directional trends of actual net income.

For HW jumbo thermal paper, net losses increased from a loss of \$*** in 2018 to a loss of \$*** in 2020; in interim 2021 HW jumbo producers reported a positive net income of \$*** compared to a loss of \$*** in interim 2020. Similar to LW thermal paper ***.

Variance analysis

A variance analysis is not being presented. A variance analysis relies on the consistency of data for product mix and costs. In this investigation the product mix and cost structures among the reporting firms differ greatly. Moreover, the analysis relies on consistency of reporting in each period and one firm began reporting in 2020, reducing the usefulness of comparisons between years.

Capital expenditures and research and development expenses

For all LW thermal paper, table VI-10 presents capital expenditures, by firm, and table VI-11 presents R&D expenses, by firm. Tables VI-12 and VI-13 present the firms' narrative explanations of the nature, focus, and significance of their capital expenditures and R&D expenses, respectively. Capital expenditures for both LW jumbo roll producers and LW converters increased from 2018 to 2019 before declining in 2020 and were lower in interim

2021 than in interim 2020.^{29 30} LW jumbo producers' R&D expenses declined during 2018-20 while those of LW converters increased during the same period. Both LW jumbo producers and converters reported lower R&D expenses in interim 2021 than in interim 2020. ***.

For HW jumbo thermal paper, table VI-14 presents capital expenditures, by firm, and table VI-15 presents R&D expenses, by firm. Tables VI-16 and VI-17 present the firms' narrative explanations of the nature, focus, and significance of their capital expenditures and R&D expenses, respectively. Capital expenditures for HW jumbo thermal paper increased irregularly during 2018-20 and were higher in interim 2021 than in interim 2020. R&D expenses also increased irregularly in 2018-20 but were lower in interim 2021 than in interim 2020.

Table VI-10
All LW thermal paper: U.S. producers' capital expenditures, by firm and period

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

²⁹ ***. Email from ***, August 19, 2021.

³⁰ ***. *** U.S. producers' questionnaire response, question III-11i.

Table VI-11
All LW thermal paper: U.S. producers' R&D expenses, by firm and period

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***
Iconex	***	***	***	***	***
IndoorMedia	***	***	***	***	***
Integrity	***	***	***	***	***
Liberty	***	***	***	***	***
Maxwell	***	***	***	***	***
NCCO	***	***	***	***	***
PCC Paper	***	***	***	***	***
All LW converters	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-12
All LW thermal paper: Narrative description of U.S. producers' capital expenditures, by firm

Firm	Narrative explanation
Appvion	***
Domtar	***
Iconex	***
IndoorMedia	***
Integrity	***
Kanzaki	***
Liberty	***
Maxwell	***
NCCO	***
PCC Paper	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-13**All LW thermal paper: Narrative descriptions of U.S. producers' R&D expenses, by firm**

Firm	Narrative explanation
Appvion	***
Domtar	***
Iconex	***
IndoorMedia	***
Integrity	***
Kanzaki	***
Liberty	***
Maxwell	***
NCCO	***
PCC Paper	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-14**HW jumbo thermal paper: U.S. producers' capital expenditures, by firm and period**

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-15
HW jumbo thermal paper: U.S. producers' R&D expenses, by firm and period

Value in 1,000 dollars

Firm	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Appvion	***	***	***	***	***
Domtar	***	***	***	***	***
Kanzaki	***	***	***	***	***
Ricoh	***	***	***	***	***
All firms	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-16
HW jumbo thermal paper: Narratives explaining the nature, focus, and significance of firms' capital expenditures

Firm	Narrative explanation
Appvion	***
Domtar	***
Kanzaki	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-17
HW jumbo thermal paper: Narratives explaining the nature, focus, and significance of firms' R&D expenses

Firm	Narrative explanation
Appvion	***
Domtar	***
Kanzaki	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Assets and return on assets

For all LW thermal paper, table VI-18 presents data on the U.S. producers' total assets while table VI-19 presents their ROA.³¹ Table VI-20 presents U.S. producers' narrative responses explaining their major asset categories and any significant changes in asset levels over time. Total assets declined irregularly from 2018 to 2020 for LW jumbo producers and converters. The decline in assets reported by ***. ***.^{32 33}

For HW jumbo roll producers, table VI-21 presents data on the U.S. producers' total assets while table VI-22 presents their ROA. Table VI-23 presents U.S. producers' narrative responses explaining their major asset categories and any significant changes in asset levels over time. HW jumbo rolls producers reported a decline in their total assets in 2018-20. ***. For HW thermal paper producers, ***.³⁴

³¹ The ROA is calculated as operating income divided by total assets. With respect to a firm's overall operations, the total asset value reflects an aggregation of a number of assets which are generally not product specific. Thus, high-level allocations are generally required in order to report a total asset value for thermal paper. Assets allocated to the in-scope product may include current assets like cash, accounts receivable, inventory, intangible assets, as well as noncurrent assets.

³² Email from ***, August 30, 2021.

³³ ***. *** U.S. producers' questionnaire response, questions III-9h and III-10h.

³⁴ Email from ***, July 17, 2021.

Table VI-18
All LW thermal paper: U.S. producers' total net assets, by firm and period

Value in 1,000 dollars

Firm	2018	2019	2020
Appvion	***	***	***
Domtar	***	***	***
Kanzaki	***	***	***
Ricoh	***	***	***
All LW jumbo producers	***	***	***
Iconex	***	***	***
IndoorMedia	***	***	***
Integrity	***	***	***
Liberty	***	***	***
Maxwell	***	***	***
NCCO	***	***	***
PCC Paper	***	***	***
All LW converters	***	***	***
All firms	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-19
All LW thermal paper: U.S. producers' ROA, by firm and period

Ratio in percent

Firm	2018	2019	2020
Appvion	***	***	***
Domtar	***	***	***
Kanzaki	***	***	***
Ricoh	***	***	***
All LW jumbo producers	***	***	***
Iconex	***	***	***
IndoorMedia	***	***	***
Integrity	***	***	***
Liberty	***	***	***
Maxwell	***	***	***
NCCO	***	***	***
PCC Paper	***	***	***
All LW converters	***	***	***
All firms	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-20**All LW thermal paper: Narrative descriptions of U.S. producers' total net assets, by firm**

Firm	Narrative explanation
Appvion	***
Domtar	***
Iconex	***
IndoorMedia	***
Integrity	***
Kanzaki	***
Liberty	***
Maxwell	***
NCCO	***
PCC Paper	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-21**HW jumbo thermal paper: U.S. producers' net assets, by firm and period**

Values in 1,000 dollars

Firm	2018	2019	2020
Appvion	***	***	***
Domtar	***	***	***
Kanzaki	***	***	***
Ricoh	***	***	***
All firms	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-22
HW jumbo thermal paper: U.S. producers' ROA, by firm and period

Ratio in percent

Firm	2018	2019	2020
Appvion	***	***	***
Domtar	***	***	***
Kanzaki	***	***	***
Ricoh	***	***	***
All firms	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-23
HW jumbo thermal paper: Narratives explaining major asset categories and any significant changes in asset levels over time

Firm	Narrative explanation
Appvion	***
Domtar	***
Kanzaki	***
Ricoh	***

Source: Compiled from data submitted in response to Commission questionnaires.

Capital and investment

The Commission requested U.S. producers of all LW thermal paper and HW jumbo rolls to describe any actual or potential negative effects of imports of thermal paper from Germany, Japan, Korea, and Spain on their firms' growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Tables VI-24 and VI-25 present the number of all LW and HW thermal producers, respectively, reporting an impact in each category and table VI-26 provides the U.S. producers' narrative responses.

Table VI-24**All LW thermal paper: Count of firms indicating actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2018, by effect**

Number of firms reporting

Effect	Category	Count
Cancellation, postponement, or rejection of expansion projects	Investment	2
Denial or rejection of investment proposal	Investment	1
Reduction in the size of capital investments	Investment	1
Return on specific investments negatively impacted	Investment	4
Other investment effects	Investment	1
Any negative effects on investment	Investment	5
Rejection of bank loans	Growth	0
Lowering of credit rating	Growth	1
Problem related to the issue of stocks or bonds	Growth	0
Ability to service debt	Growth	1
Other growth and development effects	Growth	6
Any negative effects on growth and development	Growth	5
Anticipated negative effects of imports	Future	5

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-25**HW jumbo thermal paper: Count of firms indicating actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2018, by effect**

Number of firms reporting

Effect	Category	Count
Cancellation, postponement, or rejection of expansion projects	Investment	2
Denial or rejection of investment proposal	Investment	1
Reduction in the size of capital investments	Investment	1
Return on specific investments negatively impacted	Investment	2
Other investment effects	Investment	2
Any negative effects on investment	Investment	3
Rejection of bank loans	Growth	0
Lowering of credit rating	Growth	1
Problem related to the issue of stocks or bonds	Growth	0
Ability to service debt	Growth	1
Other growth and development effects	Growth	3
Any negative effects on growth and development	Growth	2
Anticipated negative effects of imports	Future	3

Source: Compiled from data submitted in response to Commission questionnaires.

Table VI-26

Thermal paper: Narratives relating to actual and anticipated negative effects of imports on investment, growth, and development, since January 1, 2018

Item	Firm name and accompanying narrative response
Cancellation, postponement, or rejection of expansion projects	***
Cancellation, postponement, or rejection of expansion projects	***
Denial or rejection of investment proposal	***
Reduction in the size of capital investments	***
Return on specific investments negatively impacted	***
Return on specific investments negatively impacted	***
Return on specific investments negatively impacted	***

Item	Firm name and accompanying narrative response
Return on specific investments negatively impacted	***
Other negative effects on investments	***
Other negative effects on investments	***
Lowering of credit rating	***
Ability to service debt	***

Item	Firm name and accompanying narrative response
Other effects on growth and development	***
Other effects on growth and development	***
Other effects on growth and development	***
Other effects on growth and development	***
Other effects on growth and development	***

Item	Firm name and accompanying narrative response
Other effects on growth and development	***
Anticipated effects of imports	***
Anticipated effects of imports	***
Anticipated effects of imports	***

Item	Firm name and accompanying narrative response
Anticipated effects of imports	***
Anticipated effects of imports	***

Source: Compiled from data submitted in response to Commission questionnaires.

Part VII: Threat considerations and information on nonsubject countries

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors¹--

- (I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
- (II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
- (III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
- (IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
- (V) inventories of the subject merchandise,*

¹ Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that “The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition.”

- (VI) *the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,*
- (VII) *in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),*
- (VIII) *the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and*
- (IX) *any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).²*

Information on the volume and pricing of imports of the subject merchandise is presented in *Parts IV* and *V*; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in *Part VI*. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

The industry in Germany

The Commission issued foreign producers' or exporters' questionnaires to three firms believed to produce and/or export thermal paper from Germany.³ Usable responses to the

² Section 771(7)(F)(iii) of the Act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other WTO member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

³ These firms were identified through a review of information submitted in the petition and contained in *** records.

Commission’s questionnaire were received from two producers and one reseller: Mitsubishi HiTec Paper Europe GmbH (“Mitsubishi HiTec”), Papierfabrik August Koehler SE (“Koehler”), and Matra Atlantic GmbH (“Matra”).⁴

Koehler is a *** producer of thermal paper in Germany. The firm was founded in 1807 in Oberkirch, Germany. It is owned by parent company Koehler Holding GmbH & Co. KG, and its subsidiaries include Koehler Renewable Energy, Koehler Innovative Solutions, The Katz Group, Beaver Paper Group, and XILLIX GmbH.⁵ Koehler produces thermal paper, flexible packaging paper, coated and uncoated paper, and carbonless paper, as well as playing cardboard and other specialty papers.⁶ The firm produces BPA-free, phenol-free, and developer-free thermal paper.⁷

Mitsubishi HiTec is part of Mitsubishi Paper Mills Ltd., a producer of thermal paper in Japan, and is located in Bielefeld, Germany, with manufacturing locations in Bielefeld and Flensburg. Mitsubishi HiTec produces inkjet, thermal, carbonless, label, and barrier paper. The company has a total coating capacity of 185,000 tonnes (approximately 203,927 short tons) of specialty paper per year.⁸

These firms’ exports to the United States are believed to account for the majority of U.S. imports of thermal paper from Germany in 2020. According to estimates requested of the responding producers in Germany, the production of thermal paper in Germany reported in questionnaires accounts for approximately *** percent of overall production of thermal paper in Germany. Tables VII-1 and VII-2 present information on the thermal paper operations of the responding producers and exporters in Germany.

⁴ Matra is ***. The firm ***.

⁵ Koehler Paper Group, “History,” <https://www.koehlerpaper.com/en/company/history.php> (retrieved August 2, 2021).

⁶ Koehler Paper Group, “Products,” <https://www.koehlerpaper.com/en/products/> (retrieved August 2, 2021).

⁷ Koehler Paper Group, “Products: Thermal Paper,” <https://www.koehlerpaper.com/en/products/> (retrieved August 2, 2021).

⁸ Mitsubishi HiTec, “About Us: Facts” <https://www.mitsubishi-paper.com/en/hitec-paper/about-us/facts/> (retrieved August 2, 2021).

Table VII-1
All LW thermal paper: Summary data for producers in Germany, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Koehler	***	***	***	***	***	***
Mitsubishi HiTec	***	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***	***
All LW converters	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VII-2
HW thermal paper: Summary data for producers in Germany, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Koehler	***	***	***	***	***	***
Mitsubishi HiTec	***	***	***	***	***	***
All HW jumbo producers	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Changes in operations

As presented in table VII-3 producers in Germany reported several operational and organizational changes since January 1, 2018.

