

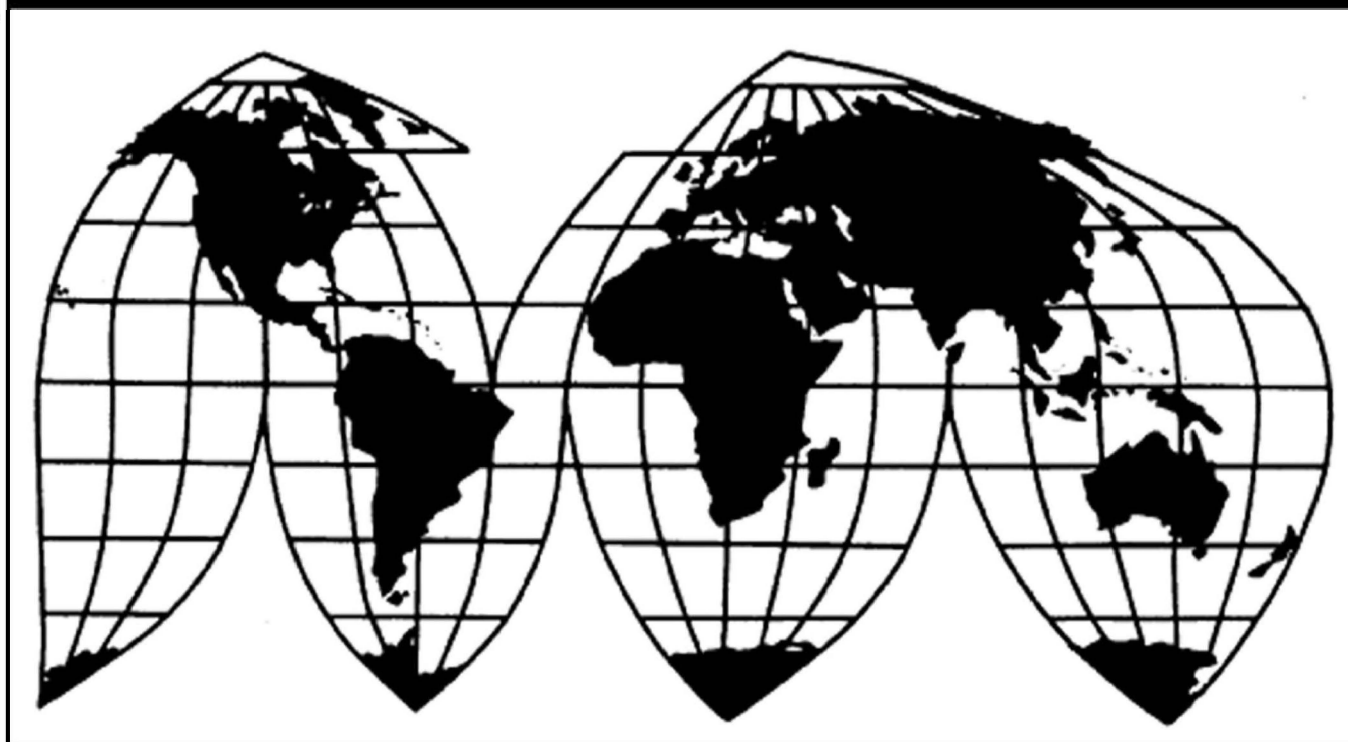
Potassium Permanganate from China

Investigation No. 731-TA-125 (Fifth Review)

Publication 5241

November 2021

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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Note.—Information that would reveal confidential operations of individual concerns may not be published.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.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation No. 731-TA-125 (Fifth Review)

Potassium Permanganate from China

DETERMINATION

On the basis of the record¹ developed in the subject five-year review, the United States International Trade Commission (“Commission”) determines, pursuant to the Tariff Act of 1930 (“the Act”), that revocation of the antidumping duty order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

BACKGROUND

The Commission instituted this review on February 1, 2021 (86 FR 7743) and determined on May 7, 2021 that it would conduct a full review (86 FR 27477, May 20, 2021). Notice of the scheduling of the Commission’s review 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* on June 7, 2021 (86 FR 30256). 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 October 5, 2021. All persons who requested the opportunity were permitted to participate.

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

Views of the Commission

Based on the record in this five-year review, we determine under section 751(c) of the Tariff Act of 1930, as amended (“the Tariff Act”), that revocation of the antidumping duty order on potassium permanganate 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.

I. Background

Original Investigations. In January 1984, the Commission unanimously determined that an industry in the United States was materially injured by reason of less-than-fair-value (“LTFV”) imports of potassium permanganate from China¹ and Spain.² Commerce issued antidumping duty orders on potassium permanganate from China and Spain in January 1984.³

First reviews. On November 2, 1998, the Commission instituted its first reviews of the antidumping duty orders.⁴ In November 1999, after conducting full reviews, the Commission determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to the continuation or recurrence of material injury within a reasonably foreseeable time, but that revocation of the antidumping duty order on potassium permanganate from Spain would not.⁵ Commerce published a continuation of the antidumping duty order regarding China on November 24, 1999, and, effective January 1, 2000, Commerce

¹ *Potassium Permanganate from the People’s Republic of China*, Inv. No. 731-TA-125 (Final), USITC Pub. 1480 (Jan. 1984) (“Original Determination (China)”). The Commission’s original investigations predated the present statutory cumulation provision, which derives from the Trade and Tariff Act of 1984. In the original investigations, the Commission did not cumulate subject imports from China and Spain in making its material injury determinations. *See id.* at 9-12; *see also Potassium Permanganate from Spain*, Inv. Nos. 731-TA-126 (Final), USITC Pub. 1474 at 8-10 (Jan. 1984) (“Original Determination (Spain)”).

² Original Determination (Spain), USITC Pub. 1474. The Commission made its final injury determinations in the investigations two weeks apart due to Commerce’s postponements of its final determination in the China investigation. *See Postponement of Final Determination; Potassium Permanganate from the People’s Republic of China*, 48 Fed. Reg. 40771 (Sep. 9, 1983) and *Postponement of Final Determination; Potassium Permanganate from the People’s Republic of China*, 48 Fed. Reg. 45815 (Oct. 7, 1983).

³ *Antidumping Duty Order: Potassium Permanganate from the People’s Republic of China*, 49 Fed. Reg. 3897 (Jan. 31, 1984); *Antidumping Duty Order: Potassium Permanganate from Spain*, 49 Fed. Reg. 2277 (Jan. 19, 1984).

⁴ *Potassium Permanganate from China and Spain*, 63 Fed. Reg. 58765 (Nov. 2, 1998).

⁵ *Potassium Permanganate from China and Spain*, Inv. Nos. 731-TA-125-126 (Review) USITC Pub. 3245 (Nov. 1999) (“First Five-Year Reviews”) at 1.

revoked the antidumping duty order on potassium permanganate from Spain.⁶ There was no litigation of the Commission's determinations in these or its subsequent reviews.

Second review. On October 1, 2004, the Commission instituted its second five-year review of the antidumping duty order on potassium permanganate from China.⁷ In June 2005, after conducting an expedited review, the Commission determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to a continuation or recurrence of material injury within a reasonably foreseeable time.⁸ Commerce published a continuation of the antidumping duty order on June 21, 2005.⁹

Third review. On May 3, 2010, the Commission instituted its third five-year review of the antidumping duty order.¹⁰ In September 2010, after conducting an expedited review, the Commission reached an affirmative determination.¹¹ On October 25, 2010, Commerce published a continuation of the antidumping duty order.¹²

Fourth review. On September 1, 2015, the Commission instituted its fourth five-year review of the antidumping duty order.¹³ In February 2016, after an expedited review, the Commission made an affirmative determination.¹⁴ On March 18, 2016, Commerce published a continuation of the antidumping duty order.¹⁵

Current Review. The Commission instituted this fifth review on February 1, 2021.¹⁶ It received a response filed on behalf of Carus LLC ("Carus"), the sole domestic producer of

⁶ *Continuation of Antidumping Duty Order: Potassium Permanganate From the People's Republic of China*, 64 Fed. Reg. 66166 (Nov. 24, 1999); *Revocation of the Antidumping Duty Order: Potassium Permanganate From Spain*, 64 Fed. Reg. 66167 (Nov. 24, 1999).

⁷ *Potassium Permanganate From China*, 69 Fed. Reg. 58955 (Oct. 1, 2004).

⁸ *Potassium Permanganate from China*, Inv. No. 731-TA-125 (Second Review), USITC Pub. 3778 (June 2005) ("Second Five-Year Review").

⁹ *Continuation of Antidumping Duty Order; Potassium Permanganate from the People's Republic of China*, 70 Fed. Reg. 35630 (June 21, 2005).

¹⁰ *Potassium Permanganate from China*, 75 Fed. Reg. 23298 (May 3, 2010).

¹¹ *Potassium Permanganate from China*, Inv. No. 731-TA-125 (Third Review), USITC Pub. 4183 (Sep. 2010) ("Third Five-Year Review").

¹² *Potassium Permanganate From the People's Republic of China: Continuation of Antidumping Duty Order*, 75 Fed. Reg. 65448 (Oct. 25, 2010).

¹³ *Potassium Permanganate from China; Institution of a Five-year Review*, 80 Fed. Reg. 52793 (Sep. 1, 2015).

¹⁴ *Potassium Permanganate from China*, Inv. No. 731-TA-125 (Fourth Review), USITC Pub. 4590 (Feb. 2010) ("Fourth Five-Year Review").

¹⁵ *Potassium Permanganate From the People's Republic of China: Continuation of Antidumping Duty Order*, 81 Fed. Reg. 14835 (Mar. 18, 2016).

¹⁶ *Potassium Permanganate From China; Institution of a Five-Year Review*, 86 Fed. Reg. 7743 (Feb. 1, 2021).

potassium permanganate, and a response filed on behalf of Chongqing Changyuan Group Limited (“Changyuan”), a Chinese producer of potassium permanganate, and its affiliated exporter Pacific Accelerator Limited (“PAL”) (collectively, “PAL/CY” or “respondents”). On May 7, 2021, finding both the domestic interested party group and respondent interested party group responses adequate, the Commission determined to conduct a full review of the order.¹⁷

The Commission received prehearing briefs,¹⁸ posthearing briefs,¹⁹ and final comments²⁰ filed on behalf of both Carus and PAL/CY. Representatives of each party appeared at the Commission’s hearing, accompanied by counsel.²¹

U.S. industry data are based on the information provided by Carus, the sole U.S. producer of potassium permanganate.²² U.S. import data and related information are based on Commerce’s official import statistics and the questionnaire responses of seven U.S. importers of potassium permanganate that accounted for approximately *** percent of total U.S. imports of potassium permanganate during 2020.²³ Imports of potassium permanganate from China during the period of review (“POR”) were minimal.²⁴ Foreign industry data and related information are based on the questionnaire response of PAL/CY and other sources identified by Carus. PAL/CY estimates that Changyuan accounted for *** percent of potassium permanganate production in China and *** percent of China’s exports of potassium permanganate in 2020.²⁵

¹⁷ Explanation of Commission Determination on Adequacy, EDIS Doc. 744090 (June 7, 2021); *Potassium Permanganate From China; Notice of Commission Determination To Conduct a Full Five-Year Review*, 86 Fed. Reg. 27477 (May 20, 2021).

¹⁸ Carus’s Prehearing Br., EDIS Doc. 752783 (Sep. 28, 2021) (“Carus’s Prehearing Br.”); PAL/CY’s Prehearing Br., EDIS Doc. 752822 (Sep. 28, 2021) (“PAL/CY’s Prehearing Br.”).

¹⁹ Carus’s Posthearing Br., EDIS Doc. 754100 (Oct. 13, 2021) (“Carus’s Posthearing Br.”); PAL/CY’s Posthearing Br., EDIS Doc. 754008 (Oct. 13, 2021) (“PAL/CY’s Posthearing Br.”).

²⁰ Carus’s Final Comments, EDIS Doc. 755751 (Nov. 3, 2021); PAL/CY’s Final Comments, EDIS Doc. 755799 (Nov. 3, 2021).

²¹ In light of the restrictions on access to the Commission building due to the COVID-19 pandemic, the Commission conducted the hearing through written witness testimony and video conference, as set forth in procedures provided to the parties and announced on its website.

²² Confidential Report, INV-TT-122, EDIS Doc No. 755119 (Oct. 26, 2021) (“CR”) at III-1; Public Report (“PR”) at III-1.

²³ CR/PR at I-13-14.

²⁴ CR/PR at Table IV-1. From January 2018 to June 2021, official import statistics indicate a single entry of subject imports from China in February 2018. CR/PR at IV-1.

²⁵ CR/PR at I-14.

II. Domestic Like Product and Industry

A. Domestic Like Product

In making its determination under section 751(c) of the Tariff Act, the Commission defines the “domestic like product” and the “industry.”²⁶ 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 under this subtitle.”²⁷ The Commission’s practice in five-year reviews is to examine the domestic like product definition from the original investigation and consider whether the record indicates any reason to revisit the prior findings.²⁸

Commerce has defined the imported merchandise within the scope of the orders under review as follows:

{P}otassium permanganate, an inorganic chemical produced in free-flowing, technical, and pharmaceutical grades. Potassium permanganate is currently classifiable under subheading 2841.61.00 of the Harmonized Tariff Schedule of the United States (HTSUS). Although the HTSUS subheading is provided for convenience and customs purposes, the written description of the merchandise remains dispositive.²⁹

This scope definition has not changed since the original investigations.³⁰

Potassium permanganate is a compound of manganese, potassium, and oxygen, having the chemical formula $KMnO_4$. It exists at room temperature as a crystalline solid and is soluble in water, acetone, and methanol. It is highly toxic by ingestion or inhalation, a strong irritant to

²⁶ 19 U.S.C. § 1677(4)(A).

²⁷ 19 U.S.C. § 1677(10); see, e.g., *Cleo Inc. v. United States*, 501 F.3d 1291, 1299 (Fed. Cir. 2007); *NEC Corp. v. Dep’t of Commerce*, 36 F. Supp. 2d 380, 383 (Ct. Int’l Trade 1998); *Nippon Steel Corp. v. United States*, 19 CIT 450, 455 (1995); *Timken Co. v. United States*, 913 F. Supp. 580, 584 (Ct. Int’l Trade 1996); *Torrington Co. v. United States*, 747 F. Supp. 744, 748-49 (Ct. Int’l Trade 1990), *aff’d*, 938 F.2d 1278 (Fed. Cir. 1991); see also S. Rep. No. 249, 96th Cong., 1st Sess. 90-91 (1979).

²⁸ See, e.g., *Internal Combustion Industrial Forklift Trucks from Japan*, Inv. No. 731-TA-377 (Second Review), USITC Pub. 3831 at 8-9 (Dec. 2005); *Crawfish Tail Meat from China*, Inv. No. 731-TA-752 (Review), USITC Pub. 3614 at 4 (July 2003); *Steel Concrete Reinforcing Bar from Turkey*, Inv. No. 731-TA-745 (Review), USITC Pub. 3577 at 4 (Feb. 2003).