Table VII-3

Thermal paper: Reported changes in operations by producers in Germany, since January 1, 2018

Item	Firm name and accompanying narrative response
Expansions	***
Prolonged shutdowns or curtailments	***
Other	***

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on thermal paper

Table VII-4 presents information on the LW thermal paper operations of the responding producers and exporters in Germany. German producers' capacity increased overall during 2018-20 by *** percent. German producers' capacity was higher in January-March 2021 than in January-March 2020. Capacity is projected to decrease by *** percent in 2021, then decrease again in 2022 by *** percent. German producers' production decreased during 2018-20 by *** percent and was lower in January-March 2021 than in January-March 2020. German producers projected decreased production in 2021 and 2022 at levels below 2020 reported production. As a result of increased capacity coupled with decreased production, German producers' capacity utilization decreased during 2018-20, from *** percent in 2018 to *** percent in 2020. Capacity utilization was lower in January-March 2021 than in January-March 2020 and is projected to be higher in 2022 than in 2021.

Home market shipments and export shipments to the United States each accounted for *** of German producers' total shipments during 2018-20 and *** in January-March 2020. Home market shipments were lower in January-March 2021 than in January-March 2020, accounting for *** percent of total shipments, while export shipments to the United States peaked in 2018 at *** percent before decreasing in 2020 to end *** percentage points lower than the 2018 share levels. The quantity of German producers' export shipments to the United States for 2021 and 2022 is projected to remain below the quantities of export shipments to the United States reported during 2018-20.

Table VII-4
All LW thermal paper: Data for producers in Germany, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-4 Continued
All LW thermal paper: Data for producers in Germany, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.5” percent.

Table VII-5 presents information on the HW thermal paper operations of the responding producers and exporters in Germany. German producers’ capacity decreased overall during 2018-20 by *** percent. German producers’ capacity was lower in January-March 2021 than in January-March 2020. Capacity is projected to increase in 2022 by *** percent over the 2020 level. German producers’ production decreased during 2018-20 by *** percent and was lower in January-March 2021 than in January-March 2020. German producers projected increased production in 2021 by *** percent and an additional *** increase in 2022 of *** percent, but still lower than levels reported during 2018-19. As a result of increased capacity coupled with decreased production, German producers’ capacity utilization decreased during 2018-20, from *** percent in 2018 to *** percent in 2020. Capacity utilization is projected to be lower in 2022 than in 2021, but higher than in 2020.

Home market shipments and export shipments to the United States accounted for *** of German producers’ total shipments during 2018-20 and January-March 2020. Home market shipments were lower in January-March 2021 than in January-March 2020, accounting for *** percent of total shipments. Export shipments to the United States were lower in January-March 2021 than in January-March 2020, but accounted for a

greater share of total shipments at *** percent. The quantity of German producers' export shipments to the United States is projected to remain lower than the quantity of export shipments reported in 2018-20 in 2021 and 2022.

Table VII-5
HW thermal paper: Data for producers in Germany, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-5 Continued
HW thermal paper: Data for producers in Germany, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.5” percent.

Alternative products

As shown in table VII-6, responding firms in Germany produced other products on the same equipment and machinery used to produce thermal paper.⁹ German producers' production of other products increased absolutely and as a share of total production from *** percent in 2018 to *** percent in 2020 and was *** percentage points higher in January-March 2021 than in January-March 2020.

Table VII-6
All jumbo thermal paper: Overall capacity and production on the same equipment as in-scope production by producers in Germany, by period

Quantity in short tons; shares and ratios in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall capacity	Quantity	***	***	***	***	***
LW jumbo production	Quantity	***	***	***	***	***
HW jumbo production	Quantity	***	***	***	***	***
All jumbo production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW jumbo production	Share	***	***	***	***	***
HW jumbo production	Share	***	***	***	***	***
All jumbo production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: *** reported producing four products *** on the same machinery as thermal paper.

Exports

According to GTA, the leading export markets for paper, paperboard, cellulose wadding, and webs of cellulose fibers, from Germany are the United States, France, and Italy (table VII-7). During 2020, the United States was the leading export market for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Germany, accounting for 13.7 percent, followed by France, accounting for 8.2 percent.

⁹ ***. See *** foreign producer questionnaire response at question II-3c.

Table VII-7**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Germany by destination market, by period**

Value in 1,000 dollars

Destination market	Measure	2018	2019	2020
United States	Value	157,271	141,405	161,376
France	Value	111,141	100,161	97,218
Italy	Value	120,514	100,387	90,061
Poland	Value	105,294	87,897	89,779
Turkey	Value	74,285	86,431	61,968
United Kingdom	Value	92,675	91,176	61,283
Russia	Value	82,330	71,509	56,489
Austria	Value	64,745	57,481	56,462
Netherlands	Value	39,589	45,547	43,773
All other destination markets	Value	557,206	523,144	462,202
All destination markets	Value	1,405,052	1,305,137	1,180,611

Table continued.

Table VII-7 Continued**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Germany by destination market, by period**

Share of value in percent

Destination market	Measure	2018	2019	2020
United States	Share of value	11.2	10.8	13.7
France	Share of value	7.9	7.7	8.2
Italy	Share of value	8.6	7.7	7.6
Poland	Share of value	7.5	6.7	7.6
Turkey	Share of value	5.3	6.6	5.2
United Kingdom	Share of value	6.6	7.0	5.2
Russia	Share of value	5.9	5.5	4.8
Austria	Share of value	4.6	4.4	4.8
Netherlands	Share of value	2.8	3.5	3.7
All other destination markets	Share of value	39.7	40.1	39.1
All destination markets	Share of value	100.0	100.0	100.0

Source: Official export statistics under HS subheading 4811.90, as reported by Eurostat in the Global Trade Atlas database, accessed July 21, 2021.

Note: United States is shown at the top. All remaining top export destinations are shown in descending order of 2020 data.

Note: GTA data for HS subheading 4811.90 includes LW and HW thermal paper and products that are outside the scope of these investigations. Consequently, the global export data presented are overstated.

The industry in Japan

The Commission issued foreign producers' or exporters' questionnaires to three firms believed to produce and/or export thermal paper from Japan.¹⁰ A usable response to the Commission's questionnaire was received from one firm: Oji Imaging Media Co., Ltd. ("Oji Imaging"). During the preliminary phase investigations, the Commission received usable questionnaire responses from Oji Imaging and two additional firms: Mitsubishi Paper Mills, Limited ("Mitsubishi") and Nippon Paper Industries Co., Ltd. ("Nippon"). Mitsubishi and Nippon have chosen not to submit a final phase questionnaire response.^{11 12} Oji Imaging accounted for *** percent of U.S. imports of thermal paper from Japan in 2020.¹³ In its preliminary phase questionnaire response, Nippon estimated ***. In Mitsubishi's preliminary phase questionnaire response, it ***. Mitsubishi reported exporting ***.¹⁴ According to estimates requested of the responding producers in Japan, the production of thermal paper in Japan reported in questionnaires accounts for approximately *** percent of overall production of

¹⁰ These firms were identified through a review of information submitted in the petition and contained in *** records.

¹¹ Nippon provided ***. Staff have constructed data for Nippon based on its preliminary phase questionnaire response and ***. Nippon's preliminary phase questionnaire response and emails from ***, July 13, 2021, July 16, 2021, July 19, 2021, July 21, 2021, July 26, 2021, August 12, 2021, August 17, 2021, August 18, 2021, August 19, 2021, and August 20, 2021.

¹² Staff *** Email from ***, July 27, 2021. Mitsubishi Imaging (MPM) Inc. is a U.S. subsidiary of Mitsubishi Paper Mills and Mitsubishi Corporation. Mitsubishi Imaging (MPM) Inc., "About," <http://www.mitsubishimag.com/about.html> (retrieved August 10, 2021).

¹³ Oji Imaging reported *** exports to the United States of thermal paper from Japan in 2018-March 2021.

¹⁴ For 2017-19 Mitsubishi reported similar thermal paper capacity, production, and shipment patterns. In 2019, Mitsubishi reported *** short tons of thermal paper capacity, *** short tons of thermal paper production, shipped *** short tons to its home market and exported *** short tons to all other markets. See Mitsubishi's preliminary phase foreign producer questionnaire response at question II-8.

thermal paper in Japan.¹⁵ Tables VII-8 and VII-9 present information on the Japanese thermal paper operations of the responding producer, Oji Imaging, and constructed data for Nippon.

Nippon was founded in 1949. The firm has over 12,000 employees and produces a variety of paper products, including printing and writing paper, newsprint, specialty paper, wrapping paper, and specialty paper products designed for the foodservice and healthcare sectors.¹⁶

Mitsubishi was established in 1898, and produces products such as pressure-sensitive, thermal, magnetic, electrographic, photography, and inkjet paper.¹⁷ Mitsubishi has production and R&D locations in Japan and Germany. In March 2019 the firm became an equity-method affiliate of Oji Holdings Corporation, parent company of Oji Imaging Media Co., Ltd.¹⁸

Oji Imaging is a producer of paper products. The company is owned by parent company Oji Paper Co., Ltd., and ultimate parent Oji Holdings Co., Ltd.¹⁹

Table VII-8
All LW thermal paper: Summary data for producers in Japan, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Nippon	***	***	***	***	***	***
Oji Imaging	***	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***	***
All LW converters	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

¹⁵ Staff added Nippon's preliminary phase estimate of *** percent to Oji Imaging's final phase estimate.

¹⁶ Nippon Paper Industries, "Corporate Profile/Business Description/Products," <https://www.nipponpapergroup.com/english/about/corporate/> (retrieved August 10, 2021).

¹⁷ Mitsubishi Paper Mills Limited, "Corporate Profile/Business Fields," <https://www.mpm.co.jp/eng/company/gaiyo.html> (retrieved August 10, 2021).

¹⁸ Mitsubishi Paper Mills Limited, "History," <https://www.mpm.co.jp/eng/company/history.html> (retrieved August 10, 2021).

¹⁹ Oji Imaging Media Co., Ltd., "Company Profile," <http://www.ojiimagingmedia.co.jp/profile.html> (retrieved August 10, 2021). As mentioned in Part III, Kanzaki Specialty Papers (Ware, Massachusetts) is a subsidiary of Oji Imaging, and ultimate parent company Oji Holdings Corporation. ***.

Table VII-9
HW thermal paper: Summary data for producers in Japan, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Nippon	***	***	***	***	***	***
Oji Imaging	***	***	***	***	***	***
All HW jumbo producers	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Changes in operations

As presented in table VII-10, producers in Japan reported several operational and organizational changes since January 1, 2018.

Table VII-10
Thermal paper: Reported changes in operations by producers in Japan, since January 1, 2018

Item	Firm name and accompanying narrative response
Acquisitions	***
Consolidations	***
Other	***

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on thermal paper

Table VII-11 presents information on the LW thermal paper operations of the responding producers and exporters in Japan. Japanese producers' capacity increased slightly during 2018-20, for a total increase of *** percent. Japanese producers' production decreased during 2018-20 by *** percent. Japanese producers' capacity utilization decreased during 2018-20, from *** percent in 2018 to *** percent in 2020.

The majority of Japanese producers' shipments were shipments within its home market. Home market shipments increased during 2018-19 by *** percent before decreasing during 2019-20 by *** percent to a level below 2018 for an overall decrease of *** percent. Export shipments to the United States decreased in both 2019 and 2020, while exports to all other

markets decreased from 2018 to 2019 before increasing by *** percent from 2019 to 2020. Total exports decreased overall by *** percent during 2018-20.²⁰ Export shipments to the United States as a share of total shipments peaked in 2018 at *** percent before decreasing in 2019 and 2020 to end *** percentage points lower than 2018 share levels.

Table VII-11
All LW thermal paper: Data for producers in Japan, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

²⁰ Japanese producers' calculated exports to the United States compared to reported U.S. imports of LW thermal paper from Japan during 2018-20 are approximately equivalent. ***.

Table VII-11 Continued
All LW thermal paper: Data for producers in Japan, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent.

Note: Interim period and projected data for Japanese producer Nippon are unavailable.

Table VII-12 presents information on the HW thermal paper operations of the responding producers and exporters in Japan. Japanese producers’ capacity increased slightly during 2018-20, for a total increase of *** percent. Japanese producers’ production decreased during 2018-20 by *** percent. Japanese producers’ capacity utilization decreased during 2018-20, from *** percent in 2018 to *** percent in 2020.

The majority of Japanese producers’ shipments were of shipments within the home market. Home market shipments were relatively steady during 2018-20 hovering around *** percent of Japanese producers’ total shipments. Export shipments to the United States accounted for *** of Japanese producers’ total shipments during 2018-20. Export shipments to all other markets increased by *** percent during 2018-20 but accounted for less than *** percent of Japanese producers’ total shipments during 2018-20.

Table VII-12
HW thermal paper: Data for producers in Japan, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-12 Continued
HW thermal paper: Data for producers in Japan, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent.

Note: Interim period and projected data for Japanese producer Nippon are unavailable.

Alternative products

As shown in table VII-13, responding firms in Japan produced other products on the same equipment and machinery used to produce thermal paper. Japanese producers' production of other products accounted for a small share of total production during the period.

Table VII-13

Thermal paper: Japanese producers' overall capacity and production on the same equipment as subject production, by period

Quantity in short tons; ratio is production to capacity in percent; share is the share of total production in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall capacity	Quantity	***	***	***	***	***
LW jumbo production	Quantity	***	***	***	***	***
HW jumbo production	Quantity	***	***	***	***	***
All jumbo production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW jumbo production	Share	***	***	***	***	***
HW jumbo production	Share	***	***	***	***	***
All jumbo production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: *** reported producing six products: ***.