²⁹ *Potassium Permanganate From the People’s Republic of China: Final Results of Expedited Fifth Sunset Review of the Antidumping Duty Order*, 86 Fed. Reg. 30256, 30256 (June 7, 2021).

³⁰ See *Final Determination of Sales at Less Than Fair Value; Potassium Permanganate From the People’s Republic of China*, 48 Fed. Reg. 57347, 57448 (Dec. 29, 1983).

tissue, and a fire risk when in contact with organic material due to its strength as an oxidizing agent.³¹

Commerce's scope lists three grades of potassium permanganate: (1) free flowing, (2) technical, and (3) UPS or pharmaceutical grade (high purity). Technical grade product must be at least 97 percent potassium permanganate by weight, although much of the technical grade has a higher assay of 99 percent.³² The free-flowing grade is produced by adding an anticaking agent, ***, to the technical grade, which prevents the particles from sticking together when in contact with moisture. As a result of the addition of the anticaking agent, the free-flowing grade is slightly less concentrated than the technical grade. The minimum assay is 95 percent, but the product is usually assayed at 97 to 98 percent.³³ Pharmaceutical grade, typically 99.9 percent pure, usually requires more testing than the other grades and requires recrystallization to remove additional impurities or to meet customer specifications.³⁴ All three grades are produced domestically at the same facility.³⁵

The principal application of potassium permanganate is water and wastewater treatment.³⁶ All three grades can be used in water and wastewater treatment, but U.S. customers that use a dry chemical feeder to inject the chemical into water typically use free-flowing grade.³⁷ Additional primary applications for potassium permanganate include chemical manufacturing, aquaculture (fish farming), metal processing, and air and gas purification. It is also used as a decoloring and bleaching agent in the textile and tanning industries, as an oxidizer in the decontamination of radioactive wastes, as an aid in flotation processes used in mining, in cleaning printed circuit boards, and in numerous other applications.³⁸

Prior Proceedings. In the original investigations, the Commission considered whether there were three domestic like products defined by grade, (*i.e.*, free-flowing, technical and pharmaceutical), or one like product defined as all potassium permanganate. The Commission determined that there was one like product consisting of all three grades of potassium

³¹ CR/PR at I-17.

³² CR/PR at I-18.

³³ CR/PR at I-18.

³⁴ CR/PR at I-18.

³⁵ CR/PR at I-18.

³⁶ CR/PR at I-18-20.

³⁷ CR/PR at I-19.

³⁸ CR/PR at I-19-20.

permanganate.³⁹ In the first full reviews, the Commission found that an analysis of the domestic like product factors continued to support a finding of a single domestic like product.⁴⁰ In the second, third, and fourth expedited five-year review determinations, the Commission found no new information that warranted reconsidering this definition of the domestic like product.⁴¹

The Current Review. In this review, there is no new information in the record indicating that the characteristics of the product at issue have changed since the prior proceedings.⁴² No party has argued for a definition of the domestic like product different from the one adopted in the prior proceedings.⁴³ Accordingly, we again define the domestic like product as potassium permanganate, coextensive with Commerce's scope.

B. Domestic Industry

Section 771(4)(A) of the Tariff Act defines the relevant industry 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."⁴⁴ 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.

³⁹ Original Determination (Spain), USITC Pub. 1474 at 6; Original Determination (China), USITC Pub. 1480 at 7. The Commission made its domestic like product definition on the basis that all three grades possessed the identical chemical formula and were produced, for the most part, using the same manufacturing process. Further, it found increasing interchangeability of technical and free-flowing grade potassium permanganate for many uses, and "historically similar pricing" of the domestically produced technical grade and free-flowing grade potassium permanganate. See First Five-Year Reviews, USITC Pub. 3245 at 5.

⁴⁰ First Five-Year Reviews, USITC Pub. 3245 at 6. The Commission found that there was greater interchangeability between free-flowing and technical grades than there was during the original investigations, due to the increased use of solution tank feeders in water treatment that could use technical grade. First Five-Year Reviews, USITC Pub. 3245 at 5.

⁴¹ Second Five-Year Review, USITC Pub. 3778 at 5; Third Five-Year Review, USITC Pub. 4183 at 6; Fourth Five-Year Review, USITC Pub. 4590 at 6.

⁴² See generally CR/PR at I-17-25.

⁴³ Carus's substantive response to notice of institution (Mar. 3, 2021) at 8; PAL/CY's substantive response to notice of institution (Mar. 3, 2021) at 20.

⁴⁴ 19 U.S.C. § 1677(4)(A). The definitions in 19 U.S.C. § 1677 are applicable to the entire subtitle containing the antidumping and countervailing duty laws, including 19 U.S.C. §§ 1675 and 1675a. See 19 U.S.C. § 1677.

In the original investigations and prior reviews, the Commission found a single domestic industry consisting of all domestic producers of potassium permanganate.⁴⁵ In this review, no party has argued for a different definition of the domestic industry,⁴⁶ and there are no related party or other domestic industry issues.⁴⁷ Accordingly, we again define the domestic industry as consisting of all domestic producers of potassium permanganate.

III. Revocation of the Antidumping Duty Order Would Likely Lead to Continuation or Recurrence of Material Injury Within a Reasonably Foreseeable Time

A. Legal Standards

In a five-year review conducted under section 751(c) of the Tariff Act, Commerce will revoke an antidumping or countervailing duty order unless: (1) it makes a determination that dumping or subsidization is likely to continue or recur and (2) the Commission makes a determination that revocation of the antidumping or countervailing duty order “would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time.”⁴⁸ The SAA states that “under the likelihood standard, the Commission will engage in a counterfactual analysis; it must decide the likely impact in the reasonably foreseeable future of an important change in the status quo – the revocation or termination of a proceeding and the elimination of its restraining effects on volumes and prices of imports.”⁴⁹ Thus, the likelihood

⁴⁵ Original Determination (China), USITC Pub. 1480 at 7; First Five-Year Reviews, USITC Pub. 3245 at 6; Second Five-Year Review, USITC Pub. 3778 at 6; Third Five-Year Review, USITC Pub. 4183 at 6; Fourth Five-Year Review, USITC Pub. 4590 at 7. Carus was the only domestic producer of potassium permanganate at the time of the original investigations, and it continues to be the only domestic producer. Original Determination (China), USITC Pub. 1480 at 7; CR/PR at I-27.

⁴⁶ Carus’s substantive response to notice of institution (Mar. 3, 2021) at 8; PAL/CY’s substantive response to notice of institution (Mar. 3, 2021) at 20.

⁴⁷ Carus is the only domestic producer. It is not related to any foreign exporters or importers of the subject merchandise, and it is not itself an importer. See CR/PR at I-26-27.

⁴⁸ 19 U.S.C. § 1675a(a).

⁴⁹ SAA at 883-84. The SAA states that “{t}he likelihood of injury standard applies regardless of the nature of the Commission’s original determination (material injury, threat of material injury, or material retardation of an industry). Likewise, the standard applies to suspended investigations that were never completed.” *Id.* at 883.

standard is prospective in nature.⁵⁰ The U.S. Court of International Trade (“CIT”) has found that “likely,” as used in the five-year review provisions of the Act, means “probable,” and the Commission applies that standard in five-year reviews.⁵¹

The statute states that “the Commission shall consider that the effects of revocation or termination may not be imminent, but may manifest themselves only over a longer period of time.”⁵² According to the SAA, a “‘reasonably foreseeable time’ will vary from case-to-case, but normally will exceed the ‘imminent’ timeframe applicable in a threat of injury analysis in original investigations.”⁵³

Although the standard in a five-year review is not the same as the standard applied in an original investigation, it contains some of the same fundamental elements. The statute provides that the Commission is to “consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the orders are revoked or the suspended investigation is terminated.”⁵⁴ It directs the Commission to take into account its prior injury determination, whether any improvement in the state of the industry is related to the order or the suspension agreement under review, whether the industry is vulnerable to material injury if an order is revoked or a suspension agreement is terminated, and any findings by Commerce

⁵⁰ While the SAA states that “a separate determination regarding current material injury is not necessary,” it indicates that “the Commission may consider relevant factors such as current and likely continued depressed shipment levels and current and likely continued {sic} prices for the domestic like product in the U.S. market in making its determination of the likelihood of continuation or recurrence of material injury if the order is revoked.” SAA at 884.

⁵¹ See *NMB Singapore Ltd. v. United States*, 288 F. Supp. 2d 1306, 1352 (Ct. Int’l Trade 2003) (“‘likely’ means probable within the context of 19 U.S.C. § 1675(c) and 19 U.S.C. § 1675a(a)”), *aff’d mem.*, 140 Fed. Appx. 268 (Fed. Cir. 2005); *Nippon Steel Corp. v. United States*, 26 CIT 1416, 1419 (2002) (same); *Usinor Industeel, S.A. v. United States*, 26 CIT 1402, 1404 nn.3, 6 (2002) (“more likely than not” standard is “consistent with the court’s opinion;” “the court has not interpreted ‘likely’ to imply any particular degree of ‘certainty’”); *Indorama Chemicals (Thailand) Ltd. v. United States*, 26 CIT 1059, 1070 (2002) (“standard is based on a likelihood of continuation or recurrence of injury, not a certainty”); *Usinor v. United States*, 26 CIT 767, 794 (2002) (“‘likely’ is tantamount to ‘probable,’ not merely ‘possible’”).

⁵² 19 U.S.C. § 1675a(a)(5).

⁵³ SAA at 887. Among the factors that the Commission should consider in this regard are “the fungibility or differentiation within the product in question, the level of substitutability between the imported and domestic products, the channels of distribution used, the methods of contracting (such as spot sales or long-term contracts), and lead times for delivery of goods, as well as other factors that may only manifest themselves in the longer term, such as planned investment and the shifting of production facilities.” *Id.*

⁵⁴ 19 U.S.C. § 1675a(a)(1).

regarding duty absorption pursuant to 19 U.S.C. § 1675(a)(4).⁵⁵ The statute further provides that the presence or absence of any factor that the Commission is required to consider shall not necessarily give decisive guidance with respect to the Commission's determination.⁵⁶

In evaluating the likely volume of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether the likely volume of imports would be significant either in absolute terms or relative to production or consumption in the United States.⁵⁷ In doing so, the Commission must consider "all relevant economic factors," including four enumerated factors: (1) any likely increase in production capacity or existing unused production capacity in the exporting country; (2) existing inventories of the subject merchandise, or likely increases in inventories; (3) the existence of barriers to the importation of the subject merchandise into countries other than the United States; and (4) 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.⁵⁸

In evaluating the likely price effects of subject imports if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider whether there is likely to be significant underselling by the subject imports as compared to the domestic like product and whether the subject imports are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.⁵⁹

In evaluating the likely impact of imports of subject merchandise if an order under review is revoked and/or a suspended investigation is terminated, the Commission is directed to consider all relevant economic factors that are likely to have a bearing on the state of the industry in the United States, including but not limited to the following: (1) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity; (2) likely negative effects on cash flow, inventories, employment, wages, growth,

⁵⁵ 19 U.S.C. § 1675a(a)(1). Commerce has not made any duty absorption findings with respect to this order. CR/PR at I-14, n.27.

⁵⁶ 19 U.S.C. § 1675a(a)(5). Although the Commission must consider all factors, no one factor is necessarily dispositive. SAA at 886.

⁵⁷ 19 U.S.C. § 1675a(a)(2).

⁵⁸ 19 U.S.C. § 1675a(a)(2)(A-D).

⁵⁹ See 19 U.S.C. § 1675a(a)(3). The SAA states that "{c}onsistent with its practice in investigations, in considering the likely price effects of imports in the event of revocation and termination, the Commission may rely on circumstantial, as well as direct, evidence of the adverse effects of unfairly traded imports on domestic prices." SAA at 886.

ability to raise capital, and investment; and (3) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.⁶⁰ All relevant economic factors are to be considered within the context of the business cycle and the conditions of competition that are distinctive to the industry. As instructed by the statute, we have considered the extent to which any improvement in the state of the domestic industry is related to the orders under review and whether the industry is vulnerable to material injury upon revocation.⁶¹

B. Conditions of Competition and the Business Cycle

In evaluating the likely impact of the subject imports on the domestic industry if an order is revoked, the statute directs the Commission to consider all relevant economic factors “within the context of the business cycle and conditions of competition that are distinctive to the affected industry.”⁶² The following conditions of competition inform our determination.

1. Demand Conditions

Prior Proceedings. Several conditions of competition have remained constant during the course of the prior proceedings. In each of the prior proceedings, the Commission found that the primary end use for potassium permanganate was as an oxidizer in municipal water and wastewater treatment.⁶³ The Commission has also characterized the U.S. market as large relative to other world markets.⁶⁴

⁶⁰ 19 U.S.C. § 1675a(a)(4).

⁶¹ The SAA states that in assessing whether the domestic industry is vulnerable to injury if the order is revoked, 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 may also demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.” SAA at 885.

⁶² 19 U.S.C. § 1675a(a)(4).

⁶³ Original Determination (China), USITC Pub. 1480 at 4; First Five-Year Reviews, USITC Pub. 3245 at 13; Second Five-Year Review, USITC Pub. 3778 at 8; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁶⁴ First Five-Year Reviews, USITC Pub. 3245 at 13 (“largest in the world”); Second Five-Year Review, USITC Pub. 3778 at 9 (“U.S. market is the world’s largest”); Third Five-Year Review, USITC Pub. 4183 at 10 (“...continues to be attractive due to its size”); Fourth Five-Year Review, USITC Pub. 4590 at 11 (“the United States is the second largest world market for potassium permanganate after China”).

In the first five-year reviews, the Commission observed that since the original investigations demand for potassium permanganate had increased steadily.⁶⁵ Demand for potassium permanganate in water and wastewater treatment was expected to continue to increase, due in part to stricter federal guidelines in water treatment.⁶⁶ However, in the second five-year review, and in each subsequent review, the Commission found that the principal markets for potassium permanganate—municipal drinking water and wastewater treatment—were relatively mature.⁶⁷ As a result, demand for potassium permanganate in water and wastewater treatment was not expected to grow.⁶⁸ In the third five-year review, apparent U.S. consumption had declined and the United States became the ***.⁶⁹ In the fourth five-year review, the Commission observed that apparent U.S. consumption was *** pounds in 2014 compared with *** pounds in 2009.⁷⁰

Current Review. In the current review, apparent U.S. consumption of potassium permanganate decreased overall by *** percent from 2018 and 2020, increasing from *** pounds in 2018 to *** pounds in 2019, then decreasing to *** pounds in 2020. In contrast, apparent U.S. consumption was *** percent higher in January-June 2021 (“interim 2021”), at *** pounds, than in January-June 2020 (“interim 2020”), at *** pounds.⁷¹

Most importers and purchasers reported no change in demand since January 1, 2015, and no anticipated change in U.S. demand.⁷² All but one responding purchaser reported no change in anticipated demand for their end-use product.⁷³ Water and wastewater treatment

⁶⁵ First Five-Year Reviews, USITC Pub. 3245 at 13.

⁶⁶ First Five-Year Reviews, USITC Pub. 3245 at 13.

⁶⁷ Second Five-Year Review, USITC Pub. 3778 at 8; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁶⁸ Second Five-Year Review, USITC Pub. 3778 at 8.

⁶⁹ Third Five-Year Review, USITC Pub. 4183 at 10; Confidential Views in the Third Expedited Review, EDIS Doc. No. 738969 (“Confidential Third Five-Year Review”) at 15.

⁷⁰ Fourth Five-Year Review, USITC Pub. 4590 at 11; Confidential Views in the Fourth Expedited Review, EDIS Doc. No. 1625075 (“Confidential Fourth Five-Year Review”) at 15.

⁷¹ CR/PR at Tables I-8 and C-1. The COVID-19 pandemic contributed to the decline in 2020 apparent U.S. consumption. Carus reported that the COVID-19 pandemic resulted in ***. CR/PR at III-16, n.9. Carus also reported that the U.S. market for potassium permanganate is mature. Carus’s Prehearing Br. at 52; Hearing Tr. at 70 (Klett).

⁷² CR/PR at II-10 and Tables II-3 and II-4.

⁷³ CR/PR at II-10. Carus reported that *** since January 2015 and anticipated ***. CR/PR at Tables II-3 and II-4. It reported that since 2015 its sales quantity has ***. CR/PR at III-16, n.9.

remain the primary end uses for potassium permanganate.⁷⁴ As discussed below, Carus internally consumes approximately *** percent of its potassium permanganate to produce sodium permanganate, which uses potassium permanganate as an input.⁷⁵

2. Supply Conditions

Prior Proceedings. In each of the prior proceedings, Carus was the sole domestic producer and held the largest share of the U.S. market.⁷⁶ In the first reviews, the Commission found that domestic production and capacity had both increased since the original investigations at a lower rate than demand.⁷⁷ It observed that Carus's production capacity was *** to apparent U.S. consumption during the POR. The Commission further found that a substantial percentage of Carus's production ***.⁷⁸ Specifically, it found that in 1997 and 1998, approximately *** percent of Carus's potassium permanganate production was used *** in an arrangement similar to a ***.⁷⁹

In the second review, the Commission found that domestic capacity had remained fairly steady since the original investigations, while the domestic industry's market share fell during the POR due to an increase in nonsubject imports in 2003.⁸⁰ In the third five-year review, the Commission found that China had increased its production capacity and reportedly produced the full range of potassium permanganate grades.⁸¹ In the fourth review, the Commission observed that the domestic industry's share of apparent U.S. consumption was *** percent in 2014.⁸² The remainder of apparent U.S. consumption was supplied principally by nonsubject

⁷⁴ Carus estimated that water and wastewater treatment accounted for *** percent of U.S. demand in 2020. CR/PR at II-2. Purchaser data indicate that municipal and industrial water and wastewater treatment, and treatment of oil and gas well produced water combined accounted for *** percent of the end uses. *Id.* Carus reports that it is exploring new applications for potassium permanganate. CR/PR at III-22 n.24.

⁷⁵ See CR/PR at I-25, III-4, and Table III-4.

⁷⁶ Original Determination (China), USITC Pub. 1480 at 7; First Five-Year Reviews, USITC Pub. 3245 at 6; Second Five-Year Review, USITC Pub. 3778 at 8; Third Five-Year Review, USITC Pub. 4183 at 6, n.26; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁷⁷ First Five-Year Reviews, USITC Pub. 3245 at 13.

⁷⁸ Confidential Views in the First Full Reviews, EDIS Doc. No. 568205 ("Confidential First Five-Year Reviews") at 20; First Five-Year Reviews, USITC Pub. 3245 at 13-14.

⁷⁹ First Five-Year Reviews, USITC Pub. 3245 at 14; Confidential First Five-Year Reviews at 20.

⁸⁰ Second Five-Year Review, USITC Pub. 3778 at 9.

⁸¹ Third Five-Year Review, USITC Pub. 4183 at 10.

⁸² Fourth Five-Year Review, USITC Pub. 4590 at 11; Confidential Fourth Five-Year Review at 15.

imports (increasingly from India), as subject imports had only a minimal presence in the market.⁸³

Current Review. During the POR, the U.S. market was supplied primarily by the domestic industry, with Carus as the sole producer.⁸⁴ The domestic industry's share of apparent U.S. consumption increased by *** percentage points from 2018 to 2020, 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.⁸⁵ The industry's annual production capacity was constant during the POR at *** pounds.⁸⁶

Subject imports were minimal during the POR.⁸⁷ Nonsubject imports were the second largest source of supply. The market share of nonsubject imports decreased by *** percentage points from 2018 to 2020, declining from *** percent in 2018 to *** percent in 2020; it was higher in interim 2021, at *** percent, than in interim 2020, at *** percent.⁸⁸ Nonsubject imports were overwhelmingly from India, which accounted for 97.4 percent of U.S. imports in 2020.⁸⁹

Subject merchandise became subject to an additional 10 percent *ad valorem* duty under section 301 of the Trade Act of 1974 ("section 301 tariffs") effective September 28, 2018. These tariffs were increased to 25 percent *ad valorem* effective May 10, 2019.⁹⁰

3. Substitutability and Other Conditions

Prior Proceedings. The Commission has always previously found that potassium permanganate is sold in three grades: technical, free-flowing, and pharmaceutical.⁹¹ In the original investigations, the Commission found that the industry in China produced only technical grade potassium permanganate.⁹²

⁸³ Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁸⁴ CR/PR at I-26.

⁸⁵ CR/PR at Tables I-9 and C-1.

⁸⁶ CR/PR at Table III-2.

⁸⁷ CR/PR at Tables I-9 and C-1. Subject imports' market share has been *** since 2018 and was *** percent in 2018. *Id.*

⁸⁸ CR/PR at Tables I-9 and C-1.

⁸⁹ CR/PR at II-8.

⁹⁰ See CR/PR at I-17.

⁹¹ Original Determination (China), USITC Pub. 1480 at 5; First Five-Year Reviews, USITC Pub. 3245 at 5; Second Five-Year Review, USITC Pub. 3778 at 5; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁹² Original Determination (China), USITC Pub. 1480 at 5-6.

The Commission found in each of the prior reviews that the domestic like product and subject imports had a moderate to high degree of substitutability.⁹³ It also found that the market for potassium permanganate was price sensitive and sellers competed on the basis of price, frequently through a competitive bidding process.⁹⁴ In the third review, the Commission indicated that the United States continued to be an attractive market due to its size and price levels.⁹⁵

Current Review. In the current review, we find that there is a moderate to high degree of substitutability between domestically produced potassium permanganate and subject merchandise.⁹⁶ We have taken into account the Commission's previous findings, including its finding of a moderate to high degree of substitutability in each prior review,⁹⁷ and its finding from the original investigations that municipalities demonstrated an ability to switch from free-flowing to technical grade if the price is low enough.⁹⁸ Additionally, although new information with respect to substitutability is limited due to the absence of subject imports in the U.S. market, *** and two of three importers reported that domestically produced potassium permanganate and subject merchandise were always interchangeable, and three of four purchasers reported that domestic product and subject merchandise were always or frequently interchangeable.⁹⁹

We also find that price is an important factor in purchasing decisions for potassium permanganate. Purchasers reported that "price/cost" was the most frequently cited first-most

⁹³ First Five-Year Reviews, USITC Pub. 3245 at 13-14; Second Five-Year Review, USITC Pub. 3778 at 8-10; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁹⁴ Original Determination (China), USITC Pub. 1480 at 7; First Five-Year Reviews, USITC Pub. 3245 at 13-14; Second Five-Year Review, USITC Pub. 3778 at 8-10; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁹⁵ Third Five-Year Review, USITC Pub. 4183 at 10.

⁹⁶ As discussed in more detail in Section III.C.2, currently, most Chinese-produced potassium permanganate is technical grade, while Carus produces a substantial amount of both technical grade and free-flowing grade (but internally consumes most of its technical grade production). However, Carus reports some commercial U.S. shipments of technical grade and Changyuan reports some export shipments of free-flowing grade. See CR/PR at Table G-3 and Carus's Posthearing Br., Exh. 1, Response #1. Domestically produced free-flowing grade product is more directly substitutable with free-flowing grade subject merchandise, while domestically produced technical grade product is more directly substitutable with technical grade subject merchandise. However, we note the Commission's finding from the original investigations of some purchasers substituting free-flowing grade for technical grade product. See Original Determination (China), USITC Pub. 1480 at 11.

⁹⁷ First Five-Year Reviews, USITC Pub. 3245 at 13-14; Second Five-Year Review, USITC Pub. 3778 at 8-10; Third Five-Year Review, USITC Pub. 4183 at 10; Fourth Five-Year Review, USITC Pub. 4590 at 11.

⁹⁸ Original Determination (China), USITC Pub. 1480 at 11.

⁹⁹ CR/PR at II-22; Table II-11.

important factor (cited by 4 firms), followed by “quality” (3 firms).¹⁰⁰ Also, “price” was rated as very important more than any other purchasing factor.¹⁰¹ Municipalities typically purchase potassium permanganate using a transparent bid process in which specifications and other requirements are detailed.¹⁰² Municipal bids may or may not be made public during the bidding process but bid information is typically made public once the contract is awarded.¹⁰³

Most responding purchasers reported that differences other than price between domestic and imported potassium permanganate were always significant factors in their purchases.¹⁰⁴ “Availability” and “product consistency” followed closely behind “price” with 12 purchasers indicating those factors as very important, compared to 13 purchasers who indicated “price.”¹⁰⁵

In 2020, Carus’s commercial U.S. shipments by grade were *** percent free-flowing grade, *** percent “other” grades, and *** percent technical grade.¹⁰⁶ U.S. importers’ total U.S. shipments were *** percent free-flowing grade and *** percent technical grade that year.¹⁰⁷

During the POR, Carus internally consumed between *** and *** percent of its total U.S. shipments annually for use as a raw material input in its production of sodium permanganate.¹⁰⁸ This internal consumption was entirely of technical grade potassium

¹⁰⁰ CR/PR at Table II-6.

¹⁰¹ CR/PR at Table II-7.

¹⁰² CR/PR at V-4.

¹⁰³ CR/PR at V-4. In the original investigations, the Commission found that price was a critical factor in winning contracts for sales to municipalities for free-flowing grade potassium permanganate. Original Determination (Spain), USITC Pub. 1474 at 9.

¹⁰⁴ CR/PR at II-23 and Table II-12.

¹⁰⁵ CR/PR at Table II-7. Several purchasers reportedly switched suppliers from imported sources to domestic origin since January 2015 for non-price reasons, including quality issues, ***, customer service, and delivery. CR/PR at II-19.

¹⁰⁶ Derived from Carus’s Posthearing Br., Exh. 1, Response #1.

¹⁰⁷ CR/PR at Table E-2. We note that since there were no subject imports from China in 2020 that this reflects imports from nonsubject sources.

¹⁰⁸ CR/PR at Table III-4, II-3, II-18, and III-16-17. Carus’s internal consumption as a share of its U.S. shipments was *** percent in 2018, *** percent in 2019, and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. CR/PR at Table III-4.

Although the Commission does not apply the captive production provision in five-year reviews, the proportion of Carus’s internal consumption is a significant condition of competition, and we thus consider the likely effects of revocation with respect to both the merchant market and the total market, including internal consumption.

permanganate.¹⁰⁹ Carus reported that *** of its total U.S. shipments were to end users in 2020.¹¹⁰ U.S. importers sold *** of their total U.S. shipments to distributors in 2020.¹¹¹

The major raw materials used to produce potassium permanganate are manganese ore and potassium hydroxide.¹¹² Raw material costs generally decreased during the POR.¹¹³

C. Likely Volume of Subject Imports

1. The Prior Proceedings

In the original investigations, the Commission found that subject imports from China “increased substantially” over the period of investigation.¹¹⁴ Following a drop in volume between 1980 and 1981, subject imports from China increased from 281,000 pounds to 588,000 pounds in 1982, and were much higher during January-August 1983, when they were 1.4 million pounds, than in January-August 1982, when they were 407,000 pounds.¹¹⁵ The Commission also found that the ratio of subject imports from China to apparent U.S. consumption more than doubled during the first eight months of 1983 compared to the same period in 1982.¹¹⁶

In the first five-year reviews, the Commission observed that between 1986 and 1990, subject imports from China increased dramatically, reaching 2.5 million pounds in 1990, but decreased to 300,000 pounds in 1992, following an increase in duty deposit rates resulting from an administrative review. Subject imports from China increased significantly once again in 1993. Commerce found in 1994 that subject imports were being transshipped through Hong Kong and consequently assigned a country-wide margin of 128.9 percent to all subject imports. Subject imports from China subsequently declined and were virtually non-existent by the end of

¹⁰⁹ CR/PR at III-5.

¹¹⁰ CR/PR at Table II-1. (Carus’s shipments to end users include Carus’s internal consumption.)
***.

¹¹¹ CR/PR at Table II-1.

¹¹² CR/PR at Table III-11, V-1.

¹¹³ CR/PR at Table III-11. The unit value of total raw material costs decreased from \$*** per pound in 2018 to \$*** per pound in 2020; it was \$*** per pound in interim 2020 and \$*** per pound in interim 2021. *Id.*

¹¹⁴ Original Determination (China), USITC Pub. 1480 at 10.

¹¹⁵ Original Determination (China), USITC Pub. 1480 at 9-10.

¹¹⁶ See Original Determination (China), USITC Pub. 1480 at 10 and Table 18. The Commission also made an affirmative critical circumstances finding with respect to subject imports from China, which was affirmed on appeal. *Id.*, USITC Pub. 1480 at 12-14; *ICC Industries, Inc. v. United States*, 10 CIT 181, 632 F. Supp. 36 (1986), *aff’d*, 812 F. 2d 694 (Fed. Cir. 1987).

the period of the first five-year reviews (January-March, 1999).¹¹⁷ The Commission found that because of its expanded capacity, excess capacity, and inventory levels, the industry in China had the ability to substantially increase exports to the United States. The Commission found that increased exports were likely in light of the subject producers' export orientation and stated willingness to resume or increase participation in the U.S. market.¹¹⁸

In the second five-year review, the Commission concluded, on the basis of facts available, that subject import volume was likely to increase significantly and would be significant if the order were revoked. The Commission found that Chinese producers had the capability to ship substantial volumes of potassium permanganate to the United States, and it found several factors that supported a finding that increased subject imports were likely if the order were revoked. Chinese producers had greatly expanded their capacity; had developed the capability to supply all three grades of potassium permanganate, thereby enhancing their ability to compete in the U.S. market; had significant unused capacity; and were highly export-oriented.¹¹⁹

In the third and fourth five-year reviews, the Commission concluded that the likely volume of subject imports, both in absolute terms and as a share of the U.S. market, would be significant if the order were revoked.¹²⁰ In each review, the Commission found several of the same factors supported findings of increased subject imports if the order were revoked. Specifically, Chinese producers had considerable production capacity and unused capacity; the Chinese industry remained highly export-oriented; and the United States was an attractive market for Chinese producers because of its size and comparatively high price levels.¹²¹

2. The Current Review

Based on the record in this review, we find that, should the order be revoked, the likely volume of subject imports from China would be significant. The record indicates that

¹¹⁷ First Five-Year Reviews, USITC Pub. 3245 at 20.