Note: Interim period data for Japanese producer Nippon are unavailable.

Exports

According to GTA, the leading export markets for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Japan are the United States, China, and Netherlands (table VII-14). During 2020, the United States was the leading export market for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Japan, accounting for 33.9 percent, followed by China, accounting for 14.8 percent.

Table VII-14**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Japan by destination market, by period**

Value in 1,000 dollars

Destination market	Measure	2018	2019	2020
United States	Value	57,719	43,732	28,316
China	Value	13,681	12,537	12,384
Netherlands	Value	6,078	5,965	8,422
Indonesia	Value	9,386	7,967	5,963
Taiwan	Value	6,525	5,887	4,626
Vietnam	Value	4,919	4,408	3,575
France	Value	9,110	6,595	3,374
Korea	Value	5,664	4,837	3,060
Hong Kong	Value	4,067	3,195	2,850
All other destination markets	Value	22,545	16,472	11,011
All destination markets	Value	139,695	111,594	83,581

Table continued.

Table VII-14 Continued**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Japan by destination market, by period**

Share of value in percent

Destination market	Measure	2018	2019	2020
United States	Share of value	41.3	39.2	33.9
China	Share of value	9.8	11.2	14.8
Netherlands	Share of value	4.4	5.3	10.1
Indonesia	Share of value	6.7	7.1	7.1
Taiwan	Share of value	4.7	5.3	5.5
Vietnam	Share of value	3.5	4.0	4.3
France	Share of value	6.5	5.9	4.0
Korea	Share of value	4.1	4.3	3.7
Hong Kong	Share of value	2.9	2.9	3.4
All other destination markets	Share of value	16.1	14.8	13.2
All destination markets	Share of value	100.0	100.0	100.0

Source: Official export statistics under HS subheading 4811.90, as reported by Japan's Ministry of Finance in the Global Trade Atlas database, accessed July 21, 2021.

Note: United States is shown at the top. All remaining top export destinations are shown in descending order of 2020 data.

Note: GTA data for HS subheading 4811.90 includes LW and HW thermal paper and products that are outside the scope of these investigations. Consequently, the global export data presented are overstated.

The industry in Korea

The Commission issued foreign producers' or exporters' questionnaires to one firm, Hansol Paper Co., Ltd. ("Hansol"), believed to be the sole exporter of thermal paper from Korea.²¹ Hansol provided a usable response; information on the firm's thermal paper operations is presented in tables VII-15 and VII-16. Hansol was founded in 1965 and launched its first product in 1968. In addition to thermal paper, the firm produces various graphic papers, packaging papers, label papers, dye sublimation papers, specialty papers, and biomaterials at its four mills: Cheonan, Daejeon, Janghang, and Shintanjin.²²

Table VII-15
All LW thermal paper: Summary data for producer in Korea, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Hansol	***	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***	***
All LW converters	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

²¹ This firm was identified through a review of information submitted in the petition and contained in *** records.

²² Hansol Paper, "Product/About us/Locations," <https://www.hansolpaper.co.kr/eng/product/introd> (retrieved August 12, 2021).

Table VII-16
HW thermal paper: Summary data for producer in Korea, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Hansol	***	***	***	***	***	***
All HW jumbo producers	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Changes in operations

As presented in table VII-17 the producer in Korea reported several operational and organizational changes since January 1, 2018.

Table VII-17
Thermal paper: Reported changes in operations by producers in Korea, since January 1, 2018

Item	Firm name and accompanying narrative response
Expansions	***
Prolonged shutdowns or curtailments	***

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on thermal paper

Table VII-18 presents information on Hansol's LW thermal paper operations. During 2018-20, the firm's capacity increased by *** percent, and was slightly lower in January-March 2021 than in January-March 2020. The firm projects its capacity in 2021 and 2022 to remain unchanged between the two years, after decreasing *** between 2020 and 2021. Hansol's production decreased during 2018-20 by *** percent and was lower in January-March 2021 than in January-March 2020. Its production is projected to increase by *** percent in 2021 and increase again in 2022 by *** percent. The firm's capacity utilization decreased overall during 2018-20 and was lower in January-March 2021 than in January-March 2020. However, its capacity utilization is projected to increase in 2021 and again in 2022 to levels above 2020, its

lowest reported capacity utilization rate. *** Hansol's shipments were to *** and its share of shipments *** during 2018-20 by *** percentage points. Hansol's home market shipments accounted for a decreasing share of its total shipments during 2018-20 ending the period at *** of its total shipments. Hansol's home market shipments were lower in January-March 2021 than in January-March 2020. Hansol projected its home market shipments to remain *** of its total shipments in 2021 and 2022.

Table VII-18
All LW thermal paper: Data for producers in Korea, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-18 Continued
All LW thermal paper: Data for producers in Korea, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VII-19 presents information on Hansol’s HW thermal paper operations. During 2018-20, the firm’s capacity ***. Hansol’s capacity is projected to increase by *** percent in 2021 from its reported capacity in 2020 and remain at this level in 2022. Likely owing to its ***, Hansol’s production increased during 2018-20 by *** percent but was lower in January-March 2021 than in January-March 2020. Its production is projected to decrease by *** percent in 2021 and then increase in 2022 by *** percent, but this increase is still below 2020 reported production. The firm’s capacity utilization decreased overall during 2018-20 and was lower in January-March 2021 than in January-March 2020. Hansol projected its capacity utilization rate to decrease in 2021 and increase in 2022, but not return to a rate above 2020, its lowest reported. *** Hansol’s shipments were to all other markets, though its share of shipments to the United States increased during 2018-20 by *** percentage points. Hansol’s exports to the United States were higher January-March 2021 than in January-March 2020. Hansol projected its exports to the United States will decrease by *** percent in 2021, but then will return in 2022 to a similar level reported in 2020.

Table VII-19
HW thermal paper: Data for producers in Korea, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-19 Continued
HW thermal paper: Data for producers in Korea, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Alternative products

As shown in table VII-20, responding firms in Korea produced other products on the same equipment and machinery used to produce thermal paper. Hansol's production of all jumbo thermal paper decreased in 2020 but was still above 2018 levels and was lower in January-March 2021 than in January-March 2020. Hansol's production of other products as a share of total production increased from its lowest of *** percent in 2019 to *** percent in 2020 and was *** percentage points higher in January-March 2021 than in January-March 2020.

Table VII-20

All jumbo thermal paper: Korean producers' overall capacity and production on the same equipment as subject production, by period

Quantity in short tons; shares and ratios in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall capacity	Quantity	***	***	***	***	***
LW jumbo production	Quantity	***	***	***	***	***
HW jumbo production	Quantity	***	***	***	***	***
All jumbo production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW jumbo production	Share	***	***	***	***	***
HW jumbo production	Share	***	***	***	***	***
All jumbo production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Hansol reported producing *** on same machinery as thermal paper.

Exports

According to GTA, the leading export markets for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Korea are India, Malaysia, and Estonia (table VII-21). During 2020, the United States accounted for 2.2 percent of the value of exports of paper, paperboard, cellulose wadding, and webs of cellulose fibers from Korea, while India accounted for 15.2 percent.

Table VII-21**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Korea by destination market, by period**

Value in 1,000 dollars

Destination market	Measure	2018	2019	2020
United States	Value	2,791	3,133	2,350
India	Value	23,067	23,090	16,112
Malaysia	Value	4,385	9,895	9,344
Estonia	Value	---	---	8,838
Brazil	Value	2,827	3,342	8,786
Thailand	Value	8,442	9,266	8,379
China	Value	5,739	4,996	6,332
Canada	Value	242	3	6,191
Italy	Value	808	11,211	5,071
All other destination markets	Value	42,359	48,904	34,585
All destination markets	Value	90,661	113,841	105,990

Table continued.

Table VII-21 Continued**Paper, paperboard, cellulose wadding, and webs of cellulose fiber: Exports from Korea by destination market, by period**

Share of value in percent

Destination market	Measure	2018	2019	2020
United States	Share of value	3.1	2.8	2.2
India	Share of value	25.4	20.3	15.2
Malaysia	Share of value	4.8	8.7	8.8
Estonia	Share of value	---	---	8.3
Brazil	Share of value	3.1	2.9	8.3
Thailand	Share of value	9.3	8.1	7.9
China	Share of value	6.3	4.4	6.0
Canada	Share of value	0.3	0.0	5.8
Italy	Share of value	0.9	9.8	4.8
All other destination markets	Share of value	46.7	43.0	32.6
All destination markets	Share of value	100.0	100.0	100.0

Source: Official export statistics under HS subheading 4811.90, as reported by Korea's Trade Statistics Promotion Institute in the Global Trade Atlas database, accessed July 21, 2021.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. United States is shown at the top. All remaining top export destinations are shown in descending order of 2020 data.

Note: GTA data for HS subheading 4811.90 includes LW and HW thermal paper and products that are outside the scope of these investigations. Consequently, the global export data presented are overstated.

The industry in Spain

The Commission issued foreign producers' or exporters' questionnaires to one firm, Torraspapel S.A. ("Torraspapel"), believed to be the sole producer and/or exporter of thermal paper from Spain.²³ Torraspapel provided a usable response; information on its thermal paper operations is presented below in tables VII-22 and VII-23.

Torraspapel is part of the Lecta Group, which manufactures and distributes specialty paper for labels and flexible packaging, coated and uncoated paper, and other value-added print media.²⁴ The Lecta Group was created between 1997 and 1999 as a result of an acquisition of Torraspapel, Condat in France, and Cartiere del Garda in Italy. The Zaragoza mill of the Lecta Group produces 2-sided coated and uncoated paper, as well as pulp and base paper. The Zaragoza mill has an annual paper production capacity of 181,000 tons (199,518 short tons) per year, and an annual pulp production capacity of 238,000 tons (262,350 short tons) per year.²⁵ The Leitz mill of the Lecta Group *** produces carbonless, thermal, metallized, and cast-coated paper, with an annual production capacity of 129,000 tons (142,198 short tons) per year.²⁶ ²⁷ The Almazan mill of the Lecta Group produces pressure-sensitive materials, with a production capacity of 131,000 tons (144,402 short tons) per year.²⁸ The Motril mill of the Lecta Group produces 1 side coated, 2 side coated and base paper, with a production capacity of 207,000 tons (228,178 short tons) per year.²⁹ The Sant Joan Les Fonts mill of the Lecta Group produces 1 side coated, 2 side coated, wide format paper, base paper and uncoated paper, with a production capacity of 146,000 tons (160,937 short tons) per year.³⁰

²³ This firm was identified through a review of information submitted in the petition and contained in *** records.

²⁴ Lecta, "Torraspapel," <https://www.lecta.com/en/torraspapel> (retrieved August 12, 2021)

²⁵ Lecta, "Manufacturing Sites: Zaragoza," <https://www.lecta.com/en/mill-zaragoza> (retrieved August 12, 2021).

²⁶ Lecta, "Manufacturing Sites: Leitz," <https://www.lecta.com/en/mill-leitz> (retrieved August 12, 2021).

²⁷ Staff confirmed with Torraspapel that ***. Email from ***, September 3, 2021.

²⁸ Lecta, "Manufacturing Sites: Almazan," <https://www.lecta.com/en/mill-almazan> (retrieved August 12, 2021).

²⁹ Lecta, "Manufacturing Sites: Motril," <https://www.lecta.com/en/mill-motril> (retrieved August 12, 2021).

³⁰ Lecta, "Manufacturing Sites: Sant Joan Les Fonts," <https://www.lecta.com/en/mill-sant-joan> (retrieved August 12, 2021).

Torraspapel's exports to the United States accounted for *** U.S. imports of thermal paper from Spain in 2020, and the United States accounted for *** percent of the firm's total shipments.³¹ According to requested estimates, the production of thermal paper reported in the questionnaire accounts for *** percent of overall production of thermal paper in Spain.

Table VII-22
All LW thermal paper: Summary data for producers in Spain, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Torraspapel	***	***	***	***	***	***
All LW jumbo producers	***	***	***	***	***	***
All LW converters	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VII-23
HW thermal paper: Summary data for producers in Spain, 2020

Quantity in short tons; share in percent

Firm	Production (short tons)	Share of reported production (percent)	Exports to the United States (short tons)	Share of reported exports to the United States (percent)	Total shipments (short tons)	Share of firm's total shipments exported to the United States (percent)
Torraspapel	***	***	***	***	***	***
All HW jumbo producers	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

³¹ Torraspapel ***.

Changes in operations

As presented in table VII-24 the producer in Spain reported several operational and organizational changes since January 1, 2018.

Table VII-24
Thermal paper: Reported changes in operations by producers in Spain, since January 1, 2018

Item	Firm name and accompanying narrative response
Expansions	***
Prolonged shutdowns or curtailments	***

Source: Compiled from data submitted in response to Commission questionnaires.

Operations on thermal paper

Table VII-25 presents information on Torraspapel's LW thermal paper operations. Torraspapel's capacity increased by *** percent during 2018-20 and was higher in January-March 2021 than in January-March 2020. Capacity is projected to decrease by *** percent in 2021, then decrease further in 2022 by *** percent. Torraspapel reported its LW thermal paper production ***. Torraspapel's production decreased during 2018-20 by *** percent and was lower in January-March 2021 than in January-March 2020. Torraspapel projected increased production in 2021 and 2022 by *** and *** percent, respectively. As a result of disproportional increases in capacity and production, Torraspapel's capacity utilization decreased during 2018-20, from *** percent in 2018 to *** percent in 2020. Capacity utilization was lower in January-March 2021 than in January-March 2020, and is projected to increase in 2021, and again in 2022.

*** percent of Torraspapel's shipments were exports to all other markets during 2018-20. Export shipments to the United States increased by *** percent during 2018-20. Export shipments to the United States were lower in January-March 2021 than in January-March 2020 and are projected to decrease to *** by 2022.³² Home market shipments

³² The decrease to *** may be due to the 41.45 percent preliminary margin assigned by Commerce. See Torraspapel's posthearing brief, p . 13.

decreased by *** percent during 2018-20 but were slightly higher in January-March 2021 than in January-March 2020 and are projected to increase in 2021, and again in 2022.

Table VII-25
All LW thermal paper: Data for producers in Spain, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-25 Continued
AI LW thermal paper: Data for producers in Spain, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent.

Table VII-26 presents information on Torraspapel’s HW thermal paper operations.³³ Torraspapel’s production increased during 2018-20 by *** percent but was lower in January-March 2021 than in January-March 2020. Torraspapel projected increased production in 2021 and 2022 by *** percent and *** percent, respectively, which are above its highest reported production level during the period of investigation.³⁴

Torraspapel reported *** of its HW thermal paper production for the ***. This consumption coupled with commercial home market shipments accounts for *** of its shipments during 2018-20. Home market shipments were lower in January-March 2021 than in January-March 2020, accounting for *** percent of total shipments in January-March 2021. Export shipments to the United States accounted for *** of Torraspapel’s total

³³ Torraspapel explained that ***. Torraspapel’s foreign producer questionnaire, section II-3c.

³⁴ Torraspapel reported it “. . . has primarily manufactured HW thermal paper for its own internal use, as an integrated label manufacturer.” Torraspapel’s posthearing brief, p. 14.

shipments during 2018-20 and is projected to *** all together in 2021 and 2022.³⁵ Export shipments to all other markets increased during 2018-20 and accounted for a larger share of shipments in January-March 2021 than in January-March 2020. The quantity of Torraspapel's export shipments to all other markets is projected to *** in 2021 and increase again by *** percent in 2022.

Table VII-26
HW thermal paper: Data for producers in Spain, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

³⁵ Spanish producers' exports to the United States compared to reported U.S. imports of HW thermal paper from Spain during 2018-20 are equivalent.

Table VII-26 Continued
HW thermal paper: Data for producers in Spain, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as “0.0” represent values greater than zero, but less than “0.05” percent.

Alternative products

As shown in table VII-27, Torraspapel ***. During 2018-20, ***. Torraspapel's production of other products as a share of total production increased from *** percent in 2018 to *** percent in 2020 and was higher in January-March 2021 by *** percentage points than in January-March 2020.

Table VII-27

All jumbo thermal paper: Spanish producer's overall capacity and production on the same equipment as subject production, by period

Quantity in short tons; shares and ratios in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Overall capacity	Quantity	***	***	***	***	***
LW jumbo production	Quantity	***	***	***	***	***
HW jumbo production	Quantity	***	***	***	***	***
All jumbo production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
LW jumbo production	Share	***	***	***	***	***
HW jumbo production	Share	***	***	***	***	***
All jumbo production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	Share	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Torraspapel reported producing *** on same machinery as thermal paper.

Exports

According to GTA, the leading export markets for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Spain are the United States, Turkey, and Italy (table VII-28). During 2020, the United States was the leading export market for paper, paperboard, cellulose wadding, and webs of cellulose fibers from Spain, accounting for 16.2 percent by value, followed by Turkey, accounting for 10.8 percent, and Italy, at 10.5 percent.

Table VII-28
Paper, paperboard, cellulose, wadding, and webs of cellulose fiber: Exports from Spain by destination market, by period

Value in 1,000 dollars

Destination market	Measure	2018	2019	2020
United States	Value	15,015	30,164	30,174
Turkey	Value	13,937	28,799	20,119
Italy	Value	16,788	23,049	19,568
United Kingdom	Value	3,878	12,707	10,830
Colombia	Value	13,356	20,614	10,822
Germany	Value	14,811	16,211	9,671
France	Value	10,393	11,383	9,116
Portugal	Value	4,959	9,038	8,100
Mexico	Value	8,127	7,732	7,132
All other destination markets	Value	62,580	82,818	60,342
All destination markets	Value	163,843	242,514	185,874

Table continued.

Table VII-28 Continued
Paper, paperboard, cellulose, wadding, and webs of cellulose fiber: Exports from Spain by destination market, by period

Share of value in percent

Destination market	Measure	2018	2019	2020
United States	Share of value	9.2	12.4	16.2
Turkey	Share of value	8.5	11.9	10.8
Italy	Share of value	10.2	9.5	10.5
United Kingdom	Share of value	2.4	5.2	5.8
Colombia	Share of value	8.2	8.5	5.8
Germany	Share of value	9.0	6.7	5.2
France	Share of value	6.3	4.7	4.9
Portugal	Share of value	3.0	3.7	4.4
Mexico	Share of value	5.0	3.2	3.8
All other destination markets	Share of value	38.2	34.1	32.5
All destination markets	Share of value	100.0	100.0	100.0

Source: Official export statistics under HS subheading 4811.90, as reported by Eurostat in the Global Trade Atlas database, accessed July 21, 2021.

Note: United States is shown at the top, all remaining top export destinations are shown in descending order of 2020 data.

Note: GTA data for HS subheading 4811.90 includes LW and HW thermal paper and products that are outside the scope of these investigations. Consequently, the global export data presented are overstated.

Subject countries combined

Table VII-29 presents summary data on the LW thermal paper operations of the reporting subject producers in the subject countries.^{36 37} The collective annual production capacity for the responding foreign producers in the subject countries increased by *** percent during 2018-20.³⁸ Responding foreign producers' collective production in the subject countries decreased by *** percent during 2018-20. Responding foreign producers' capacity utilization in the subject countries decreased from *** percent in 2018 to *** percent in 2020.

Responding foreign producers' collective home market shipments in the subject countries decreased by *** percent during 2018-20. Responding foreign producers' collective exports to the United States decreased during 2018-20 by *** percent.

³⁶ No foreign producer in any subject country reported production of converted thermal paper.

³⁷ The trends reported throughout this section were primarily driven by ***, who accounted for over *** percent of subject LW thermal paper producers' capacity, production, and exports to the United States during 2018-20.

³⁸ As stated above, Staff constructed data for ***. Data for interim periods and projected data are unavailable and are not presented in the collective subject country data.

Table VII-29
All LW thermal paper: Data on the industry in subject countries, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-29 Continued
All LW thermal paper: Data on the industry in subject countries, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Interim period and projected data for Japanese producer *** are unavailable.

Table VII-30 presents summary data on the HW thermal paper operations of the reporting subject producers in the subject countries.^{39 40} The collective annual production capacity for the responding foreign producers in the subject countries increased by ***

³⁹ As stated above, no foreign producer in any subject country reported production of converted thermal paper.

⁴⁰ The trends reported throughout this section were primarily driven by *** who accounted for over *** percent of subject HW thermal paper producers' capacity, production, and exports to the United States during 2018-20. With respect to exports to all other markets, the data is generally evenly distributed among the responding foreign producers.

percent during 2018-20.⁴¹ Responding foreign producers' collective production in the subject countries increased by *** percent during 2018-20. Responding foreign producers' capacity utilization in the subject countries decreased from *** percent in 2018 to *** percent in 2020.

Responding foreign producers' collective home market shipments in the subject countries stayed consistent during 2018-20 ranging from *** short tons to *** short tons. Collective home market shipments were also consistent as a share of total shipments during 2018-20. Responding foreign producers' collective exports to the United States increased during 2018-20 by *** percent.

⁴¹ As stated above, Staff constructed data for ***. Data for interim periods and projected data are unavailable and are not presented in the collective subject country data.

Table VII-30
HW thermal paper: Data on the industry in subject countries, by period

Quantity in short tons

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of- period inventories	***	***	***	***	***	***	***
Internal consumption	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Home market shipments	***	***	***	***	***	***	***
Exports to the United States	***	***	***	***	***	***	***
Exports to all other markets	***	***	***	***	***	***	***
Export shipments	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

Table continued.

Table VII-30 Continued
HW thermal paper: Data on the industry in subject countries, by period

Shares and ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021	Projection 2021	Projection 2022
Capacity utilization ratio	***	***	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***	***	***
Internal consumption share	***	***	***	***	***	***	***
Commercial home market shipments share	***	***	***	***	***	***	***
Home market shipments share	***	***	***	***	***	***	***
Exports to the United States share	***	***	***	***	***	***	***
Exports to all other markets share	***	***	***	***	***	***	***
Export shipments share	***	***	***	***	***	***	***
Total shipments share	***	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Interim period and projected data for Japanese producer *** are unavailable.

U.S. inventories of imported merchandise

Table VII-31 presents data on U.S. importers' reported inventories of LW thermal paper. U.S. importers' end-of-period inventories from all subject sources increased by *** percent during 2018-20, and volumes were *** percent higher in January-March 2021 than in January-March 2020. *** firms reported holding inventories in 2020; *** accounted for the majority of the increase in end-of-period inventories from subject sources. Inventories from subject sources generally increased relative to U.S. imports, U.S. shipments, and total shipments during 2018-20 and were higher in January-March 2021 than in January-March 2020. U.S. importers reported *** end-of-period inventories from nonsubject sources during 2018-20.

Table VII-31
All LW thermal paper: U.S. importers' inventories, by period

Quantity in short tons; ratio in percent

Measure	Source	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Inventories quantity	Germany	***	***	***	***	***
Ratio to imports	Germany	***	***	***	***	***
Ratio to U.S. shipments of imports	Germany	***	***	***	***	***
Ratio to total shipments of imports	Germany	***	***	***	***	***
Inventories quantity	Japan	***	***	***	***	***
Ratio to imports	Japan	***	***	***	***	***
Ratio to U.S. shipments of imports	Japan	***	***	***	***	***
Ratio to total shipments of imports	Japan	***	***	***	***	***
Inventories quantity	Korea	***	***	***	***	***
Ratio to imports	Korea	***	***	***	***	***
Ratio to U.S. shipments of imports	Korea	***	***	***	***	***
Ratio to total shipments of imports	Korea	***	***	***	***	***
Inventories quantity	Spain	***	***	***	***	***
Ratio to imports	Spain	***	***	***	***	***
Ratio to U.S. shipments of imports	Spain	***	***	***	***	***
Ratio to total shipments of imports	Spain	***	***	***	***	***
Inventories quantity	Subject	***	***	***	***	***
Ratio to imports	Subject	***	***	***	***	***
Ratio to U.S. shipments of imports	Subject	***	***	***	***	***
Ratio to total shipments of imports	Subject	***	***	***	***	***
Inventories quantity	Nonsubject	***	***	***	***	***
Ratio to imports	Nonsubject	***	***	***	***	***
Ratio to U.S. shipments of imports	Nonsubject	***	***	***	***	***
Ratio to total shipments of imports	Nonsubject	***	***	***	***	***
Inventories quantity	All	***	***	***	***	***
Ratio to imports	All	***	***	***	***	***
Ratio to U.S. shipments of imports	All	***	***	***	***	***
Ratio to total shipments of imports	All	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table VII-32 presents data on U.S. importers' reported inventories of HW thermal paper. U.S. importers' end-of-period inventories from all subject sources increased by *** percent during 2018-20, and volumes were *** percent higher in January-March 2021 than in January-March 2020. *** firms reported holding inventories in 2020, of which *** accounted for the majority of the increase in end-of-period inventories from subject sources. Importers reported holding *** inventories of HW thermal paper from ***. Inventories from subject sources generally increased relative to U.S. imports, U.S. shipments, and total shipments during 2018-20, and were higher in January-March 2021 than in January-March 2020. U.S. importers reported *** end-of-period inventories from nonsubject sources during 2018-20.

Table VII-32
HW thermal paper: U.S. importers' inventories, by period

Quantity in short tons; ratio in percent

Measure	Source	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Inventories quantity	Germany	***	***	***	***	***
Ratio to imports	Germany	***	***	***	***	***
Ratio to U.S. shipments of imports	Germany	***	***	***	***	***
Ratio to total shipments of imports	Germany	***	***	***	***	***
Inventories quantity	Japan	***	***	***	***	***
Ratio to imports	Japan	***	***	***	***	***
Ratio to U.S. shipments of imports	Japan	***	***	***	***	***
Ratio to total shipments of imports	Japan	***	***	***	***	***
Inventories quantity	Korea	***	***	***	***	***
Ratio to imports	Korea	***	***	***	***	***
Ratio to U.S. shipments of imports	Korea	***	***	***	***	***
Ratio to total shipments of imports	Korea	***	***	***	***	***
Inventories quantity	Spain	***	***	***	***	***
Ratio to imports	Spain	***	***	***	***	***
Ratio to U.S. shipments of imports	Spain	***	***	***	***	***
Ratio to total shipments of imports	Spain	***	***	***	***	***
Inventories quantity	Subject	***	***	***	***	***
Ratio to imports	Subject	***	***	***	***	***
Ratio to U.S. shipments of imports	Subject	***	***	***	***	***
Ratio to total shipments of imports	Subject	***	***	***	***	***
Inventories quantity	Nonsubject	***	***	***	***	***
Ratio to imports	Nonsubject	***	***	***	***	***
Ratio to U.S. shipments of imports	Nonsubject	***	***	***	***	***
Ratio to total shipments of imports	Nonsubject	***	***	***	***	***
Inventories quantity	All	***	***	***	***	***
Ratio to imports	All	***	***	***	***	***
Ratio to U.S. shipments of imports	All	***	***	***	***	***
Ratio to total shipments of imports	All	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of LW thermal paper after March 31, 2021. In the first three periods for which data were collected, Germany accounted for the largest share of imports, followed by Korea. Table VII-33 presents data for the quantity of LW thermal paper arranged for U.S. importation after March 31, 2021.