¹¹⁸ First Five-Year Reviews, USITC Pub. 3245 at 21-22.

¹¹⁹ Second Five-Year Review, USITC Pub. 3778 at 11-12.

¹²⁰ Third Five-Year Review, USITC Pub. 4183 at 13; Fourth Five-Year Review, USITC Pub. 4590 at 14.

¹²¹ Third Five-Year Review, USITC Pub. 4183 at 12-13; Fourth Five-Year Review, USITC Pub. 4590 at 13. Additionally, in the third five-year review, the Commission found that the Chinese industry faced a barrier to entry in India due to an Indian antidumping measure on imports of potassium permanganate from China. Third Five-Year Review, USITC Pub. 4183 at 13. In the fourth five-year review, the Commission observed that subject imports had been virtually nonexistent in the U.S. market since 2010 under the disciplining effects of the order. Fourth Five-Year Review, USITC Pub. 4590 at 13.

potassium permanganate producers in China have substantial capacity and excess capacity and would have an incentive to ship substantial volumes of potassium permanganate to the United States if the order were revoked.

China is the largest global producer of potassium permanganate, and Changyuan is the largest producer in China.¹²² Changyuan reported that it accounted for an estimated *** percent of potassium permanganate production in China in 2020 and *** percent of China's exports of potassium permanganate.¹²³ It reported that its production capacity decreased from *** pounds in 2018 and 2019 to *** pounds in 2020, and was further reduced in interim 2021 (***) compared with interim 2020 (***)¹²⁴ Changyuan's reported capacity utilization ratio was *** percent in 2018, *** percent in 2019, and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021.¹²⁵ Despite its reported 2020 capacity reductions, Changyuan's excess capacity of *** pounds exceeded apparent U.S. consumption in each full year during 2018-2020.¹²⁶ In 2020, its excess capacity was equivalent to *** percent of apparent U.S. consumption.¹²⁷ Additionally, record evidence indicates that the subject industry's production capacity is higher than Changyuan's alone because there are at least three other subject producers in China that did not respond to the Commission's questionnaire.¹²⁸ In particular, Groupstars is reportedly constructing a plant with a capacity of *** pounds per year.¹²⁹

¹²² CR/PR at IV-14-15. Changyuan provided a foreign producer questionnaire response to the Commission. CR/PR at IV-6.

¹²³ CR/PR at I-14.

¹²⁴ CR/PR at Table IV-6. PAL/CY contends that Changyuan's capacity has been reduced by energy and raw material supply disruptions, as well as environmental regulations. Hearing Transcript ("Hearing Tr.") at 124-25 (Tam). The record does not indicate that Changyuan's actual equipment and machinery or its nameplate capacity has changed. To the extent that Changyuan's capacity was constrained by such factors, we find these constraints to be temporary because they are largely related to the COVID-19 pandemic and the record does not indicate that all or most are likely to persist in the reasonably foreseeable future.

¹²⁵ CR/PR at IV-6.

¹²⁶ Derived from CR/PR Tables IV-6 and C-1.

¹²⁷ Derived from CR/PR Tables IV-6 and C-1.

¹²⁸ CR/PR at II-4, IV-6. *See also* Table IV-9 (estimate of *** pounds of total capacity for China).

¹²⁹ Carus's Prehearing Br. at 10 and Attach. 1; Carus's Posthearing Br. at 1-2 and n.3 and Exh. 1, Answer to Question #9. The new facility may be a replacement for Groupstars's *** plant with a reported capacity of *** pounds per year. *Id.* Thus, Groupstars *** its production capacity for potassium permanganate by ***.

The potassium permanganate industry in China is also export-oriented.¹³⁰ China was the largest global exporter of potassium permanganate during 2018-2020 by a wide margin. Its share of global exports ranged from 54.9 percent to 65.4 percent during the 2018-2020 period.¹³¹ Changyuan's total export shipments were *** pounds in 2018, *** pounds in 2019, and *** pounds in 2020; they were *** pounds in interim 2020 and *** pounds in interim 2021.¹³² Its export shipments accounted for between *** percent and *** percent of its total shipments from January 2018 to June 2021. Changyuan's export shipments in 2020 were equivalent to *** percent of apparent U.S. consumption and *** percent of U.S. production in 2020.¹³³

The record further shows that the U.S. market remained attractive during the POR and that Chinese producers would have an incentive to export subject merchandise to the United States if the order were revoked. The United States is the world's second largest market for potassium permanganate.¹³⁴ Moreover, the average unit values ("AUVs") of Changyuan's export shipments were well below the prevailing price levels of potassium permanganate in the United States during the POR, indicating a price incentive for Chinese producers to export to the U.S. market if the order were revoked, either by utilizing excess capacity or shifting shipments to the United States from Changyuan's current export markets.¹³⁵

Record evidence also suggests that subject producers' ability to export substantial volumes of potassium permanganate to the U.S. market in the event of revocation would be

¹³⁰ See CR/PR at II-4, II-7 and n.20, II-8 and II-22.

¹³¹ CR/PR at Table IV-10. For comparison, India and the United States, the next largest global exporters, accounted for 13.2 percent and 12.2 percent of global exports, respectively. *Id.*

¹³² CR/PR at Table IV-6.

¹³³ Derived from CR/PR Tables IV-6 and C-1.

¹³⁴ CR/PR at IV-14-15; Carus's Prehearing Br. at 22.

¹³⁵ Changyuan's AUVs for exports to all markets were \$*** in 2018 per pound, \$*** per pound in 2019, and \$*** per pound in 2020; they were \$*** per pound in interim 2020 and \$*** per pound in interim 2021. CR/PR at Table IV-6. The domestic industry's AUVs for commercial U.S. shipments, which include both free-flowing and technical grades, were \$*** per pound in 2018, \$*** per pound in 2019, and \$*** per pound in 2020; they were \$*** per pound in interim 2020 and \$*** per pound in interim 2021. CR/PR at Table III-4. There is a large difference in AUVs even taking into account the difference in product mix (the vast majority of Changyaun's export shipments were technical grade). Based on questionnaire responses, Carus's AUVs for its technical grade U.S. shipments were \$*** per pound in 2018, \$*** per pound in 2019, and \$*** per pound in 2020; they were \$*** per pound in interim 2020 and \$*** per pound in interim 2021. CR/PR at Table E-1. Carus reported that its AUVs for commercial U.S. shipments of technical grade were \$*** per pound in 2018, \$*** per pound in 2019, and \$*** per pound in 2020; they were \$*** per pound in interim 2020 and \$*** per pound in interim 2021. Carus's Posthearing Br., Exh. 1, Response #1 (calculated by dividing reported value by reported quantity).

facilitated by relationships that subject producers maintain with U.S. distributors. Changyuan has distribution partners in the U.S. market for its sodium permanganate product.¹³⁶ These companies, such as Chemrite, Inc. (“Chemrite”) and Shannon Chemical, also distribute nonsubject potassium permanganate.¹³⁷ Chinese producers likely could rely on these relationships to reestablish subject imports’ presence in the U.S. market were the order revoked.¹³⁸

We acknowledge that the record reflects some indication of preferences and/or requirements for U.S.-origin or Carus’s product in the U.S. market that insulates a portion of Carus’s sales from import competition due to “Buy American” or similar policies.¹³⁹ While the

¹³⁶ PAL/CY’s Posthearing Br. at 10 (“Changyuan currently sells sodium permanganate to only *** U.S. importers on a spot sale basis”). *Id.*

¹³⁷ See Carus’s Prehearing Br., Attach. 8 (municipal bid data showing bids from *** of nonsubject potassium permanganate) and Attach. 9 (import entries of sodium permanganate of ***).

¹³⁸ We are unpersuaded by PAL/CY’s argument that Changyuan does not have a distribution network for potassium permanganate because: (1) its sodium permanganate sales are on a spot basis and (2) it generally has no contact with any parties outside of its distributors. PAL/CY’s Posthearing Br. at 10-11. These conditions have not prevented Chinese producers from maintaining sales of sodium permanganate in the U.S. market. Given that sodium permanganate is a downstream product of potassium permanganate that is used in at least some of the same applications as is potassium permanganate, Changyuan’s ability to distribute sodium permanganate likely would assist in distribution of potassium permanganate. See CR/PR at I-20 n.40.

¹³⁹ CR/PR at II-13-14. Purchaser responses indicated that one-third of purchases required domestic product, although purchaser data may overstate domestic requirements since responding purchasers reported a higher share of domestic purchases relative to import purchases compared to the U.S. market as a whole. CR/PR at II-14-15. Carus estimated that only about 10 percent of its customers prefer U.S.-origin or Carus product (Hearing Tr. at 22 (Ms. Carus)), and it reported that only about 20 percent of its 2020 commercial market shipments were distributed to such customers, Carus’s Posthearing Br., Exh. 1, Resp. # 2. Nonetheless, we acknowledge that the record reflects a preference for domestic or Carus product on the part of some portion of U.S. purchasers, as evidenced by the foregoing and bid data submitted by PAL/CY where certain municipalities specified Carus-branded or U.S.-origin potassium permanganate in their bid solicitations. See, e.g., PAL/CY’s Prehearing Br. at 35 and Exh. 4; see also PAL/CY’s Posthearing Br. at Exh. 21. However, while acknowledging the evidence provided by PAL/CY of certain municipalities either requiring Carus-branded product or exhibiting a strong preference for Carus-branded product, we also observe that this evidence is limited in its probative value because, as PAL/CY’s own research acknowledges, there are over 90,000 local governments in the United States as of the last U.S. Census Bureau count, and PAL/CY’s review does not constitute a statistical sample. PAL/CY’s Posthearing Br. at Exh. 21, paras. 4, 10. Record evidence also shows that some bids that indicated Carus-branded product also accepted equivalent imported product. See, e.g., bid documents of ***, although we acknowledge, too, that the record reflects instances of only Carus-produced product being able to meet buyer specifications. Compare Carus’s Prehearing Br., Attach. 8, with PAL/CY’s Posthearing Br. at Exh. 21, para. 8.

parties dispute the size and importance of this portion of the market,¹⁴⁰ most purchasers and customers did not specify domestic product, and a majority of purchases in 2020 did not require domestic product.¹⁴¹ Thus, the record evidence indicates that there is a relatively large portion of the market where subject imports and the domestic like product would compete in the event of revocation of the order.

PAL/CY argues that Changyuan's focus is and will remain on its technical grade production and that Changyuan would not have an incentive to shift production to free-flowing grade potassium permanganate in the event of revocation given the time and expense to do so, and the existence of purportedly sufficient home market and third country demand for its technical grade product.¹⁴² We find it likely that Changyuan would use available capacity to increase its production of free-flowing grade product in order to compete in the U.S. merchant market, where free-flowing grade predominates, were the order revoked.¹⁴³ Changyuan

¹⁴⁰ Compare Carus's Posthearing Br., Exh. 1, Answers to Commissioner's Questions, Question #2, with PAL/CY's Posthearing Br., Answers to Questions at 122 and Exh. 32, or PAL/CY's Prehearing Br. at 53.

¹⁴¹ CR/PR at II-14-15, Table II-5.

¹⁴² PAL/CY's Prehearing Br. at 46; Hearing Tr. at 150 (Mohan).

¹⁴³ CR/PR at II-18. Carus submitted data showing that *** percent of its commercial U.S. shipments were of free-flowing grade in 2020. Carus's Posthearing Br., Exh. 1, Answers to Additional Staff Questions. Carus also reported that free-flowing grade product is specified in *** percent of the bids it processes each year. *Id.*

We are unpersuaded by PAL/CY's argument that it has no incentive to shift exports to the United States because the U.S. market is shrinking while its other export markets are growing, nor that growing home market and Southeast Asian market demand is expected to take up any excess capacity. PAL/CY's Prehearing Br. at 74-75. Changyuan's home market shipments and Asian market export shipments did not demonstrate strong growth during the POR. Its exports to Asian markets decreased from *** pounds in 2018 to *** pounds in 2020 and were *** pounds in interim 2021, down from *** pounds in interim 2020. Its home market shipments decreased from *** pounds in 2018 to *** pounds in 2019, then increased to *** pounds in 2020; they were *** pounds in interim 2021, compared with *** pounds in interim 2020. Moreover, Changyuan had substantial excess capacity to supply the U.S. market throughout the review period, and as noted above, the record reflects that three additional Chinese producers that declined to respond to the Commission's questionnaire maintain further capacity. CR/PR at Tables IV-6, IV-9. Further, although we acknowledge that Changyuan's capacity utilization figure was *** in interim 2021 than it was in the preceding years of the review period, we are unpersuaded by Changyuan's claim that the *** are likely to persist through the reasonably foreseeable future, as Changyuan has provided no evidence to this effect. See Changyuan's Prehearing Br. at Exh. 13; Changyuan's Posthearing Br. at Exh. 1 (pp. 107-08); see also CR at II-7 (summarizing Changyuan's reporting on the issue).

We note that our finding does not rely on the potential loss of Iran as one of the subject industry's largest export markets although there is some indication that a potassium permanganate (Continued...)

reports that it already produces some free-flowing grade product, albeit significantly less than it does technical grade.¹⁴⁴ Moreover, the production of free-flowing grade requires only the addition of an anticaking agent to technical grade, a ***.¹⁴⁵ Therefore, the incentive to export to the U.S. market would likely induce the subject industry to make the necessary investments to increase its free-flowing grade production.¹⁴⁶ As previously discussed, Changyuan has

production facility began operation in Iran which led to a reduction in China's exports to Iran in 2019. See Carus's Prehearing Br. at 29; CR/PR at Table IV-8.

¹⁴⁴ CR/PR at II-18.

¹⁴⁵ CR/PR at I-24. PAL/CY argues that its free-flowing product is *** when compared to Carus's, and thus less competitive, and that its flowability is *** reduced during transit due to environmental changes. PAL/CY's Prehearing Br. at 36-37, 46; Hearing Tr. at 146 (Tam). It contends that Carus's use of an *** in its production process results in potassium permanganate of spherical crystals which has superior flowability characteristics. In contrast, it contends that its own *** produces needle-shaped crystals which results in a product with ***. PAL/CY's Posthearing Br., Attach. 1 at 21-22. We are unpersuaded that any difference in quality between subject free-flowing grade product and Carus's free-flowing grade would substantially dissuade U.S.-end users from switching to lower-priced subject imports in the event of revocation. As previously discussed, the record indicates that price is an important factor in purchasing decisions, with purchasers citing "price" as a very important factor in purchasing decisions more than any other factor, including quality factors. CR/PR at Table II-7. Although PAL/CY provided evidence to the Commission tending to indicate that the different production processes employed by Carus and Changyuan may result in crystals of somewhat different size and shape, PAL/CY has not provided any evidence to indicate that such differences are particularly meaningful to customers, to say nothing of whether these differences are more significant than price. See PAL/CY's Posthearing Br. at 4-7, Exhs. 1-2. We further observe that Changyuan successfully ships free-flowing grade to ***, its claims of quality and product degradation notwithstanding. CR/PR at I-23.

We also observe that PAL/CY first introduced its argument that flowability is very important in purchasing decisions in its prehearing brief, PAL/CY's Prehearing Br. at 34-35, in spite of the requirement regarding comments on questionnaires in 19 C.F.R. 207.20 (b) that "{a}ll requests for collecting new information shall be presented at this time." As such, the record is less developed on this point, in part because the Commission was not able to collect relevant information in its questionnaires concerning flowability. See PAL/CY's Comments on Draft Questionnaires, EDIS Doc. No. 745715 (June 29, 2021). The evidence PAL/CY introduced purports to show that its production process results in ***. Hearing Tr. at 112-13 (Mohan); PAL/CY's Posthearing Br. at 5 and Exh. 2. However, PAL/CY fails to demonstrate that any such differences in crystal shape are important to purchasers.

PAL/CY also argues that selling in the U.S. market would be difficult because most U.S. purchasers use plastic drums while Changyuan currently packages in steel drums, and it might be difficult to source plastic drums. PAL/CY's Prehearing Br. at 50; Hearing Tr. at 212 (Tam). We disagree as the record does not indicate that packaging material is important to purchasers, nor is there support for the contention that Chinese producers would face substantial difficulties sourcing plastic drums.

¹⁴⁶ Although the parties dispute the cost of any necessary investment to convert technical grade to free-flowing grade, either party's estimate would not be prohibitive in light of the attractiveness of the U.S. market. Carus estimated that the additional manufacturing cost to convert technical grade to free-flowing grade would cost ***. Carus's Posthearing Br., Response #1 at 4. Changyuan estimated (Continued...)

sufficient existing excess capacity with which to increase free-flowing grade production. Additionally, record evidence indicates that other subject producers in China also produce free-flowing grade.¹⁴⁷

We are unpersuaded by PAL/CY's argument that certain municipal and federal approval/certification processes further impede Changyuan's ability to export to the United States.¹⁴⁸ The record indicates that approval/certification processes are unlikely to pose a barrier to subject imports. Nine of 13 purchasers did not require their suppliers to become certified or qualified to sell potassium permanganate to their firm.¹⁴⁹ For firms that reported qualification requirements, reported qualification times were 10, 30, and 120 days.¹⁵⁰ All but one responding purchaser reported that no suppliers had failed to qualify or lost approved status since 2015.¹⁵¹ Moreover, Changyuan successfully sells sodium permanganate in the U.S. market, which is regulated similarly to potassium permanganate.¹⁵²

As discussed previously, potassium permanganate imported from China is subject to section 301 tariffs. Most responding U.S. firms (***) reported either that 301 tariffs did not have an impact on the U.S. market or that they did not know if there was an impact.¹⁵³

that the investment necessary to increase free-flowing grade production would cost at most a relatively modest \$*** per pound and adding equipment would take two to three months. PAL/CY's Posthearing Br. at 6 and Exh. 13A; Hearing Tr. at 127 and 150 (Tam). Thus, we consider that the investments necessary to convert technical grade production to free-flowing grade production are not prohibitive.

We also note that during the original investigations, the substantially lower prices of subject imports induced some municipalities to switch from free-flowing grade to technical grade for use in water treatment applications. Original Determination (China), USITC Pub. 1480 at 6-7, 11.

¹⁴⁷ See online marketing materials of non-responding subject producers, Carus's Prehearing Br., Attach. 2; Carus's Posthearing Br., Exh. 1, Response #9b.

¹⁴⁸ PAL/CY's Prehearing Br. at 38, 49. Potassium permanganate, and the downstream sodium permanganate, are both regulated by the Drug Enforcement Agency ("DEA") under the Controlled Substances Act ("CSA") because they can be used in the purification of cocaine. As such, handlers of potassium permanganate and sodium permanganate are subject to certain recordkeeping, reporting, and import/export requirements. CR/PR at I-20-21.

¹⁴⁹ CR/PR at II-17.

¹⁵⁰ CR/PR at II-17.

¹⁵¹ CR/PR at II-17.

¹⁵² CR/PR at I-20.

¹⁵³ CR/PR at II-3. We note that these responses may reflect the fact that subject imports have been effectively absent from the U.S. market.

Changyuan reported that 301 tariffs *** and maintains that the tariffs would remain a significant barrier to imports of potassium permanganate if the antidumping duty order is revoked. *Id.*; PAL/CY's Prehearing Br. at 47-48. However, the record demonstrates that 301 tariffs have not prevented sodium permanganate, which is also subject to 301 tariffs, from entering the United States. (Continued...)

In conclusion, the record indicates that the potassium permanganate industry in China is large and export-oriented, and has substantial capacity and excess capacity. Because of the nature of the Chinese industry, and the attractiveness of the U.S. market relative to the Chinese industry's home market and alternative export markets, we find that subject producers in China would likely export substantial volumes of potassium permanganate to the United States if the order were revoked. We therefore conclude that the volume of subject imports would likely be significant, both in absolute terms and relative to U.S. consumption and production, if the antidumping duty order were revoked.¹⁵⁴

D. Likely Price Effects

1. The Prior Proceedings

In the original investigations, the Commission found significant underselling and price suppression caused by subject imports from China. The Commission also found that the domestic producer had lost sales and revenues due to low-priced subject imports.¹⁵⁵

In the first five-year reviews, the Commission found that subject imports from China would likely enter the United States at prices that would have significant depressing or suppressing price effects if the order were revoked.¹⁵⁶ Although there was limited pricing information on the record for the reviews, the Commission noted that it had determined there was significant underselling and price suppression by subject imports from China in the original

See, e.g., Carus's Prehearing Br., Attach. 9, "Shannon and Chemrite's Imports of Sodium Permanganate into the U.S. Market." *See also* PAL/CY's Prehearing Br. at Exh. 30 (sodium permanganate exports to the United States of *** pounds in 2019 and *** pounds in 2020).

¹⁵⁴ We have also examined several other factors in our analysis of the likely volume of subject imports. Changyuan's end-of-period inventories were *** pounds in 2018, *** pounds in 2019, and *** pounds in 2020; they were *** pounds in interim 2020 and *** pounds in interim 2021. CR/PR at Table IV-6. In light of the absence of subject imports, there were no inventories of subject merchandise in the United States during the POR.

We note that we do not rely on product shifting as a basis for our likely volume finding. Although the record contains some evidence suggesting that potassium permanganate production could be increased by curtailing sodium permanganate production, which uses potassium permanganate as an input, the record also contains information that *** produced other products on the same equipment and machinery used to produce potassium permanganate. CR/PR at II-6, IV-11.

Potassium permanganate from China is not currently subject to any antidumping or countervailing duty orders or proceedings in any markets other than the United States. CR/PR at IV-14.

¹⁵⁵ Original Determination (China), USITC Pub. 1480 at 10-11.

¹⁵⁶ First Five-Year Reviews, USITC Pub. 3245 at 23.

investigations.¹⁵⁷ The Commission also found potassium permanganate was a commodity product sold in a price-sensitive market.¹⁵⁸ Given that U.S. prices were substantially higher than those in other markets, the Commission found Chinese producers had an incentive to price their product substantially below U.S. prices in order to induce U.S. purchasers to switch from the domestic like product to subject imports. The Commission stressed that this behavior was the same as had occurred during the original investigation.¹⁵⁹

In the second five-year review, the Commission again observed that there was limited pricing information, but that the AUVs for subject potassium permanganate had been consistently lower than AUVs for the domestic like product. The Commission reiterated its prior findings that potassium permanganate was a commodity product sold in a price-sensitive market and that U.S. prices were substantially higher than those in other markets.¹⁶⁰ As such, the Commission found that Chinese producers would have had an incentive to price their product significantly below prevailing U.S. prices to induce U.S. purchasers to switch from domestic to subject potassium permanganate.¹⁶¹ Therefore, the Commission found it likely that the Chinese producers would offer attractively low prices to U.S. purchasers to regain market share if the order were revoked. The Commission based its finding on the Chinese producers' behavior during the original investigations, the limited information in the record regarding current prices for Chinese potassium permanganate in non-U.S. markets, and the fact that antidumping measures had been imposed in other countries on imports from China. It concluded that subject potassium permanganate was likely to enter the United States at prices that would have a significant depressing or suppressing effect on prices for the domestic like product if the order were revoked.¹⁶²

In the third five-year review, there were no new pricing comparisons for subject and domestic potassium permanganate.¹⁶³ The Commission again found that potassium permanganate was a commodity product sold in a price sensitive market and that U.S. prices were substantially higher than those found in other markets.¹⁶⁴ Consequently, it reasoned that Chinese producers would have an incentive to price significantly below the prevailing U.S.

¹⁵⁷ First Five-Year Reviews, USITC Pub. 3245 at 23.

¹⁵⁸ First Five-Year Reviews, USITC Pub. 3245 at 23.

¹⁵⁹ First Five-Year Reviews, USITC Pub. 3245 at 23.

¹⁶⁰ Second Five-Year Review, USITC Pub. 3778 at 13.

¹⁶¹ Second Five-Year Review, USITC Pub. 3778 at 13-14.

¹⁶² Second Five-Year Review, USITC Pub. 3778 at 14.

¹⁶³ Third Five-Year Review, USITC Pub. 4183 at 15.

¹⁶⁴ Third Five-Year Review, USITC Pub. 4183 at 15.

price to induce U.S. purchasers to switch to subject imports upon revocation.¹⁶⁵ The Commission based its finding on the Chinese industry's behavior in the original investigations, the available information regarding prices for Chinese potassium permanganate in third country markets, and the imposition of antidumping measures in India on imports from China.¹⁶⁶ It concluded that subject imports were likely to significantly undersell the domestic like product to gain market share and likely would have significant depressing or suppressing effects on the prices of the domestic like product if the order were revoked.¹⁶⁷

In the fourth five-year review there were no new pricing comparisons for subject and domestic potassium permanganate. The Commission reiterated that domestically produced potassium permanganate and subject imports were moderately to highly substitutable and that price remained an important factor in purchasing decisions.¹⁶⁸ It found that subject producers would likely undersell domestically produced potassium permanganate to gain market share if the order were revoked, as occurred during the original investigations, because the incentives remained unchanged. Additionally, the presence of significant quantities of subject imports that would enter the U.S. market in the event of revocation would likely undersell the domestic like product and force the domestic industry to either lower prices or lose sales. The Commission concluded that absent the disciplining effect of the order, subject imports of potassium permanganate would likely have significant depressing or suppressing effects on prices for the domestic like product.¹⁶⁹

2. The Current Review

As previously discussed, we find that there is a moderate to high degree of substitutability between domestically produced potassium permanganate and subject merchandise, and that price is an important factor in purchasing decisions. Due to the absence of subject imports from the U.S. market during the POR, the record does not contain any new price comparison data for subject imports and domestic product in the U.S. market for this review.¹⁷⁰ In the original investigations, drawing on data from January 1981 to March 1983, we

¹⁶⁵ Third Five-Year Review, USITC Pub. 4183 at 15.

¹⁶⁶ Third Five-Year Review, USITC Pub. 4183 at 15.

¹⁶⁷ Third Five-Year Review, USITC Pub. 4183 at 15.

¹⁶⁸ Fourth Five-Year Review, USITC Pub. 4590 at 15.

¹⁶⁹ Fourth Five-Year Review, USITC Pub. 4590 at 15.

¹⁷⁰ The record does contain quarterly pricing data for domestically produced potassium permanganate. In general, prices for U.S.-produced product decreased from January 2018 to June 2021. (Continued...)

observe that subject imports from China were priced lower than the domestic product in all 11 comparisons, with underselling margins ranging from *** to *** percent.¹⁷¹ In the first review, drawing on data from January 1997 to March 1999, we observe that subject imports from China were priced lower than the domestic product in all three comparisons, with underselling margins ranging from *** to *** percent.¹⁷²

In addition to the subject imports' history of underselling, the relatively high prices prevailing in the U.S. market suggest that subject imports will likely undersell the domestic product to gain market share. Although not directly comparable, we observe that the AUVs of Changyuan's exports to other destination markets were *** lower than the AUVs of the domestic industry's U.S. shipments (and commercial U.S. shipments) during the POR.¹⁷³ Further, AUVs for Carus's export shipments were consistently lower than those of its commercial U.S. shipments, providing additional evidence that U.S. prices are generally higher than other markets.¹⁷⁴

Thus, in light of our finding that a significant volume of subject imports is likely upon revocation, that domestically produced potassium permanganate and subject merchandise are moderately to highly substitutable, and that price is an important factor in purchasing decisions, we find that Chinese producers and exporters are likely to significantly undersell the domestic like product in the event of revocation as they did in the original investigation. This

Domestic prices for Product 1 (free-flowing grade potassium permanganate) decreased from 2018 to 2020 and then increased in interim 2021 for an overall decrease of *** percent. Prices for Product 2 (technical grade potassium permanganate) fluctuated from 2018 to 2020, then *** in interim 2021, for an overall decline of *** percent. CR/PR at V-9 and Table V-4.

Carus and PAL/CY each presented competing constructed price analyses to demonstrate price effects, or lack thereof, in the event of revocation. *Compare* Carus's Prehearing Br., Attach. 20 at 5-7 and Exh. 3; *and* Carus's U.S. Producer Questionnaire Response at Attachment 1; *with* PAL/CY's Posthearing Br., Answers to Questions at 121 and Exh. 31. Each analysis relies on multiple assumptions. Therefore, we do not find these presentations probative and do not rely on them in our likely pricing effects analysis.

¹⁷¹ CR/PR at V-10. Original Investigation Confidential Report, INV-G-226, EDIS Doc. 219613 (Dec. 14, 1983) at A-56.

¹⁷² CR/PR at V-10; First Review Confidential Report, INV-W-216, EDIS Doc. 219615 (Sep. 20, 1999) at V-11.

¹⁷³ *Compare* CR/PR Tables III-4, IV-6 and E-1. This disparity in AUVs persists even when largely controlling for product mix. *See* Carus's Posthearing Br., Exh. 1, Response #1 (providing AUVs for commercial U.S. shipments by grade). Relevant data are provided in fn. 133, *supra*. We acknowledge that AUVs for U.S. shipments are not directly comparable to AUVs for export shipments because they occur at different levels of trade as export shipments do not include duty, freight, importer markup, and related costs. Nonetheless, we find these data probative given the large difference in AUVs.