Table VII-33
All LW thermal paper: Quantity of U.S. importers' arranged imports, by period

Quantity in short tons

Source of arranged imports	Apr-Jun 2021	Jul-Sept 2021	Oct-Dec 2021	Jan-Mar 2022	Total
Germany	***	***	***	***	***
Japan	***	***	***	***	***
Korea	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

The Commission requested importers to indicate whether they imported or arranged for the importation of HW thermal paper after March 31, 2021. In the first three periods for which data were collected, Korea accounted for the largest share of imports, followed by Germany. Table VII-34 presents data for the quantity of HW thermal paper arranged for U.S. importation after March 31, 2021.

Table VII-34
HW thermal paper: Quantity of U.S. importers' arranged imports, by period

Quantity in short tons

Source of arranged imports	Apr-Jun 2021	Jul-Sept 2021	Oct-Dec 2021	Jan-Mar 2022	Total
Germany	***	***	***	***	***
Japan	***	***	***	***	***
Korea	***	***	***	***	***
Spain	***	***	***	***	***
Subject sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Antidumping or countervailing duty orders in third-country markets

LW thermal paper⁴² and HW thermal paper⁴³ manufactured in Korea are currently subject to antidumping duties in the European Union.

Information on nonsubject countries

Data on global exports of paper, paperboard, cellulose wadding, and webs of cellulose fibers during 2018-2020 are presented in table VII-35.⁴⁴ According to GTA, Germany (30.5 percent of total global exports by value) was the leading global exporter in 2020. China⁴⁵ (15.2 percent), the United States (8.2 percent), and Spain (4.8 percent) were the second, third, and fifth largest, respectively. Of the other subject countries, Korea (2.7 percent) was the ninth largest and Japan (2.2 percent) was the eleventh largest. Nonsubject countries (including China) together accounted for 51.7 percent of all global exports.

⁴² Official Journal of the European Union, Commission Implementing Regulation Imposing a Definitive Anti-Dumping Duty and Collecting the Provisional Duty Imposed on Imports of Certain Lightweight Thermal Paper Originating in the Republic of Korea, OJ L 114/3, May 2, 2017.

⁴³ Official Journal of the European Union, Commission Implementing Regulation Imposing a Definitive Anti-Dumping Duty and Collecting the Provisional Duty Imposed on Imports of Certain Heavyweight Thermal Paper Originating in the Republic of Korea, OJ L 346/19, October 19, 2020.

⁴⁴ GTA data for HTS subheading 4811.90 includes products that are outside the scope of these investigations. Consequently, the global export data presented are overstated.

⁴⁵ China is subject to U.S. antidumping and countervailing duty orders on lightweight thermal paper. USITC, Lightweight Thermal Paper from China, Investigation Nos. 701-TA-451 and 731-TA-1126 (Second Review), June 11, 2020.

Table VII-35**Paper, paperboard, cellulose, wadding, and webs of cellulose fiber: Global exports by exporter by year**

Value in 1,000 dollars

Exporting country	Measure	2018	2019	2020
United States	Value	433,439	408,945	317,428
Germany	Value	1,405,052	1,305,137	1,180,611
Japan	Value	139,695	111,594	83,581
Korea	Value	90,661	113,841	105,990
Spain	Value	163,843	242,514	185,874
Subject sources	Value	1,799,252	1,773,085	1,556,056
China	Value	547,269	615,659	590,473
France	Value	267,958	240,203	234,582
Italy	Value	149,539	146,305	131,638
Poland	Value	130,874	121,720	115,980
Belgium	Value	125,912	124,489	113,083
Finland	Value	108,633	95,004	93,424
Netherlands	Value	82,275	79,640	66,479
All other exporters	Value	872,915	800,543	657,070
Nonsubject sources	Value	2,285,375	2,223,562	2,002,729
All reporting exporters	Value	4,518,065	4,405,591	3,876,212

Table continued.

Table VII-35 Continued**Paper, paperboard, cellulose, wadding, and webs of cellulose fiber: Global exports by exporter by year**

Shares in percent

Exporting country	Measure	2018	2019	2020
United States	Share of value	9.6	9.3	8.2
Germany	Share of value	31.1	29.6	30.5
Japan	Share of value	3.1	2.5	2.2
Korea	Share of value	2.0	2.6	2.7
Spain	Share of value	3.6	5.5	4.8
Subject sources	Share of value	39.8	40.2	40.1
China	Share of value	12.1	14.0	15.2
France	Share of value	5.9	5.5	6.1
Italy	Share of value	3.3	3.3	3.4
Poland	Share of value	2.9	2.8	3.0
Belgium	Share of value	2.8	2.8	2.9
Finland	Share of value	2.4	2.2	2.4
Netherlands	Share of value	1.8	1.8	1.7
All other exporters	Share of value	19.3	18.2	17.0
Nonsubject sources	Share of value	50.6	50.5	51.7
All reporting exporters	Share of value	100.0	100.0	100.0

Source: Official export statistics under HS subheading 4811.90, as reported by various national statistical authorities in the Global Trade Atlas database, accessed July 21, 2021.

Note: United States is shown at the top, all remaining top export destinations are shown in descending order of 2020 data.

APPENDIX A

***FEDERAL REGISTER* NOTICES**

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, *Federal Register* notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
85 FR 65073, October 14, 2020	<i>Institution of Anti-Dumping Duty Investigations and Scheduling of Preliminary Phase Investigations; Thermal Paper From Germany, Japan, Korea, and Spain</i>	https://www.govinfo.gov/content/pkg/FR-2020-10-23/pdf/2020-23460.pdf
85 FR 69580, November 3, 2020	<i>Thermal Paper From Germany, Japan, the Republic of Korea, and Spain: Initiation of Less-Than-Fair-Value Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2020-11-03/pdf/2020-24333.pdf
85 FR 76601, November 30, 2020	<i>Thermal Paper From Germany, Japan, Korea, and Spain: Determinations</i>	https://www.govinfo.gov/content/pkg/FR-2020-11-30/pdf/2020-26271.pdf
86 FR 11502, February 25, 2021	<i>Thermal Paper From Germany, Japan, the Republic of Korea, and Spain: Postponement of Preliminary Determinations in the Less-Than-Fair-Value Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2021-02-25/pdf/2021-03902.pdf
86 FR 26001, May 12, 2021	<i>Thermal Paper From Germany: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances in Part, Postponement of Final Determination, and Extension of Provisional Measures</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-12/pdf/2021-09965.pdf
86 FR 26003, May 12, 2021	<i>Thermal Paper From Spain: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-12/pdf/2021-09967.pdf

Citation	Title	Link
86 FR 26007, May 12, 2021	<i>Thermal Paper From the Republic of Korea: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances, Postponement of Final Determination, and Extension of Provisional Measures</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-12/pdf/2021-09966.pdf
86 FR 26011, May 12, 2021	<i>Thermal Paper From Japan: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-12/pdf/2021-09849.pdf
86 FR 26905, May 18, 2021	<i>Thermal Paper From Germany: Preliminary Affirmative Determination of Sales at Less Than Fair Value, Preliminary Affirmative Determination of Critical Circumstances in Part, Postponement of Final Determination, and Extension of Provisional Measures; Correction</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-18/pdf/2021-10438.pdf
86 FR 30627, June 9, 2021	<i>Thermal Paper From Germany, Japan, Korea, and Spain; Scheduling of the Final Phase of Antidumping Duty Investigations</i>	https://www.govinfo.gov/content/pkg/FR-2021-06-09/pdf/2021-12073.pdf
86 FR 33358, June 24, 2021	<i>Thermal Paper From Germany, Japan, Korea, and Spain; Notice of Correction Concerning Scheduling of Record Closing and Final Comments</i>	https://www.govinfo.gov/content/pkg/FR-2021-06-24/pdf/2021-13345.pdf
86 FR 54152, September 30, 2021	<i>Thermal Paper From Germany: Final Affirmative Determination of Sales at Less Than Fair Value and Final Affirmative Determination of Critical Circumstances, in Part</i>	https://www.govinfo.gov/content/pkg/FR-2021-09-30/pdf/2021-21301.pdf
86 FR 54154, September 30, 2021	<i>Thermal Paper From the Republic of Korea: Final Affirmative Determination of Sales at Less Than</i>	https://www.govinfo.gov/content/pkg/FR-2021-09-30/pdf/2021-21303.pdf

Citation	Title	Link
	<i>Fair Value and Final Affirmative Determination of Critical Circumstances</i>	
86 FR 54157, September 30, 2021	<i>Thermal Paper From Japan: Final Affirmative Determination of Sales at Less Than Fair Value</i>	https://www.govinfo.gov/content/pkg/FR-2021-09-30/pdf/2021-21302.pdf
86 FR 54162, September 30, 2021	<i>Thermal Paper From Spain: Final Determination of Sales at Less Than Fair Value</i>	https://www.govinfo.gov/content/pkg/FR-2021-09-30/pdf/2021-21304.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared in the United States International Trade Commission's hearing via video conference:

Subject: Thermal Paper from Germany, Japan, Korea, and Spain

Inv. Nos.: 731-TA-1546-1549 (Final)

Date and Time: September 21, 2021 - 9:30 a.m.

CONGRESSIONAL APPEARANCES:

The Honorable James P. McGovern, U.S. Representative, 2nd District, Massachusetts

The Honorable Michael R. Turner, U.S. Representative, 10th District, Ohio

The Honorable Tom Rice, U.S. Representative, 7th District, South Carolina

OPENING REMARKS:

Petitioners (**Stephen J. Orava**, King & Spalding LLP)

Respondents (**Lynn Fischer Fox**, Arnold & Porter Kaye Scholer LLP)

In Support of the Imposition of Antidumping Duty Orders:

King & Spalding LLP
Washington, DC
on behalf of

Appvion Operations, Inc.
Domtar Corporation

Graeme Hodson, Executive Vice President and President, Advanced Materials and Solutions, Appvion Operations, Inc.

Meyer Weiss, Vice President, Advanced Materials and Solutions, Appvion Operations, Inc.

Robert Melton, Senior Vice President - Commercial, Domtar Corporation

**In Support of the Imposition of
Antidumping Duty Orders (continued):**

Tina Howard, Vice President of Sales, Converting and Specialty Channel,
Domtar Corporation

Stephen P. Hefner, President and Chief Executive Officer,
Kanzaki Specialty Papers

Mike Rapier, President, Paper Receipts Converting Association

Brian Burns, Senior Vice President – Paper Business, Iconex, LLC

Roy Houseman, Legislative Director, United Steelworkers

Seth Kaplan, Economist, International Economic Research

Charles Anderson, Principal, Capital Trade, Inc.

Andrew Szamosszegi, Principal, Capital Trade, Inc.

Travis Pope, Project Manager, Capital Trade, Inc.

Bonnie B. Byers, Consultant, King & Spalding LLP

Stephen J. Orava)
Stephen P. Vaughn) – OF COUNSEL
Clinton R. Long)

**In Opposition to the Imposition of
Antidumping Duty Orders:**

Dechert, LLP
Washington, DC
on behalf of

Papierfabrik August Koehler SE (“Koehler”)

Edward D. (“Doug”) Endsley, President, IndoorMedia

Eckhard Kallies, Director of Flexible Packaging, Koehler

Professor Andrew Sweeting, Economist, University of Maryland

Kivanç A. Kirgiz, Vice President, Cornerstone Research

**In Opposition to the Imposition of
Antidumping Duty Orders (continued):**

James Dougan, Partner, ION Economics, LLC

Cara Groden, Senior Economic Consultant, ION Economics, LLC

F. Amanda DeBusk)
) – OF COUNSEL
Navpreet Moonga)

Arnold & Porter Kaye Scholer LLP
Washington, DC
on behalf of

Hansol Paper Co., Ltd
Hansol America, Inc.
(collectively, “Hansol”)

Steve Han, President, Hansol America, Inc.