¹⁷⁴ CR/PR at Table III-3. *See also* Carus's Prehearing Br. at 26.

would enable subject imports to take sales from the domestic industry and gain market share, as they did during the original investigations, as well as have a depressing and/or suppressing effect on prices in the U.S. market.

In addition to Carus already facing relatively weak demand and declining prices for its sales of potassium permanganate, the transparent nature of municipal bidding transmits price information quickly throughout the U.S. market. This increases the likelihood that low-priced subject imports will exert downward price pressure through the merchant market if the order is revoked.

We disagree with PAL/CY's argument that subject imports are not likely to enter the U.S. market in volumes sufficient to cause any significant price effects. As discussed previously, we find that the likely volume of subject imports would be significant if the order were revoked. The portion of the market where subject imports and the domestic like product are likely to compete is large enough to provide access for significant volumes of subject imports, especially in light of our finding that Chinese producers are likely to increase production of free-flowing grade product for the U.S. market. The significant volume of subject imports that are likely in the event of revocation are likely to cause adverse price effects for the domestic industry notwithstanding any portion of that market, such as that corresponding to captive production or where purchasers prefer to buy domestic product, in which the domestic like product may be insulated from import competition.

We are also unpersuaded by PAL/CY's argument that nonsubject imports' loss of market share over the POR demonstrates that purchases are primarily made on the basis of factors other than price, and that therefore subject imports would be unlikely to cause significant adverse price effects.¹⁷⁵ We reiterate our finding that price is an important factor in purchasing decisions. Moreover, we observe that not only was nonsubject imports' market share *** percentage points higher in interim 2021 than in interim 2020,¹⁷⁶ but nonsubject imports gained *** percentage points of market share from U.S. producers from 2016 to 2018, when their share of apparent U.S. consumption increased from *** percent to *** percent.¹⁷⁷ This

¹⁷⁵ See PAL/CY's Prehearing Br. at 77-79.

¹⁷⁶ CR/PR at Table C-1.

¹⁷⁷ CR/PR at Table I-2. The AUVs for U.S. importers' U.S. shipments of nonsubject imports were lower than AUVs for the U.S. producer's U.S. shipments throughout the period of review. AUVs for U.S. importers' U.S. shipments were \$*** in 2018, \$*** in 2019, and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. CR/PR at Table E-2. For comparison, the AUVs for the U.S. producer's U.S. shipments were \$*** in 2018, \$*** in 2019, and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. CR/PR at Tables III-3 and E-1.

demonstrates that U.S. customers will switch supply from U.S.-origin to imported product on the basis of price. We also note our findings regarding the size, capacity, excess capacity, and export performance of the Chinese potassium permanganate industry, which is much larger than the industry in India, which accounted for a large majority of nonsubject imports over the POR.¹⁷⁸

For the foregoing reasons, we find that if the order were revoked, likely significant volumes of subject imports would likely result in a recurrence of significant underselling of the domestic like product by subject imports, leading subject imports to gain sales and market share at the expense of the domestic industry, and are likely to enter at prices that otherwise would have a significant depressing or suppressing effect on the price of the domestic like product.

E. Likely Impact

1. The Prior Proceedings

In the original investigations, the Commission found that substantially lower prices for subject potassium permanganate in a price-sensitive market allowed subject imports to gain market share and resulted in price suppression, lost sales and revenues, and declines in employment for the domestic industry. The Commission concluded that the domestic industry was materially injured by reason of imports of potassium permanganate from China.¹⁷⁹

In the first five-year reviews, the Commission determined that subject imports from China would likely have had a significant adverse impact if the order were revoked. The Commission referenced its finding in the original determinations that substantially lower prices for subject imports from China in a price-sensitive market allowed these imports to gain market share and resulted in price suppression, lost sales and revenues, and declines in employment.¹⁸⁰ It found that the condition of the domestic industry had improved substantially since the imposition of the orders. Although the Commission did not find that the domestic industry was vulnerable, given its strong gross profits, operating income, and operating income margins, it did find that the likely significant volume of low-priced subject imports would likely have a significant adverse impact on the production, shipments, sales, and revenue levels of the domestic industry if the order were revoked.¹⁸¹

¹⁷⁸ See CR/PR at IV-14-15.

¹⁷⁹ Original Determination (China), USITC Pub. 1480 at 8-11.

¹⁸⁰ First Five-Year Reviews, USITC Pub. 3245 at 24.

¹⁸¹ First Five-Year Reviews, USITC Pub. 3245 at 24-25.

In the second five-year review, the Commission found that the information available with respect to the condition of the domestic industry was limited due to the expedited nature of the review and that the information available presented a mixed picture. Nonetheless, the Commission found that the domestic industry was not vulnerable to material injury if the order were revoked because Carus continued to command a substantial market share, had increased production, and was profitable. The Commission also found, however, that the antidumping duty order had a restraining effect on the volume and market share of subject imports and that revocation would lead to a significant increase in low-priced subject imports that would undersell the domestic like product and significantly suppress or depress U.S. prices. Consequently, the Commission concluded that revocation of the antidumping duty order would be likely to have a significant adverse impact on the domestic industry within a reasonably foreseeable time.¹⁸²

In the third five-year review, the Commission found that the condition of the domestic industry had improved from 2004 to 2007, but declined in 2008 and sharply declined in 2009, when the industry experienced the effects of the recession as well as increased raw material costs.¹⁸³ The Commission found that the domestic industry was not vulnerable to material injury if the order were revoked because the domestic industry's financial indicators remained strong throughout the POR, notwithstanding declines at the end of the period.¹⁸⁴ It also found, however, that the antidumping duty order had a restraining effect on the volume and market share of subject imports and that revocation would lead to a significant increase in subject imports that would undersell the domestic like product and significantly depress or suppress U.S. prices.¹⁸⁵ Consequently, the Commission concluded that revocation of the antidumping duty order would likely have a significant adverse impact on the domestic industry within a reasonably foreseeable time.¹⁸⁶

In the fourth five-year review, the Commission found that the condition of the domestic industry had improved since the previous review. It observed that the domestic industry's production, capacity utilization, and total U.S. shipments were at least marginally higher in 2014 than in 2009. The industry's 2014 operating income (\$***) and ratio of operating income

¹⁸² Second Five-Year Review, USITC Pub. 3778 at 14-15.

¹⁸³ Third Five-Year Review, USITC Pub. 4183 at 17.

¹⁸⁴ Third Five-Year Review, USITC Pub. 4183 at 18.

¹⁸⁵ Third Five-Year Review, USITC Pub. 4183 at 18.

¹⁸⁶ Third Five-Year Review, USITC Pub. 4183 at 19.

to net sales (***) percent) also exceeded the figures reported in 2009.¹⁸⁷ Although the Commission did not reach a finding as to vulnerability,¹⁸⁸ it found that in light of the restraining effect the antidumping duty order has had on the volume of subject imports, revocation of the order would likely lead to a significant volume of subject imports that would undersell the domestic like product and significantly suppress or depress U.S. prices. Depressed prices would not significantly stimulate additional demand, but would likely cause purchasers to switch to lower-priced subject imports and consequently have a significant impact on the production, shipments, sales, market share, and revenue of the domestic industry, and a direct adverse impact on the industry's profitability and employment, as well as its ability to raise capital, make and maintain capital investments, and fund research and development ("R&D").¹⁸⁹ Although nonsubject imports increased during the POR, the Commission, observing that Carus's production, capacity utilization, and profitability improved over that time, found that the likely impact of future subject imports was distinguishable from any impact of nonsubject imports.¹⁹⁰ The Commission concluded that subject imports from China would likely have a significant impact on the domestic industry within a reasonably foreseeable time if the antidumping duty order were revoked.¹⁹¹

2. The Current Review

In this review, most of the domestic industry's trade-related indicators generally declined from 2018 to 2020, but were higher in interim 2021 than in interim 2020. The domestic industry's production capacity was unchanged during the POR, at *** pounds each calendar year and *** pounds in the interim periods.¹⁹² Its production decreased by ***

¹⁸⁷ Fourth Five-Year Review, USITC Pub. 4590 at 17. In 2014, capacity was *** pounds, production was *** pounds, capacity utilization was *** percent, and U.S. shipments were *** pounds. Capacity was *** in 2014 than in 2019. *Id.* at 17 & n.102; Confidential Fourth Five-Year Review at 26 & n.102.

¹⁸⁸ Fourth Five-Year Review, USITC Pub. 4590 at 17. Based on the limited information available, Chairman Broadbent, Vice Chairman Pinkert, and Commissioner Johanson found that the domestic potassium permanganate industry was not vulnerable to the continuation or recurrence of material injury in the event of revocation of the order. In contrast, Commissioners Williamson, Kieff, and Schmidlein found that the limited information on record was insufficient to make a finding on whether the domestic industry was vulnerable. *Id.* at 17.

¹⁸⁹ Fourth Five-Year Review, USITC Pub. 4590 at 17.

¹⁹⁰ Fourth Five-Year Review, USITC Pub. 4590 at 18.

¹⁹¹ Fourth Five-Year Review, USITC Pub. 4590 at 18.

¹⁹² CR/PR at Tables III-2 and C-1.

percent from 2018 to 2019 and by *** percent from 2019 to 2020, for an overall decrease of *** percent from 2018 to 2020; it was *** percent higher in interim 2021 than in interim 2020.¹⁹³ The domestic industry's capacity utilization ratio decreased by *** percentage points from 2018 to 2019 and by *** percentage points from 2019 to 2020, for an overall decrease of *** percentage points; it was *** percentage points higher in interim 2021 than in interim 2020.¹⁹⁴ The industry's U.S. shipments, by quantity, increased by *** percent from 2018 to 2019 then decreased by *** percent from 2019 to 2020, for an overall decrease of *** percent; they were *** percent higher in interim 2021 than in interim 2020.¹⁹⁵

The domestic industry's share of apparent U.S. consumption, by quantity, increased by *** percentage points from 2018 to 2019 and *** percentage points from 2019 to 2020, for an overall increase of *** percentage points; it was *** percentage points lower in interim 2021 than in interim 2020.¹⁹⁶ Further, the domestic industry's inventories fluctuated. End-of-period inventories increased by *** percent from 2018 to 2019 then decreased by *** percent from 2019 to 2020, for an overall decrease of *** percent; they were *** percent lower in interim 2021 than in interim 2020.¹⁹⁷

The domestic industry's employment indicators were mixed during the POR. Its number of production related workers ("PRWs") increased from *** in 2018 to *** in 2019 and 2020; it was *** in interim 2020 and *** in interim 2021.¹⁹⁸ The industry's total hours worked increased by *** percent from 2018 to 2019 and by *** percent from 2019 to 2020, for an overall increase of *** percent from 2018 to 2020; they were *** percent lower in interim 2021

¹⁹³ CR/PR at Tables III-2 and C-1. The domestic industry's production decreased from *** in 2018 to *** in 2019 and *** in 2019; it was *** in interim 2020 and *** in 2020. *Id.*

¹⁹⁴ CR/PR at Tables III-2 and C-1. The domestic industry's capacity utilization ratio decreased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. *Id.*

¹⁹⁵ CR/PR at Tables III-3, III-4, and C-1. The domestic industry's U.S. shipments increased from *** pounds in 2018 to *** pounds in 2019 then decreased to *** pounds in 2020; they were *** million pounds in interim 2020 and *** pounds in interim 2021. *Id.* The industry's commercial U.S. shipments increased by *** percent from 2018 to 2019, from *** pounds to *** pounds, then decreased by *** percent to *** pounds in 2020, for an overall increase of *** percent; they were *** percent higher in interim 2021 (*** pounds) than in interim 2020 (*** pounds). Derived from CR/PR at Table III-4.

¹⁹⁶ CR/PR at Table C-1. The domestic industry's share of apparent U.S. consumption increased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was higher in interim 2020 at *** percent than in interim 2021 at *** percent. *Id.*

¹⁹⁷ CR/PR at Tables III-6 and C-1. The domestic industry's inventories increased from *** pounds in 2018 to *** pounds in 2019 then decreased to *** pounds in 2020; they were *** pounds in interim 2020 and *** pounds in interim 2021. *Id.*

¹⁹⁸ CR/PR at Tables III-4 and C-1.

than in interim 2020.¹⁹⁹ Total wages paid increased by *** percent from 2018 to 2019 then decreased by *** percent from 2019 to 2020, for an overall increase of *** percent; they were *** percent higher in interim 2021 than in interim 2020.²⁰⁰ The domestic industry's productivity (pounds per hour) decreased by *** percent from 2018 to 2019 and by *** percent from 2019 to 2020, for an overall decrease of *** percent from 2018 to 2020; it was *** percent higher in interim 2021 than in interim 2020.²⁰¹

The domestic industry's financial indicators declined from 2018 to 2020, but were generally improved in interim 2021 compared with interim 2020. Its gross profit decreased by *** percent from 2018 to 2019 and by *** percent from 2019 to 2020, for an overall decline from 2018 to 2020 of *** percent.²⁰² The industry's operating income and net income both declined from 2018 to 2020, but were each higher in interim 2021 than in interim 2020.²⁰³ Its operating income to net sales ratio decreased by *** percentage points from 2018 to 2019 and by *** percentage points from 2019 to 2020, for an overall decline of *** percentage points; it was *** percentage points higher in interim 2021 than in interim 2021.²⁰⁴ The domestic industry's net income to net sales ratio decreased by *** percentage points from 2018 to 2019 and by *** percentage points from 2019 to 2020, for an overall decline of *** percentage

¹⁹⁹ CR/PR at Tables III-8 and C-1. Total hours worked increased from *** in 2018 to *** in 2019 and *** in 2020; they were *** in interim 2020 and *** in interim 2021. *Id.*

²⁰⁰ CR/PR at Tables III-8 and C-1. Total wages paid increased from \$*** in 2018 to \$*** in 2019 then decreased to \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. Hourly wages were \$*** in 2018, \$*** in 2019, and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. *Id.*

²⁰¹ CR/PR at Tables III-8 and C-1. The domestic industry's productivity decreased from *** pounds per hour in 2018 to *** in 2019 and *** in 2020; it was *** in interim 2020 and *** pounds per hour in interim 2021. *Id.* Unit labor costs were \$*** per 1,000 pounds in 2018, \$*** in 2019, and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. *Id.*

²⁰² CR/PR at Tables III-9 and C-1. The domestic industry's gross profit decreased from \$*** in 2018 to \$*** in 2019 and \$*** in 2020; it was \$*** in interim 2020 and \$*** in interim 2021. *Id.*

²⁰³ CR/PR at Tables III-9 and C-1. The domestic industry's operating income decreased from \$*** in 2018 to \$*** in 2019 and \$*** in 2020, an overall decrease of *** percent; it was *** percent higher in interim 2021 (\$****) than in interim 2020 (\$****). Its net income decreased from \$*** in 2018 to \$*** in 2019 and \$*** in 2020, an overall decrease of *** percent; it was *** percent higher in interim 2021 (\$****) than in interim 2020 (\$****). *Id.*

²⁰⁴ CR/PR at Tables III-9 and C-1. The domestic industry's operating income to net sales ratio decreased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. *Id.*

points; it was *** percentage points higher in interim 2021 than in interim 2021.²⁰⁵ Its capital expenditures decreased from 2018 to 2019 by *** percent then increased by *** percent from 2019 to 2020 for an overall decrease of *** percent from 2018 to 2020; they were *** percent higher in interim 2021 than in interim 2020.²⁰⁶ The industry's R&D expenses declined by *** percent from 2018 to 2020 and were *** percent lower in interim 2021 than in interim 2020.²⁰⁷ Its net assets were \$*** in 2018, \$*** in 2019, and \$*** in 2020; and its return on assets was *** percent in 2018, *** percent in 2019, and *** percent in 2020.²⁰⁸

We find that Carus continues to benefit from the order's restraining effect on subject imports.²⁰⁹ Carus experienced strong financial performance during the POR, notwithstanding modest declines from 2018 to 2020. In particular, its profits, including its operating income and operating income margins, remained healthy during the POR. Moreover, Carus gained market share from 2018 to 2020, although its 2021 interim market share was lower than in interim 2020.²¹⁰ Thus, although the domestic trade and financial indicators generally declined over the three-year period, it reported strong profits and income as well as an increasing market share.²¹¹ Based on the foregoing, we find that the domestic industry is not in a vulnerable condition.²¹²

Nonetheless, as discussed previously, we have found that revocation of the order would likely lead to a significant volume of subject imports that would likely undersell the domestic like product, leading subject imports to gain market share at the expense of the domestic industry and/or have price-depressing or suppressing effects on the domestic like product. Subject imports' likely significant volume and price effects would consequently likely have a

²⁰⁵ CR/PR at Tables III-9 and C-1. The domestic industry's net income-to-net-sales ratio decreased from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was *** percent in interim 2020 and *** percent in interim 2021. *Id.*

²⁰⁶ CR/PR at Tables III-13 and C-1. Capital expenditures were \$*** in 2018, \$*** in 2019, and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021. *Id.*

²⁰⁷ CR/PR at Tables III-13 and C-1. R&D expenses decreased from \$*** in 2018 to \$*** in 2019 and \$*** in 2020; they were \$*** in interim 2020 and \$*** in interim 2021.

²⁰⁸ CR/PR at Table III-15.

²⁰⁹ Potassium permanganate imports from China have been minimal since 2002 when 892,000 pounds entered the United States. See CR/PR at Table F-1, Fig. F-1.

²¹⁰ CR/PR at Table C-1.

²¹¹ See CR/PR at Table C-1.

²¹² We note that a finding that the domestic industry is not currently vulnerable does not preclude an affirmative determination of likely material injury. See, e.g., *Nucor Corp. v. United States*, 594 F. Supp. 2d 1320, 1375 (Ct. Int'l Trade 2008) (that the domestic industry is not currently vulnerable is not a dispositive determination and does not preclude the ITC from finding that the domestic industry would be negatively impacted upon the revocation of an order).

significant adverse effect on the domestic industry's production, capacity utilization, shipments, employment, and profitability.

We have also considered the role of nonsubject imports in the U.S. market. Nonsubject imports had a substantial presence in the U.S. market during the POR, though their market share declined over most of the period. Their market share decreased from 2018 to 2020, but was higher in interim 2021 than in interim 2020.²¹³ We find that the presence of nonsubject imports would not prevent low-priced subject imports from China from significantly increasing their presence in the U.S. market if the order were revoked, given the size and excess capacity of the subject industry, and the attractiveness of the U.S. market. Given the degree of substitutability between subject imports and the domestic like product and the importance of price in purchasing decisions, the likely increase in subject imports upon revocation would likely take significant market share from the domestic industry, or otherwise cause significant negative price effects, notwithstanding any market share that subject imports might also gain at the expense of nonsubject imports.

Apparent U.S. consumption declined over much of the POR, yet the domestic industry was largely able to maintain its profitability and experienced only modest declines in its trade and financial indicators. To the extent that demand for potassium permanganate declines, the likely volume and price effects of subject imports would likely exacerbate declines in the domestic industry's performance by taking market share away from the domestic industry. Therefore, the adverse effects likely to be caused by subject imports upon revocation of the order would be distinct from any adverse effects caused by declines in demand.

Accordingly, we find that revocation of the antidumping duty order on potassium permanganate from China would likely have a significant adverse impact on the domestic industry.

²¹³ CR/PR at Table C-1. The volume of nonsubject imports was 3.2 million pounds in 2018, 2.7 million pounds in 2019, and 1.6 million pounds in 2020; it was 626,000 pounds in interim 2020 and 989,000 pounds in interim 2021. CR/PR at Table IV-1. Nonsubject imports' share of apparent U.S. consumption declined from *** percent in 2018 to *** percent in 2019 and *** percent in 2020; it was *** percent in interim 2020 and higher, at *** percent, in interim 2020. CR/PR at Tables I-8 and I-9.

IV. Conclusion

For the above-stated reasons, we determine that revocation of the antidumping duty order on potassium permanganate 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.

Part I: Introduction

Background

On February 1, 2021, the U.S. International Trade Commission (“Commission”) gave notice, pursuant to section 751(c) of the Tariff Act of 1930, as amended (“the Act”),¹ that it had instituted a review to determine whether revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of material injury to a domestic industry.^{2 3} On May 20, 2021, the Commission determined that it would conduct a full review pursuant to section 751(c)(5) of the Act.⁴ The following tabulation presents information relating to the background and schedule of this proceeding:⁵

¹ 19 U.S.C. 1675(c).

² 86 FR 7743, February 1, 2021. All interested parties were requested to respond to this notice by submitting the information requested by the Commission.

³ In accordance with section 751(c) of the Act, the U.S. Department of Commerce (“Commerce”) published a notice of initiation of a five-year review of the subject antidumping duty order. 86 FR 7709, February 1, 2021.

⁴ 86 FR 27477, May 20, 2021. The Commission found that both the domestic and respondent interested party group responses to its notice of institution were adequate.

⁵ The Commission’s notice of institution, notice to conduct a full review, scheduling notice, and statement on adequacy are referenced in appendix A and may also be found at the Commission’s web site (internet address www.usitc.gov). Commissioners’ votes on whether to conduct an expedited or a full review may also be found at the web site. Appendix B presents the witnesses appearing at the Commission’s hearing.

Effective date	Action
January 31, 1984	Commerce's antidumping duty order on potassium permanganate from China (49 FR 3897, January 31, 1984)
November 24, 1999	Commerce's first continuation of the antidumping duty order on potassium permanganate from China (64 FR 66167, November 24, 1999)
June 21, 2005	Commerce's second continuation of the antidumping duty order on potassium permanganate from China (70 FR 35630, June 21, 2005)
October 25, 2010	Commerce's third continuation of the antidumping duty order on potassium permanganate from China (75 FR 65448, October 25, 2010)
March 18, 2016	Commerce's fourth continuation of the antidumping duty order on potassium permanganate from China (81 FR 14835, March 18, 2016)
February 1, 2021	Commission's institution of a five-year review (86 FR 7743, February 1, 2021)
February 1, 2021	Commerce's initiation of a five-year review (86 FR 7709, February 1, 2021)
May 7, 2021	Commission's determination to conduct a full five-year review (86 FR 27477, May 7, 2021)
June 7, 2021	Commerce's final results of an expedited five-year review of the antidumping duty order (86 FR 30256, June 7, 2021)
June 10, 2021	Commission's scheduling of the review (86 FR 32060, June 16, 2021)
October 5, 2021	Commission's hearing
November 5, 2021	Commission's vote
November 29, 2021	Commission's determination and views

The original investigation

The original investigation resulted from a petition filed on February 22, 1983, with Commerce and the Commission by Carus Chemical Co., La Salle, Illinois.⁶ On December 29, 1983, Commerce determined that imports of potassium permanganate from China were being sold at less than fair value (“LTFV”).⁷ The Commission determined on January 20, 1984, that the domestic industry was materially injured by reason of LTFV imports of potassium permanganate from China.⁸ On January 31, 1984, Commerce issued its antidumping duty order with the final weighted-average dumping margins of 39.63 for China National Chemicals Import and Export Corp. (SINOCHEM) and for all others.⁹

The first five-year review

On February 4, 1999, the Commission determined that it would conduct a full review of the antidumping duty order on potassium permanganate from China.¹⁰ On April 7, 1999, Commerce determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of dumping.¹¹ On October 27, 1999, the Commission determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time.¹² Following affirmative

⁶ Potassium Permanganate from the People’s Republic of China, Inv. No. 731-TA-125 (Final), USITC Publication 1480, January 1984 (“Original publication”), p. A-1 and 48 FR 39519, August 31, 1983. The petition was also filed with respect to U.S. imports of potassium permanganate from Spain (Inv. No. 731-TA-126).

⁷ 48 FR 57347, December 29, 1983. On November 28, 1983, Commerce also determined that imports of potassium permanganate from Spain were being sold at less than fair value. 48 FR 53589, November 28, 1983.

⁸ 49 FR 3148, January 25, 1984. On January 5, 1984, the Commission also determined that the domestic industry was materially injured by reason of LTFV imports of potassium permanganate from Spain. 49 FR 1436, January 11, 1984.

⁹ 49 FR 3897, January 31, 1984. On January 19, 1984, Commerce also issued an antidumping duty order on potassium permanganate from Spain. 49 FR 2277, January 19, 1984.

¹⁰ 64 FR 9177, February 24, 1999. The Commission also determined that it would conduct a full review of the antidumping duty order on potassium permanganate from Spain. *Ibid.*

¹¹ 64 FR 16907, April 7, 1999. Commerce also determined that revocation of the antidumping duty order on potassium permanganate from Spain would be likely to lead to continuation or recurrence of dumping. 64 FR 16904, April 7, 1999.

¹² 64 FR 60225, November 4, 1999. The Commission further determined that revocation of the antidumping duty order on potassium permanganate from Spain would not be likely to lead to

(continued...)

determinations in the five-year reviews by Commerce and the Commission, effective November 24, 1999, Commerce issued a continuation of the antidumping duty order on imports of potassium permanganate from China.¹³

The second five-year review

On January 4, 2005, the Commission determined that it would conduct an expedited review of the antidumping duty order on potassium permanganate from China.¹⁴ On May 10, 2005, Commerce determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of dumping.¹⁵ On May 31, 2005, the Commission determined that revocation of the order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.¹⁶ Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective June 21, 2005, Commerce issued a continuation of the antidumping duty order on imports of potassium permanganate from China.¹⁷

The third five-year review

On August 6, 2010, the Commission determined that it would conduct an expedited review of the antidumping duty order on potassium permanganate from China.¹⁸ On August 26, 2010, Commerce determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of dumping.¹⁹ On September 30, 2010, the Commission determined that revocation of the order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.²⁰ Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective October 25, 2010, Commerce issued a

(...continued)

continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.

¹³ 64 FR 66166, November 24, 1999. Commerce also revoked the antidumping duty order concerning potassium permanganate from Spain, effective January 1, 2000. 64 FR 66167, November 24, 1999.

¹⁴ 70 FR 2428, January 13, 2005.

¹⁵ 70 FR 24520, May 10, 2005.

¹⁶ 70 FR 32372, June 2, 2005.

¹⁷ 70 FR 35630, June 21, 2005.

¹⁸ 75 FR 51112, August 18, 2010.

¹⁹ 75 FR 52509, August 26, 2010.

²⁰ 75 FR 63856, October 18, 2010.

continuation of the antidumping duty order on imports of potassium permanganate from China.²¹

The fourth five-year review

On December 7, 2015, the Commission determined that it would conduct an expedited review of the antidumping duty order on potassium permanganate from China.²² On January 7, 2016, Commerce determined that revocation of the antidumping duty order on potassium permanganate from China would be likely to lead to continuation or recurrence of dumping.²³ On February 2, 2016, the Commission determined that revocation of the order would be likely to lead to continuation or recurrence of material injury to an industry in the United States within a reasonably foreseeable time.²⁴ Following affirmative determinations in the five-year reviews by Commerce and the Commission, effective March 18, 2016, Commerce issued a continuation of the antidumping duty order on imports of potassium permanganate from China.²⁵

²¹ 75 FR 65448, October 25, 2010.

²² 80 FR 79097, December 18, 2015.

²³ 81 FR 741, January 7, 2016.

²⁴ 81 FR 6538, February 8, 2016.

²⁵ 81 FR 14835, March 18, 2016.

Previous and related investigations

Potassium permanganate has not been the subject of any prior related antidumping or countervailing duty investigations in the United States. However, in November 1984, the Commission instituted investigation No. TA-201-54, under section 201(b)(1) of the Trade Act of 1974, to determine whether potassium permanganate was being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. The investigation was instituted following the receipt of a petition for import relief filed on behalf of Carus. In April 1985 the Commission issued a negative determination, with the Commission majority noting that “(w)e find at least one cause of injury, the loss of the domestic industry's major customer, Chemagro, to be a more important cause of injury than increased imports.”²⁶

Summary data

Table I-1 presents a summary of data from the original investigations, prior reviews, and the current full five-year review, and table I-2 and figure I-1 presents U.S. producer U.S. shipments and U.S. imports during 2015-20.

Apparent U.S. consumption by quantity has increased by *** percent since the final full year of the original investigation, while apparent U.S. consumption by value has increased by *** percent. The U.S. producer's share of apparent U.S. consumption in terms of quantity is *** percentage points higher while the U.S. producer's share in terms of value is *** percentage points lower since the final year of the original investigation. U.S. industry capacity has decreased by *** percent during this timeframe, while U.S. industry production has increased by *** percent. Total imports by quantity have decreased by *** percent, while total imports by value have increased by *** percent and total import unit values have increased by *** percent since the final year of the original investigation.

²⁶ Potassium Permanganate, Report to the President on Investigation No. TA-201-54 Under Section 201 of the Trade Act of 1974, USITC Publication 1682, April 1985, pp. 1-3 and I-11.