J. David Park)
Lynn Fischer Fox) – OF COUNSEL
Gina Colarusso)

Perkins Coie
Washington, DC
on behalf of

Torraspapel S.A. (“Torraspapel”)

Michael P. House)
) – OF COUNSEL
Andrew Caridas)

REBUTTAL/CLOSING REMARKS:

Petitioners (**Stephen P. Vaughn**, King & Spalding LLP)
Respondents (**F. Amanda DeBusk**, Dechert, LLP)

-END-

APPENDIX C
SUMMARY DATA

Split like product: Lightweight (LW) jumbo and converted

Table C-1

All LW thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year			Jan-Mar		Comparison years			Jan-Mar
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1):									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Value added to imports.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Total.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▼***	▲***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Subject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-1--Continued

All LW thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
All LW U.S. producers' (fn2):									
Jumbo producers: Average capacity quantity.....	***	***	***	***	***	▼***	***	▼***	▼***
Jumbo producers: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Jumbo producers: Capacity utilization (fn1)....	***	***	***	***	***	▼***	▼***	▲***	▲***
Converters: Average capacity quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
U.S. shipments (fn3):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value added to imports.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Total.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Jumbo producers: Ending inventory quantity..	***	***	***	***	***	▼***	▼***	▲***	▲***
Jumbo producers: Inv./jumbo ship. (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Converters: Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Inv./converter ship. (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production workers.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Jumbo producers: Productivity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Jumbo producers: Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Converters: Productivity (fn4).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Converters: Unit labor costs (fn4).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▼***	▼***
SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Operating income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Net income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Unit operating income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit net income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▲***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▼***	▲***	▼***	▲***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Net assets.....	***	***	***	***	***	▼***	▲***	▼***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "--". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Data for LW converters contains only a partial questionnaire response for one converter (***) which only provided capacity, production, inventories, and financial data.

fn3.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. lightweight jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. lightweight jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of lightweight thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. lightweight jumbo producers or by U.S. importers. Unit value of U.S. producers' U.S. shipments is based on the fully domestic value.

fn4.--LW converters' productivity and unit labor costs exclude one converter (***) whose data were incomplete.

fn5.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Split like product: Heavyweight (HW) jumbo

Table C-2

HW jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Korea.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources less Japan and Spain..	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	***	***	***	***	***	***
Nonsubject sources plus Japan and Spa	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Korea.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources less Japan and Spain..	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	***	***	***	***	***	***
Nonsubject sources plus Japan and Spa	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
Korea:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
Subject sources:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources less Japan and Spain:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-2--Continued

HW jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes				
	Calendar year			Jan-Mar		Comparison years			Jan-Mar	
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21	
U.S. importers' U.S. shipments of imports from:--Continued										
Nonsubject sources:										
Quantity.....	***	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***	***
Nonsubject sources plus Japan and Spain:										
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***	***
All import sources:										
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▼***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▲***
HW jumbo U.S. producers':										
Average capacity quantity.....	***	***	***	***	***	▲***	***	▲***	▲***	▲***
Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***	▼***
U.S. shipments:										
Quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▲***	▼***	▲***	▲***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***	▼***
Export shipments:										
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▼***	▲***	▲***	▲***
Inventories/total shipments (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▲***	▲***
Production workers.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▼***	▲***	▼***	▼***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Hourly wages (dollars per hour).....	***	***	***	***	***	▲***	▼***	▲***	▲***	▲***
Productivity.....	***	***	***	***	***	▲***	▼***	▲***	▲***	▲***
Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▲***
Net sales:										
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▲***	▲***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn2).....	***	***	***	***	***	▲***	▲***	▼***	▲***	▲***
SG&A expenses.....	***	***	***	***	***	▼***	▼***	▼***	▲***	▲***
Operating income or (loss) (fn2).....	***	***	***	***	***	▲***	▲***	▼***	▲***	▲***
Net income or (loss) (fn2).....	***	***	***	***	***	▼***	▲***	▼***	▲***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▼***	▲***	▲***	▲***
Unit operating income or (loss) (fn2).....	***	***	***	***	***	▲***	▲***	▼***	▲***	▲***
Unit net income or (loss) (fn2).....	***	***	***	***	***	▼***	▲***	▼***	▲***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▲***	▲***	▼***	▲***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▲***	▼***	▲***	▲***
Capital expenditures.....	***	***	***	***	***	▲***	▲***	▲***	▲***	▲***
Research and development expenses.....	***	***	***	***	***	▲***	▼***	▲***	▼***	▼***
Net assets.....	***	***	***	***	***	▼***	▲***	▼***	***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeros, null values, and undefined calculations are suppressed and shown as "--". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Single like product, co-extensive: LW converted, LW jumbo, and HW Jumbo

Table C-3

Thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1):									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Value added to imports.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Total.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Subject sources.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▼***	▲***	▼***	▼***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Subject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-3--Continued

Thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
All U.S. producers':									
Jumbo producers: Average capacity quantity.....	***	***	***	***	***	▼***	***	▼***	▼***
Jumbo producers: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Jumbo producers: Capacity utilization (fn1)....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Average capacity quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
U.S. shipments (fn2):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value added to imports.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Total.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Jumbo producers: Ending inventory quantity..	***	***	***	***	***	▼***	▼***	▲***	▲***
Jumbo producers: Inv./jumbo ship. (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Converters: Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Inv./converter ship. (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production workers.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▲***	▲***	▼***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Jumbo producers: Productivity.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Jumbo producers: Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Converters: Productivity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Converters: Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn3).....	***	***	***	***	***	▼***	▼***	▼***	▼***
SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Operating income or (loss) (fn3).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss) (fn3).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit operating income or (loss) (fn3).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit net income or (loss) (fn3).....	***	***	***	***	***	▼***	▼***	▼***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Net assets.....	***	***	***	***	***	▼***	▲***	▼***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "----". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers. Unit value of U.S. producers' U.S. shipments is based on the fully domestic value added to domestic jumbo rolls.

fn3.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Expanded like product: LW converted, LW jumbo, HW jumbo, and HW converted

Table C-4

All in-scope thermal paper + HW converted: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources (in-scope).....	***	***	***	***	***	▲***	▲***	▲***	▼***
All import sources (HW converted)...	***	***	***	***	***	***	***	***	***
All import sources (expanded).....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1):									
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Value added to imports.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Total.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Subject sources.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources (in-scope).....	***	***	***	***	***	▼***	▲***	▼***	▼***
All import sources (HW converted)...	***	***	***	***	***	***	***	***	***
All import sources (expanded).....	***	***	***	***	***	▼***	▲***	▼***	▼***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Subject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-4--Continued

All in-scope thermal paper + HW converted: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021
 (Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year			Jan-Mar		Comparison years			Jan-Mar
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. importers' U.S. shipments of imports from:--Continued									
Nonsubject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources (in-scope):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
All import sources (HW converted):									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources (expanded):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. producers' (fn2):									
Jumbo producers: Average capacity quantity.....	***	***	***	***	***	▼***	***	▼***	▼***
Jumbo producers: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Jumbo producers: Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Average capacity quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
U.S. shipments (fn3):									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Fully domestic value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value added to imports.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Total.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Jumbo producers: Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Jumbo producers: Inv./jumbo ship. (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Converters: Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Inv./converter ship. (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production workers.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Jumbo producers: Productivity.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Jumbo producers: Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Converters: Productivity (fn4).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Converters: Unit labor costs (fn4).....	***	***	***	***	***	▲***	▲***	▲***	▼***

Table continued.

Table C-4--Continued

All in-scope thermal paper + HW converted: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. importers' U.S. shipments of imports from:--Continued									
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▼***	▼***
SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Operating income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit operating income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit net income or (loss) (fn5).....	***	***	***	***	***	▼***	▼***	▼***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Net assets.....	***	***	***	***	***	▼***	▲***	▼***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "----". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Data for LW converters contains only a partial questionnaire response for one converter (***) which only provided capacity, production, inventories, and financial data.

fn3.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers. Unit value of U.S. producers' U.S. shipments is based on the fully domestic value.

fn4.--LW converters' productivity and unit labor costs exclude one converter (***) whose data were incomplete.

fn5.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Split like product: Lightweight (LW) jumbo

Table C-5

LW jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2020	2018-20	2018-19	2019-20	
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▼***	▲***	▲***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Subject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-5--Continued

LW jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			Jan-Mar		Comparison years			Jan-Mar
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
LW jumbo U.S. producers:									
Average capacity quantity.....	***	***	***	***	***	▼***	***	▼***	▼***
Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▲***	▲***
U.S. shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▼***	▲***	▲***	▲***
Inventories/total shipments (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Production workers.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Hourly wages (dollars per hour).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Productivity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
SG&A expenses.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Operating income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit operating income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit net income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▲***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Net assets.....	***	***	***	***	***	▼***	▼***	▼***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "--". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Split like product: Lightweight (LW) converted

Table C-6

LW converted thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year			Jan-Mar		Comparison years			Jan-Mar
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	***	***	***	***
Japan.....	***	***	***	***	***	***	***	***	***
Korea.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	***	***	***	***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources less Germany, Japan, and Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain.....	***	***	***	***	***	***	***	***	***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1):.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	***	***	***	***
Japan.....	***	***	***	***	***	***	***	***	***
Korea.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain.....	***	***	***	***	***	***	***	***	***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Subject sources less Germany, Japan, and Spain.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources.....	***	***	***	***	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain.....	***	***	***	***	***	***	***	***	***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
Japan:									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
Korea:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Spain:									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
Subject sources:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Subject sources less Germany, Japan, and Spain:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Nonsubject sources:									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***

Table continued.

Table C-6--Continued

LW converted thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. importers' U.S. shipments of imports from:--Continued									
Nonsubject sources plus Germany, Japan, and Spain:									
Quantity.....	***	***	***	***	***	***	***	***	***
Value.....	***	***	***	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Value.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
U.S. LW converters' (fn2):									
Average capacity quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Converters: Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
U.S. shipments:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit value.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Inv./converter ship. (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Production workers.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Hourly wages (dollars per hour).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Productivity (fn3).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit labor costs (fn3).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn4).....	***	***	***	***	***	▼***	▲***	▼***	▼***
SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Operating income or (loss) (fn4).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Net income or (loss) (fn4).....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit COGS.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit operating income or (loss) (fn4).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Unit net income or (loss) (fn4).....	***	***	***	***	***	▲***	▼***	▲***	▼***
COGS/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▼***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	***
Research and development expenses.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Net assets.....	***	***	***	***	***	▲***	▲***	▲***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeros, null values, and undefined calculations are suppressed and shown as "--". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Data for LW converters contains only a partial questionnaire response for one converter (***) which only provided capacity, production, inventories, and financial data.

fn3.--LW converters' productivity and unit labor costs exclude one converter (***) whose data were incomplete.

fn4.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

Lightweight (LW) and heavyweight (HW) jumbo

Table C-7

Jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent-exceptions noted)

	Reported data					Period changes			
	Calendar year		2020	Jan-Mar		Comparison years			Jan-Mar 2020-21
	2018	2019		2020	2021	2018-20	2018-19	2019-20	
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▲***	▲***	▲***	▼***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Producers' share (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Importers' share (fn1):									
Germany.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Spain.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Subject sources.....	***	***	***	***	***	▲***	▲***	▼***	▼***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▼***	▲***	▼***	▼***
U.S. importers' U.S. shipments of imports from:									
Germany:									
Quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Japan:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Korea:									
Quantity.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Spain:									
Quantity.....	***	***	***	***	***	▲***	▼***	▲***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▲***
Subject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Nonsubject sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity.....	***	***	***	***	***	***	***	***	***
All import sources:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continued.

Table C-7--Continued

Jumbo thermal paper: Summary data concerning the U.S. market, 2018-20, January to March 2020, and January to March 2021

(Quantity=short tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per short ton; Productivity=Pounds per hour; and Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			Jan-Mar		Comparison years			Jan-Mar
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
Jumbo U.S. producers':									
Average capacity quantity.....	***	***	***	***	***	▼***	***	▼***	▼***
Production quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Capacity utilization (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▼***
U.S. shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Export shipments:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Ending inventory quantity.....	***	***	***	***	***	▼***	▼***	▲***	▲***
Inventories/total shipments (fn1).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Production workers.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Hours worked (1,000s).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Wages paid (\$1,000).....	***	***	***	***	***	▼***	▼***	▲***	▲***
Hourly wages (dollars per hour).....	***	***	***	***	***	▲***	▼***	▲***	▲***
Productivity.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▲***
Net sales:									
Quantity.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Value.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Cost of goods sold (COGS).....	***	***	***	***	***	▼***	▼***	▼***	▼***
Gross profit or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
SG&A expenses.....	***	***	***	***	***	▼***	▼***	▼***	▼***
Operating income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit COGS.....	***	***	***	***	***	▼***	▲***	▼***	▼***
Unit SG&A expenses.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Unit operating income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit net income or (loss) (fn2).....	***	***	***	***	***	▼***	▼***	▼***	▲***
COGS/sales (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Capital expenditures.....	***	***	***	***	***	▼***	▲***	▼***	▲***
Research and development expenses.....	***	***	***	***	***	▼***	▼***	▲***	▼***
Net assets.....	***	***	***	***	***	▼***	▲***	▼***	***

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "----". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

Source: Compiled from data submitted in response to Commission questionnaires.

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APPENDIX D

**U.S. PRODUCERS', IMPORTERS', AND PURCHASERS' RESPONSES TO
THE COMPARABILITY OF LIGHTWEIGHT AND HEAVYWEIGHT JUMBO
THERMAL PAPER, AND OF LIGHTWEIGHT AND HEAVYWEIGHT CONVERTED
THERMAL PAPER**

Table D-1

Thermal paper: Count of U.S. producers, importers, and purchasers reporting on the comparability of LW jumbo and HW jumbo thermal paper by the like product factors

Number of firms reporting.

Comparison factor	Firm type	Fully	Mostly	Somewhat	Never
Physical characteristics	U.S. producers	0	4	2	2
Interchangeability	U.S. producers	0	4	0	3
Channels	U.S. producers	4	0	0	2
Manufacturing	U.S. producers	5	1	0	0
Perceptions	U.S. producers	0	3	1	1
Price	U.S. producers	0	3	2	1
Physical characteristics	Importers	0	0	2	6
Interchangeability	Importers	0	0	2	6
Channels	Importers	0	0	4	4
Manufacturing	Importers	0	2	4	2
Perceptions	Importers	0	1	0	7
Price	Importers	0	0	4	4
Physical characteristics	Purchasers	2	1	7	7
Interchangeability	Purchasers	2	1	5	10
Channels	Purchasers	7	4	3	1
Manufacturing	Purchasers	6	2	4	2
Perceptions	Purchasers	3	1	4	7
Price	Purchasers	2	2	2	9

Source: Compiled from data submitted in response to Commission questionnaires.

Table D-2
Thermal paper: U.S. producers' narrative responses on the comparability of LW jumbo and HW jumbo thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***

Firm	Comparison factor	Narrative explanation

***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***

Firm	Comparison factor	Narrative explanation
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Price	***
***	Price	***

Firm	Comparison factor	Narrative explanation
***	Price	***
***	Price	***
***	Price	***
***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table D-3

Thermal paper: U.S. importers' narrative responses on the comparability of LW jumbo and HW jumbo thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***

Firm	Comparison factor	Narrative explanation

***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***

Firm	Comparison factor	Narrative explanation
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***

Firm	Comparison factor	Narrative explanation
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***

Firm	Comparison factor	Narrative explanation
***	Price	***
***	Price	***
***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table D-4

Thermal paper: U.S. purchasers' narrative responses on the comparability of LW jumbo and HW jumbo thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Interchangeability	***
***	Interchangeability	***

Firm	Comparison factor	Narrative explanation
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Channels	***
***	Channels	***
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***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***

Firm	Comparison factor	Narrative explanation

***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
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***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***

Firm	Comparison factor	Narrative explanation
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
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***	Perceptions	***
***	Perceptions	***
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***	Perceptions	***
***	Price	***
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***	Price	***
***	Price	***

Firm	Comparison factor	Narrative explanation
***	Price	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as "N/A" have been removed.

Table D-5
Thermal paper: Count of U.S. producers, importers, and purchasers reporting on the comparability of LW converted and HW converted thermal paper by the like product factors

Number of firms reporting.

Comparison factor	Firm type	Fully	Mostly	Somewhat	Never
Physical characteristics	U.S. producers	0	1	4	1
Interchangeability	U.S. producers	0	0	5	1
Channels	U.S. producers	3	1	1	0
Manufacturing	U.S. producers	3	0	2	0
Perceptions	U.S. producers	0	1	1	4
Price	U.S. producers	0	0	1	5
Physical characteristics	Importers	0	0	3	5
Interchangeability	Importers	0	0	2	5
Channels	Importers	0	0	1	4
Manufacturing	Importers	0	0	3	1
Perceptions	Importers	0	0	0	4
Price	Importers	0	0	1	4
Physical characteristics	Purchasers	1	4	6	2
Interchangeability	Purchasers	2	2	3	6
Channels	Purchasers	7	4	1	0
Manufacturing	Purchasers	4	4	3	0
Perceptions	Purchasers	3	2	4	2
Price	Purchasers	2	1	2	7

Source: Compiled from data submitted in response to Commission questionnaires.

Table D-6
Thermal paper: U.S. producers' narrative responses on the comparability of LW converted and HW converted thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***

Firm	Comparison factor	Narrative explanation
***	Interchangeability	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***
***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as "N/A" have been removed.

Table D-7

Thermal paper: U.S. importers' narrative responses on the comparability of LW converted and HW converted thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***

Firm	Comparison factor	Narrative explanation
***	Interchangeability	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***
***	Perceptions	***
***	Perceptions	***
***	Price	***
***	Price	***

Firm	Comparison factor	Narrative explanation
***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table D-8

Thermal paper: U.S. purchasers' narrative responses on the comparability of LW converted and HW converted thermal paper by the like product factors

Firm	Comparison factor	Narrative explanation
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Physical characteristics	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***

Firm	Comparison factor	Narrative explanation
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Interchangeability	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Channels	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***
***	Manufacturing	***

Firm	Comparison factor	Narrative explanation
***	Manufacturing	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Perceptions	***
***	Price	***
***	Price	***
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***	Price	***
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***	Price	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: ***.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

APPENDIX E

**U.S. PRODUCERS', IMPORTERS', AND PURCHASERS' RESPONSES REGARDING
SEMIFINISHED FACTORS**

Table E-1

Thermal paper: Count of U.S. producers', importers', and purchasers' responses regarding unfinished LW jumbo product vs. finished LW converted product

Number of firms reporting.

Comparison factor	Firm type	No	Yes
Other uses	U.S. producers	9	1
Separate market	U.S. producers	5	4
Differences in characteristics	U.S. producers	5	5
Differences in cost	U.S. producers	3	7
Transformation intensive	U.S. producers	5	5
Other uses	Importers	9	1
Separate market	Importers	1	9
Differences in characteristics	Importers	1	9
Differences in cost	Importers	0	10
Transformation intensive	Importers	1	9
Other uses	Purchasers	18	2
Separate market	Purchasers	4	15
Differences in characteristics	Purchasers	7	13
Differences in cost	Purchasers	9	11
Transformation intensive	Purchasers	6	13

Source: Compiled from data submitted in response to Commission questionnaires.

Table E-2
Thermal paper: U.S. producers' narrative responses regarding semi-finished factors between unfinished LW jumbo product and finished LW converted product

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Differences in costs	***
***	Transformation intensive	***

Firm	Comparison factor	Narrative explanation
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table E-3**Thermal paper: U.S. importers' narrative responses regarding semi-finished factors between unfinished LW jumbo product and finished LW converted product**

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***

Firm	Comparison factor	Narrative explanation

***	Separate market	***
***	Separate market	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***

Firm	Comparison factor	Narrative explanation

***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***

Firm	Comparison factor	Narrative explanation
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Firm	Comparison factor	Narrative explanation

***	Transformation intensive	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table E-4

Thermal paper: U.S. purchasers' narrative responses regarding semi-finished factors between unfinished LW jumbo product and finished LW converted product

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
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***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***

Firm	Comparison factor	Narrative explanation
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***

Firm	Comparison factor	Narrative explanation

***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Firm	Comparison factor	Narrative explanation
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table E-5
Thermal paper: Count of U.S. producers', importers', and purchasers' responses regarding unfinished HW jumbo product vs. finished HW converted product

Number of firms reporting.

Comparison factor	Firm type	No	Yes
Other uses	U.S. producers	4	1
Separate market	U.S. producers	1	4
Differences in characteristics	U.S. producers	1	4
Differences in cost	U.S. producers	2	3
Transformation intensive	U.S. producers	2	3
Other uses	Importers	7	1
Separate market	Importers	2	6
Differences in characteristics	Importers	2	6
Differences in cost	Importers	2	6
Transformation intensive	Importers	2	6
Other uses	Purchasers	15	1
Separate market	Purchasers	4	12
Differences in characteristics	Purchasers	4	12
Differences in cost	Purchasers	5	11
Transformation intensive	Purchasers	4	12

Source: Compiled from data submitted in response to Commission questionnaires.

Table E-6**Thermal paper: U.S. producers' narrative responses regarding semi-finished factors between unfinished HW jumbo product and finished HW converted product**

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in costs	***
***	Differences in costs	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as "N/A", or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table E-7**Thermal paper: U.S. importers' narrative responses regarding semi-finished factors between unfinished HW jumbo product and finished HW converted product**

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***

Firm	Comparison factor	Narrative explanation

***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***

Firm	Comparison factor	Narrative explanation
***	Differences in cost	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as “N/A”, or instances in which a firm indicated that they had no familiarity with the product have been removed.

Table E-8

Thermal paper: U.S. purchasers' narrative responses regarding semi-finished factors between unfinished HW jumbo product and finished HW converted product

Firm	Comparison factor	Narrative explanation
***	Other uses	***
***	Other uses	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Separate market	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***

Firm	Comparison factor	Narrative explanation

***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in characteristics	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Differences in cost	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Firm	Comparison factor	Narrative explanation
***	Transformation intensive	***
***	Transformation intensive	***
***	Transformation intensive	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Responses have been edited for spelling, grammar, and punctuation. Where applicable, unusable responses such as "N/A", or instances in which a firm indicated that they had no familiarity with the product have been removed.

APPENDIX F

**U.S. PRODUCERS' AND U.S. IMPORTERS' U.S. SHIPMENTS OF THERMAL PAPER
BY HEAVY AND LIGHT BASIS WEIGHT**

Table F-1**All LW thermal paper: U.S. producers' U.S. shipments by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-2**All LW thermal paper: U.S. importers' U.S. shipments of imports from Germany by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-3**All LW thermal paper: U.S. importers' U.S. shipments of imports from Japan by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-4**All LW thermal paper: U.S. importers' U.S. shipments of imports from Korea by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-5**All LW thermal paper: U.S. importers' U.S. shipments of imports from Spain by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-6

All LW thermal paper: U.S. importers' U.S. shipments of imports from subject sources by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-7

All LW thermal paper: U.S. importers' U.S. shipments of imports from nonsubject sources by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-8**All LW thermal paper: U.S. importers' U.S. shipments of imports from all import sources by basis weight by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Less than 49.9	Quantity	***	***	***	***	***
49.9 to 60	Quantity	***	***	***	***	***
Over 60 to 70	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Less than 49.9	Value	***	***	***	***	***
49.9 to 60	Value	***	***	***	***	***
Over 60 to 70	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Less than 49.9	Unit value	***	***	***	***	***
49.9 to 60	Unit value	***	***	***	***	***
Over 60 to 70	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Less than 49.9	Share of quantity	***	***	***	***	***
49.9 to 60	Share of quantity	***	***	***	***	***
Over 60 to 70	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Less than 49.9	Share of value	***	***	***	***	***
49.9 to 60	Share of value	***	***	***	***	***
Over 60 to 70	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: U.S. producer data are for jumbo thermal paper only and do not reflect U.S. converters value added to product already reported by the jumbo producers and import sources.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Table F-9
HW jumbo thermal paper: U.S. producers' U.S. shipments by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-10
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from Germany by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-11
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from Japan by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-12
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from Korea by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-13
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from Spain by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-14
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from subject sources by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-15

HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from subject sources less Japan and Spain by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-16
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from nonsubject sources by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-17
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from nonsubject sources plus Japan and Spain by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Table continued

Table F-17
HW jumbo thermal paper: U.S. importers' U.S. shipments of imports from nonsubject sources plus Japan and Spain by basis weight by period

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; share in percent

Basis weight	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Greater than 70 to 79.9	Quantity	***	***	***	***	***
80 to 89.9	Quantity	***	***	***	***	***
90 to 99.9	Quantity	***	***	***	***	***
100 and over	Quantity	***	***	***	***	***
All basis weights	Quantity	***	***	***	***	***
Greater than 70 to 79.9	Value	***	***	***	***	***
80 to 89.9	Value	***	***	***	***	***
90 to 99.9	Value	***	***	***	***	***
100 and over	Value	***	***	***	***	***
All basis weights	Value	***	***	***	***	***
Greater than 70 to 79.9	Unit value	***	***	***	***	***
80 to 89.9	Unit value	***	***	***	***	***
90 to 99.9	Unit value	***	***	***	***	***
100 and over	Unit value	***	***	***	***	***
All basis weights	Unit value	***	***	***	***	***
Greater than 70 to 79.9	Share of quantity	***	***	***	***	***
80 to 89.9	Share of quantity	***	***	***	***	***
90 to 99.9	Share of quantity	***	***	***	***	***
100 and over	Share of quantity	***	***	***	***	***
All basis weights	Share of quantity	***	***	***	***	***
Greater than 70 to 79.9	Share of value	***	***	***	***	***
80 to 89.9	Share of value	***	***	***	***	***
90 to 99.9	Share of value	***	***	***	***	***
100 and over	Share of value	***	***	***	***	***
All basis weights	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

APPENDIX G

**DATA REGARDING U.S. SHIPMENTS, EMPLOYMENT, APPARENT CONSUMPTION
AND MARKET SHARES FOR ALL IN-SCOPE THERMAL PAPER**

Table G-1**Thermal paper: U.S. producers' U.S. shipments for use in all in-scope consumption by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; shares in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
U.S. shipments fully domestic	Value	***	***	***	***	***
U.S. shipments value added to imports	Value	***	***	***	***	***
U.S. shipments total	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Table G-2**All jumbo thermal paper: U.S. producers' end-of-period inventories by period**

Quantity in short tons; ratios in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to U.S. production	***	***	***	***	***
Inventory ratio to U.S. shipments	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table G-3
Thermal paper: U.S. producers' employment-related data by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Jumbo producers: Productivity (pounds per hour)	***	***	***	***	***
Jumbo producers: Unit labor costs (dollars per short ton)	***	***	***	***	***
Converters: Productivity (pounds per hour)	***	***	***	***	***
Converters: Unit labor costs (dollars per short ton)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: ***.

Table G-4
Thermal paper: U.S. imports, by source and period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued

Table G-4 continued
Thermal paper: U.S. imports, by source and period

Shares in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure G-1
Thermal paper: U.S. import quantities and average unit values by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table G-5
Thermal paper: U.S. imports in the twelve-month period preceding the filing of the petition

Quantity in short tons; share in percent

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table G-6
Thermal paper: Apparent consumption by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers fully domestic value	Value	***	***	***	***	***
U.S. producers value added to imports	Value	***	***	***	***	***
U.S. producers total	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Figure G-2
Thermal paper: Apparent consumption by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table G-7
Thermal paper: Market shares by period

Shares in percent.

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers fully domestic value	Share of value	***	***	***	***	***
U.S. producers value added to imports	Share of value	***	***	***	***	***
U.S. producers total	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX H

**DATA REGARDING U.S. SHIPMENTS, EMPLOYMENT, APPARENT CONSUMPTION
AND MARKET SHARES FOR ALL IN-SCOPE THERMAL PAPER AND HEAVYWEIGHT
CONVERTED THERMAL PAPER**

Table H-1**All in-scope thermal paper + HW converted: U.S. producers' U.S. shipments for use in all in-scope consumption by period**

Quantity in short tons; value in 1,000 dollars; unit values in dollars per short ton; shares in percent

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. shipments	Quantity	***	***	***	***	***
U.S. shipments fully domestic	Value	***	***	***	***	***
U.S. shipments value added to imports	Value	***	***	***	***	***
U.S. shipments total	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Table H-2**All converted thermal paper: U.S. producers' end-of-period inventories by period**

Quantity in short tons; ratio in percent

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
End-of-period inventory quantity	***	***	***	***	***
Inventory ratio to total shipments	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table H-3

All in-scope thermal paper + HW converted: U.S. producers' employment-related data by period

Item	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid (\$1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note: ***.

Table H-4
All in-scope thermal paper + HW converted: Apparent consumption by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources (in-scope)	Quantity	***	***	***	***	***
All import sources (HW converted)	Quantity	***	***	***	***	***
All import sources (expanded)	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers fully domestic value	Value	***	***	***	***	***
U.S. producers value added to imports	Value	***	***	***	***	***
U.S. producers total	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources (in-scope)	Value	***	***	***	***	***
All import sources (HW converted)	Value	***	***	***	***	***
All import sources (expanded)	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of thermal paper sold in the United States by U.S. jumbo producers; The value for U.S. producers' U.S. shipments reflects the value of thermal paper sold in the United States by U.S. jumbo producers plus the additional value added to U.S. produced and imported jumbo rolls of thermal paper by U.S. independent converters. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once by U.S. jumbo producers or by U.S. importers.

Figure H-1
All in-scope thermal paper + HW converted: Apparent consumption by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires.

Table H-5
All in-scope thermal paper + HW converted: Market shares by period

Shares in percent.

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources (in-scope)	Share of quantity	***	***	***	***	***
All import sources (HW converted)	Share of quantity	***	***	***	***	***
All import sources (expanded)	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers fully domestic value	Share of value	***	***	***	***	***
U.S. producers value added to imports	Share of value	***	***	***	***	***
U.S. producers total	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources (in-scope)	Share of value	***	***	***	***	***
All import sources (HW converted)	Share of value	***	***	***	***	***
All import sources (expanded)	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX J

**DATA REGARDING IMPORTS, APPARENT U.S. CONSUMPTION, AND MARKET
SHARES FOR LIGHTWEIGHT JUMBO THERMAL PAPER**

Table J-1
LW jumbo thermal paper: U.S. imports, by source and by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued.

Table J-1--Continued
LW jumbo thermal paper: U.S. imports, by source and by period

Shares in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table J-2

LW jumbo thermal paper: U.S. imports in the twelve months preceding the filing of the petition, by source

Quantity in short tons; Share of quantity in percent.

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table J-3
LW jumbo thermal paper: Apparent U.S. consumption by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure J-1
LW jumbo thermal paper: Apparent U.S. consumption by period

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Source: Compiled from data submitted in response to Commission questionnaires.

Table J-4
LW jumbo thermal paper: Market shares by period

Shares in percent.

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX K

**DATA REGARDING IMPORTS, APPARENT U.S. CONSUMPTION, AND MARKET
SHARES FOR LIGHTWEIGHT CONVERTED THERMAL PAPER**

Table K-1
LW converted thermal paper: U.S. imports, by source and by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued.

Table K-1--Continued
LW converted thermal paper: U.S. imports, by source and by period

Shares in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table K-2

LW converted thermal paper: U.S. imports in the twelve months preceding the filing of the petition, by source

Quantity in short tons; Share of quantity in percent

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table K-3
LW converted thermal paper: Apparent U.S. consumption by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Subject sources less Germany, Japan, and Spain	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Subject sources less Germany, Japan, and Spain	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure K-1
LW converted thermal paper: Apparent U.S. consumption by period

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Source: Compiled from data submitted in response to Commission questionnaires.

Table K-4
LW converted thermal paper: Market shares by period

Shares in percent.

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Subject sources less Germany, Japan, and Spain	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Subject sources less Germany, Japan, and Spain	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
Nonsubject sources plus Germany, Japan, and Spain	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX L

**DATA REGARDING IMPORTS, APPARENTS U.S. CONSUMPTION, AND MARKET
SHARES FOR ALL JUMBO THERMAL PAPER**

Table L-1
Jumbo thermal paper: U.S. imports, by source and by period

Quantity in short tons; value in 1,000 dollars, unit values in dollars per short ton

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
Germany	Unit value	***	***	***	***	***
Japan	Unit value	***	***	***	***	***
Korea	Unit value	***	***	***	***	***
Spain	Unit value	***	***	***	***	***
Subject sources	Unit value	***	***	***	***	***
Nonsubject sources	Unit value	***	***	***	***	***
All import sources	Unit value	***	***	***	***	***

Table continued.

Table L-1--Continued
Jumbo thermal paper: U.S. imports, by source and by period

Shares in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table L-2

Jumbo thermal paper: U.S. imports in the twelve months preceding the filing of the petition, by source

Quantity in short tons; value in 1,000 dollars

Source of imports	Quantity	Share of quantity
Germany	***	***
Japan	***	***
Korea	***	***
Spain	***	***
All other sources	***	***
All import sources	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table L-3
Jumbo thermal paper: Apparent U.S. consumption by period

Quantity in short tons; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Quantity	***	***	***	***	***
Germany	Quantity	***	***	***	***	***
Japan	Quantity	***	***	***	***	***
Korea	Quantity	***	***	***	***	***
Spain	Quantity	***	***	***	***	***
Subject sources	Quantity	***	***	***	***	***
Nonsubject sources	Quantity	***	***	***	***	***
All import sources	Quantity	***	***	***	***	***
All sources	Quantity	***	***	***	***	***
U.S. producers	Value	***	***	***	***	***
Germany	Value	***	***	***	***	***
Japan	Value	***	***	***	***	***
Korea	Value	***	***	***	***	***
Spain	Value	***	***	***	***	***
Subject sources	Value	***	***	***	***	***
Nonsubject sources	Value	***	***	***	***	***
All import sources	Value	***	***	***	***	***
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Figure L-1
Jumbo thermal paper: Apparent U.S. consumption by period

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Source: Compiled from data submitted in response to Commission questionnaires.

Table L-4
Jumbo thermal paper: Market shares by period

Shares in percent

Source	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
U.S. producers	Share of quantity	***	***	***	***	***
Germany	Share of quantity	***	***	***	***	***
Japan	Share of quantity	***	***	***	***	***
Korea	Share of quantity	***	***	***	***	***
Spain	Share of quantity	***	***	***	***	***
Subject sources	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers	Share of value	***	***	***	***	***
Germany	Share of value	***	***	***	***	***
Japan	Share of value	***	***	***	***	***
Korea	Share of value	***	***	***	***	***
Spain	Share of value	***	***	***	***	***
Subject sources	Share of value	***	***	***	***	***
Nonsubject sources	Share of value	***	***	***	***	***
All import sources	Share of value	***	***	***	***	***
All sources	Share of value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX M

ALL SCOPE THERMAL PAPER FINANCIAL DATA

Table M-1 presents aggregated data on U.S. producers' operations in relation to all LW jumbo and converted thermal paper and HW jumbo thermal paper. Table M-2 presents changes in the average unit value ("AUV") data for the data presented in table M-1.

Table M-1
Thermal paper: Results of operations of U.S. producers, by item and period

Quantity in short tons; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table M-1 Continued**Thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in numbers of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table M-2**Thermal paper: Changes in average per short ton values between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***

Table continued on next page

Table M-2 Continued**Thermal paper: Changes in average per short ton values between comparison periods**

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▲***	▲***	▲***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▼***	▲***	▼***	▲***
SG&A expense	▼***	▲***	▼***	▼***
Operating income or (loss)	▼***	▼***	▼***	▲***
Net income or (loss)	▼***	▼***	▼***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX N

ALL LIGHTWEIGHT AND HEAVYWEIGHT THERMAL PAPER FINANCIAL DATA

Table N-1 presents aggregated data on U.S. producers' operations in relation to all LW jumbo and converted thermal paper and all HW jumbo and converted thermal paper. Table N-2 presents changes in the average unit value ("AUV") data for the data presented in table N-1.

Table N-1
All scope + HW converted: Results of operations of U.S. producers, by item and period

Quantity in short tons; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table N-1 Continued**All scope + HW converted: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table N-2**All scope + HW converted: Changes in average per short ton values between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***

Table continued on next page.

Table N-2 Continued**All scope + HW converted: Changes in average per short ton values between comparison periods**

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▲***	▲***	▼***	▲***
Less: By-product revenue	▲***	▲***	▲***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▼***	▲***	▼***	▼***
SG&A expense	▼***	▲***	▼***	▼***
Operating income or (loss)	▼***	▼***	▼***	▲***
Net income or (loss)	▼***	▼***	▼***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX O

LIGHTWEIGHT JUMBO AND CONVERTED THERMAL PAPER FINANCIAL DATA

Tables O-1 and O-3 present aggregated data on U.S. producers' operations in relation to LW jumbo and converted thermal paper respectively. Tables O-2 and O-4 present changes in the average unit value ("AUV") data for the data presented in tables O-1 and O-2.

Table O-1
LW jumbo thermal paper: Results of operations of U.S. producers, by item and period

Quantity in short tons; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table O-1 Continued**LW jumbo thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table O-2**LW jumbo thermal paper: Changes in average per short ton values between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▲***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▼***	▲***	▼***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***

Table continued on next page.

Table O-2 Continued**LW jumbo thermal paper: Changes in average per short ton values between comparison periods**

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▲***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▲***	▼***	▲***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▼***	▼***	▼***	▲***
SG&A expense	▼***	▲***	▼***	▼***
Operating income or (loss)	▼***	▼***	▲***	▲***
Net income or (loss)	▼***	▼***	▲***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

Table O-3**LW converted thermal paper: Results of operations of U.S. producers, by item and period**

Quantity in short tons; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table O-3 Continued**LW converted thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table O-4**LW converted thermal paper: Changes in average per short ton values between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▼***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▼***	▼***	▲***	▲***
Cost of goods sold	▼***	▼***	▼***	▼***

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Table O-4 Continued**LW converted thermal paper: Changes in average per short ton values between comparison periods**

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▼***	▼***	▼***
Raw material costs	▼***	▼***	▼***	▼***
Direct labor costs	▲***	▲***	▲***	▼***
Other factory costs	▼***	▼***	▲***	▲***
Cost of goods sold	▼***	▼***	▼***	▼***
Gross profit or (loss)	▲***	▲***	▲***	▼***
SG&A expense	▼***	▲***	▼***	▼***
Operating income or (loss)	▲***	▼***	▲***	▼***
Net income or (loss)	▲***	▼***	▲***	▼***

Source: Compiled from data submitted in response to Commission questionnaires.

APPENDIX P

ALL JUMBO THERMAL PAPER FINANCIAL DATA

Table P-1 presents aggregated data on U.S. producers' operations in relation to all jumbo thermal paper. Table P-2 presents changes in the average unit value ("AUV") data for the data presented in table P-1.

Table P-1
Jumbo thermal paper: Results of operations of U.S. producers, by item and period

Quantity in short tons; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Total net sales	Quantity	***	***	***	***	***
Total net sales	Value	***	***	***	***	***
Raw material costs	Value	***	***	***	***	***
Direct labor costs	Value	***	***	***	***	***
Other factory costs	Value	***	***	***	***	***
Less: By-product revenue	Value	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***
SG&A expenses	Value	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***
Interest expense	Value	***	***	***	***	***
All other expenses	Value	***	***	***	***	***
All other income	Value	***	***	***	***	***
Net income or (loss)	Value	***	***	***	***	***
Depreciation/amortization	Value	***	***	***	***	***
Cash flow	Value	***	***	***	***	***
Raw material costs	Ratio	***	***	***	***	***
Direct labor costs	Ratio	***	***	***	***	***
Other factory costs	Ratio	***	***	***	***	***
Less: By-product revenue	Ratio	***	***	***	***	***
Cost of goods sold	Ratio	***	***	***	***	***
Gross profit	Ratio	***	***	***	***	***
SG&A expense	Ratio	***	***	***	***	***
Operating income or (loss)	Ratio	***	***	***	***	***
Net income or (loss)	Ratio	***	***	***	***	***

Table continued on next page.

Table P-1 Continued**Jumbo thermal paper: Results of operations of U.S. producers, by item and period**

Shares in percent and represent share of cost of goods sold before by-product offset; Unit values in dollars per short ton; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Mar 2020	Jan-Mar 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Total net sales	Unit value	***	***	***	***	***
Raw material costs	Unit value	***	***	***	***	***
Direct labor costs	Unit value	***	***	***	***	***
Other factory costs	Unit value	***	***	***	***	***
Less: By-product revenue	Unit value	***	***	***	***	***
Cost of goods sold	Unit value	***	***	***	***	***
Gross profit or (loss)	Unit value	***	***	***	***	***
SG&A expenses	Unit value	***	***	***	***	***
Operating income or (loss)	Unit value	***	***	***	***	***
Net income or (loss)	Unit value	***	***	***	***	***
Operating losses	Count	***	***	***	***	***
Net losses	Count	***	***	***	***	***
Data	Count	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires.

Table P-2**Jumbo thermal paper: Changes in average per short ton values between comparison periods**

Changes in percent

Table continued on next page.

tem	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▼***	▲***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▼***	▼***	▼***	▼***
Cost of goods sold	▼***	▲***	▼***	▼***

Table P-2 Continued**Jumbo thermal paper: Changes in average per short ton values between comparison periods**

Changes in dollars per short ton

Item	2018-20	2018-19	2019-20	Jan-Mar 2020-21
Total net sales	▼***	▲***	▼***	▼***
Raw material costs	▼***	▲***	▼***	▼***
Direct labor costs	▲***	▲***	▼***	▲***
Other factory costs	▲***	▲***	▼***	▼***
Less: By-product revenue	▲***	▲***	▲***	▲***
Cost of goods sold	▼***	▲***	▼***	▼***
Gross profit or (loss)	▼***	▼***	▼***	▲***
SG&A expense	▼***	▲***	▼***	▲***
Operating income or (loss)	▼***	▼***	▼***	▲***
Net income or (loss)	▼***	▼***	▼***	▲***

Source: Compiled from data submitted in response to Commission questionnaires.