Table I-1
Potassium permanganate: Comparative data from the original investigations and subsequent reviews to-date

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound; shares in percent

Item	Measure	1982	1998	2003	2009	2014	2020
Apparent U.S. consumption	Quantity	***	***	***	***	***	***
U.S. producer's market share	Share of quantity	***	***	***	***	***	***
China market share	Share of quantity	***	***	***	***	***	***
Spain market share	Share of quantity	***	***	***	***	***	***
All other sources market share	Share of quantity	***	***	***	***	***	***
Import market share	Share of quantity	***	***	***	***	***	***
Apparent U.S. consumption	Value	***	***	***	***	***	***
U.S. producer's market share	Share of value	***	***	***	***	***	***
China market share	Share of value	***	***	***	***	***	***
Spain market share	Share of value	***	***	***	***	***	***
All other sources market share	Share of value	***	***	***	***	***	***
Import market share	Share of value	***	***	***	***	***	***
China imports/shipments	Quantity	588	2	---	---	48	---
China imports/shipments	Value	323	2	---	---	50	---
China imports/shipments	Unit value	0.55	1.00	---	---	1.04	---
Spain imports/shipments	Quantity	1,029	387	---	---	---	---
Spain imports/shipments	Value	704	476	---	---	---	---
Spain imports/shipments	Unit value	0.68	1.23	---	---	---	---
All other imports/shipments	Quantity	1,158	2,722	3,235	2,519	3,545	626
All other imports/shipments	Value	843	2,521	3,174	4,043	4,784	768
All other imports/shipments	Unit value	0.73	0.93	0.98	1.61	1.35	1.23
All import source imports/shipments	Quantity	1,746	2,724	3,235	2,519	3,545	1,605
All import source imports/shipments	Value	1,166	2,523	3,174	4,043	4,834	2,018
All import source imports/shipments	Unit value	0.67	0.93	0.98	1.61	1.36	1.26

Table continued on next page.

Table I-1—Continued

Potassium permanganate: Comparative data from the original investigations and subsequent reviews to-date

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound; shares in percent

Item	Measure	1982	1998	2003	2009	2014	2020
Capacity	Quantity	***	***	***	***	***	***
Production	Quantity	***	***	***	***	***	***
Capacity utilization	Ratio	***	***	***	***	***	***
Producer U.S. shipments	Quantity	***	***	***	***	***	***
Producer U.S. shipments	Value	***	***	***	***	***	***
Producer U.S. shipments	Unit value	***	***	***	***	***	***
Producer inventories	Quantity	***	***	***	***	***	***
Producer inventory ratio to total shipments	Ratio	***	***	***	***	***	***
Production workers (number)	Noted in label	***	***	***	***	***	***
Hours worked (in 1,000 hours)	Noted in label	***	***	***	***	***	***
Wages paid (1,000 dollars)	Value	***	***	***	***	***	***
Hourly wages (dollars per hour)	Value	***	***	***	***	***	***
Productivity (pounds per hour)	Noted in label	***	***	***	***	***	***

Table continued on next page.

Table I-1—Continued
Potassium permanganate: Comparative data from the original investigations and subsequent reviews to-date

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound; shares in percent

Item	Measure	1982	1998	2003	2009	2014	2020
Net sales	Quantity	***	***	***	***	***	***
Net sales	Value	***	***	***	***	***	***
Net sales	Unit value	***	***	***	***	***	***
Cost of goods sold	Value	***	***	***	***	***	***
Gross profit or (loss)	Value	***	***	***	***	***	***
SG&A expense	Value	***	***	***	***	***	***
Operating income or (loss)	Value	***	***	***	***	***	***
Unit COGS	Unit value	***	***	***	***	***	***
Unit operating income	Unit value	***	***	***	***	***	***
COGS/ Sales	Ratio	***	***	***	***	***	***
Operating income or (loss)/ Sales	Ratio	***	***	***	***	***	***

Source: Office of Investigations Staff Report INV-NN-087 (November 23, 2015) and INV HH-088 (September 2, 2010), from responses to Commission questionnaires, and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---". Each year represents the terminal year of a Commission proceeding: 1982, the original investigations; 1998, the first review; 2003, the second review; 2009, the third review; 2014, the fourth review; and 2020, this review, the fifth review.

Table I-2
Potassium permanganate: U.S. producer's U.S. shipments and U.S. importers' imports, 2015-20

Quantity in 1,000 pounds; shares in percent

Source	Measure	2015	2016	2017	2018	2019	2020
U.S. producer	Quantity	***	***	***	***	***	***
China	Quantity	---	40	---	42	---	---
Nonsubject sources	Quantity	2,001	1,583	2,059	3,166	2,734	1,605
All import sources	Quantity	2,001	1,622	2,059	3,208	2,734	1,605
All sources	Quantity	***	***	***	***	***	***
U.S. producer	Share	***	***	***	***	***	***
China	Share	***	***	***	***	***	***
Nonsubject sources	Share	***	***	***	***	***	***
All import sources	Share	***	***	***	***	***	***
All sources	Share	***	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Figure I-1
Potassium permanganate: U.S. producer's U.S. shipments and U.S. importers' imports, 2015-20

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

Statutory criteria

Section 751(c) of the Act requires Commerce and the Commission to conduct a review no later than five years after the issuance of an antidumping or countervailing duty order or the suspension of an investigation to determine whether revocation of the order or termination of the suspended investigation “would be likely to lead to continuation or recurrence of dumping or a countervailable subsidy (as the case may be) and of material injury.”

Section 752(a) of the Act provides that in making its determination of likelihood of continuation or recurrence of material injury--

(1) IN GENERAL.-- . . . the Commission shall determine whether revocation of an order, or termination of a suspended investigation, would be likely to lead to continuation or recurrence of material injury within a reasonably foreseeable time. The Commission shall consider the likely volume, price effect, and impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated. The Commission shall take into account--

(A) its prior injury determinations, including the volume, price effect, and impact of imports of the subject merchandise on the industry before the order was issued or the suspension agreement was accepted,

(B) whether any improvement in the state of the industry is related to the order or the suspension agreement,

(C) whether the industry is vulnerable to material injury if the order is revoked or the suspension agreement is terminated, and

(D) in an antidumping proceeding . . ., (Commerce’s findings) regarding duty absorption . . .

(2) VOLUME.--In evaluating the likely volume of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether the likely volume of imports of the subject merchandise would be significant if the order is revoked or the suspended investigation is terminated, either in absolute terms or relative to production or consumption in the United States. In so doing, the Commission shall consider all relevant economic factors, including--

(A) any likely increase in production capacity or existing unused production capacity in the exporting country,

(B) existing inventories of the subject merchandise, or likely increases in inventories,

(C) the existence of barriers to the importation of such merchandise into countries other than the United States, and

(D) 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.

(3) PRICE.--In evaluating the likely price effects of imports of the subject merchandise if the order is revoked or the suspended investigation is terminated, the Commission shall consider whether--

- (A) there is likely to be significant price underselling by imports of the subject merchandise as compared to domestic like products, and*
- (B) imports of the subject merchandise are likely to enter the United States at prices that otherwise would have a significant depressing or suppressing effect on the price of domestic like products.*

(4) IMPACT ON THE INDUSTRY.--In evaluating the likely impact of imports of the subject merchandise on the industry if the order is revoked or the suspended investigation is terminated, the Commission shall consider all relevant economic factors which are likely to have a bearing on the state of the industry in the United States, including, but not limited to--

- (A) likely declines in output, sales, market share, profits, productivity, return on investments, and utilization of capacity,*
- (B) likely negative effects on cash flow, inventories, employment, wages, growth, ability to raise capital, and investment, and*
- (C) likely negative effects on the existing development and production efforts of the industry, including efforts to develop a derivative or more advanced version of the domestic like product.*

The Commission shall evaluate all such relevant economic factors . . . within the context of the business cycle and the conditions of competition that are distinctive to the affected industry.

Section 752(a)(6) of the Act states further that in making its determination, “the Commission may consider the magnitude of the margin of dumping or the magnitude of the net countervailable subsidy. If a countervailable subsidy is involved, the Commission shall consider information regarding the nature of the countervailable subsidy and whether the subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement.”

Organization of report

Information obtained during the course of the reviews that relates to the statutory criteria is presented throughout this report. A summary of trade and financial data for potassium permanganate as collected in the review is presented in appendix C.

U.S. industry data are based on the questionnaire response of one U.S. producer of potassium permanganate that is believed to have accounted for all domestic production of potassium permanganate in 2020. U.S. import data and related information are based on Commerce’s official import statistics and the questionnaire responses of seven U.S. importers of potassium permanganate that are believed to have accounted for *** percent of the total

U.S. imports of potassium permanganate during 2020. Foreign industry data and related information are based on the questionnaire responses of one producer of potassium permanganate. The single responding producer in China estimated that it accounted for *** percent of total production and *** percent of China's exports of potassium permanganate. Responses by U.S. producer's, importers, purchasers, and foreign producers of potassium permanganate to a series of questions concerning the significance of the existing antidumping duty order and the likely effects of revocation of the order are presented in appendix D. Responses by U.S producers and importers concerning U.S. shipments by source, grade and period are presented in appendix E. U.S. imports, by source and year are presented in appendix F. The U.S. producer's and foreign producer's exports by grade and period are presented in appendix G.

Commerce's reviews²⁷

Administrative reviews

Commerce has completed seven antidumping duty administrative reviews with regard to subject imports of potassium permanganate from China.²⁸ The results of the administrative reviews are shown in table I-3.

²⁷ Commerce has not issued any duty absorption findings, any company revocations, or anti-circumvention findings since the imposition of the order.

²⁸ For previously reviewed or investigated companies not included in an administrative review, the cash deposit rate continues to be the company-specific rate published for the most recent period.

Table I-3**Potassium permanganate: Administrative reviews of the antidumping duty order for China**

Date results published	Period of review	Producer or exporter	Margin (percent)
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	China National Chemicals Import and Export Corporation and all other PRC producers	128.94
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Far Ocean Trading Company	128.94
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Go Up Company	39.63
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Hip Fung Trading Company	39.63
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	K L & Company	128.94
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Landyet Company, Ltd.	128.94
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Sam Wing International, Ltd	128.94
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Tin Sing Chemical Engineers, Ltd	39.63
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	Yue Pak Company, Ltd	128.94
May 23, 1994 (59 FR 26625)	January 1, 1990 – December 31, 1990	PRC	128.94
September 7, 2001 (66 FR 46775)	January 1, 1999 – December 31, 1999	Guizhou Provincial Chemical Imports & Export Corporation	107.32
April 29, 1991 (56 FR 19640)	January 1, 1989 – December 31, 1989	PRC	128.54
August 28, 2003 (68 FR 51765)	January 1, 2001 – December 31, 2001	PRC	128.94
August 19, 2015 (80 FR 50264)	January 1, 2013 – December 31, 2013	PRC	128.94
June 20, 2017 (82 FR 28044)	January 1, 2015- December 31, 2015	Pacific Accelerator	0.0

Source: Cited Federal Register notices.

Note: Subject imports rose to 892,000 pounds in 2002, when Groupstars Chemical Company, Ltd., exported product as a “new shipper” where its imports were secured through the posting of bonds rather than cash deposits. After an extended investigation, Commerce rescinded Groupstars’ “new shipper” status, thus ending its ability to import without cash deposits. There have sporadic imports of subject potassium permanganate since 2002. Potassium Permanganate from China, Inv. No. 731-TA-125 (Third Review), USITC Publication 4183, September 2010 (“Third review publication”) p. I-17. See also Commerce’s administrative review published in 68 FR 51785, August 28, 2003.

Changed circumstances reviews

Commerce has not conducted changed circumstances reviews with respect to potassium permanganate from China.

Scope rulings

Commerce has not conducted scope rulings with respect to potassium permanganate from China.

Five-year reviews

Commerce has issued the final results of its expedited review with respect to potassium permanganate from China.²⁹ Table I-4 presents the antidumping margins calculated by Commerce in its original investigation and subsequent reviews. In May of 1994, in the Final Results of the 1990 administrative review, the Department established a single a rate of 128.94 percent for all potassium permanganate of Chinese origin, whether shipped directly from China or through resellers in Hong Kong previously assigned the 39.53 margin.³⁰

Table I-4
Potassium permanganate: Commerce's original investigation and subsequent five-year review dumping margins for producers/exporters in China

Producer/exporter	Original margin (percent)	First five-year review margin (percent)	Second five-year review margin (percent)	Third five-year review margin (percent)	Fourth five-year review margin (percent)	Fifth five-year review margin (percent)
China National Chemicals Import and Export Corporation (SINOCHEM)	39.63	N/A	N/A	N/A	N/A	N/A
PRC wide	39.63	128.94	128.94	128.94	128.94	128.94

Source: 49 FR 38977, January 31, 1984; 64 FR 16907, April 7, 1999; 70 FR 24520, May 10, 2005; 75 FR 52509, August 26, 2010; 81 FR 741, January 7, 2016; 86 FR 30256, June 7, 2021.

²⁹ 86 FR 30256, June 7, 2021.

³⁰ 59 FR 26625, May 23, 1994.

The subject merchandise

Commerce's scope

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

*...potassium permanganate, an inorganic chemical produced in free-flowing, technical, and pharmaceutical grades.*³¹

Tariff treatment

Potassium permanganate is currently provided for in HTS subheading 2841.61.00, “potassium permanganate,” which covers only products in the scope of the review. Potassium permanganate imported from China enters the U.S. market at a column 1-general duty rate of 5.0 percent.³² Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

Effective September 24, 2018, potassium permanganate produced in China was subject to an additional 10 percent ad valorem duty under Section 301 of the Trade Act of 1974, as provided for in subheading 9903.88.03.³³ Effective May 10, 2019, this additional duty increased from 10 percent to 25 percent ad valorem.³⁴

The product

Description and applications³⁵

Potassium permanganate, or permanganate of potash, is the compound of manganese, potassium, and oxygen, which has the chemical formula KMnO_4 . It exists at room temperature as a crystalline solid and is soluble in water, acetone, and methanol. It is highly toxic by ingestion or inhalation, is a strong irritant to tissue, and is a fire risk when in contact with organic material due to its strength as an oxidizing agent.

³¹ 86 FR 30256, June 7, 2021.

³² *Harmonized Tariff Schedule of the United States (2021)*, Revision 7, USITC publication 5224, August 2021, Chapter 28, p. 28-5.

³³ 83 FR 47974, September 21, 2018.

³⁴ 84 FR 20459, May 9, 2019; *Harmonized Tariff Schedule of the United States (2021)*, Revision 7, USITC publication 5224, August 2021, Chapter 99, footnotes 20(e) and 20(f), pp. 99-III-23-24.

³⁵ Unless otherwise noted, this information is based on Potassium Permanganate from China, Inv. No. 731-TA-125 (Fourth Review), USITC Publication 4590, February 2016 (“Fourth review publication”), pp. I-3-6.

Potassium permanganate has three grades listed in the scope: free-flowing, technical, and USP or pharmaceutical grade (high purity).³⁶ Each grade has the same chemical formula and is available in a variety of particle sizes. Carus produces all three grades of potassium permanganate at the same facility.

Technical grade product must be at least 97 percent potassium permanganate by weight, although much of the technical grade has a higher assay of 99 percent. The free-flowing grade is produced by adding an anticaking agent to the technical grade, preventing the particles from sticking together when in contact with moisture.³⁷ As a result of the addition of the anticaking agent, the free-flowing grade is slightly less concentrated than the technical or pharmaceutical grades. The minimum assay is 95 percent, but the product is usually assayed at 97 to 98 percent. Free-flowing grade has been used because it is easier to put into a feeder. Pharmaceutical grade product must be at least 99 percent potassium permanganate by weight to conform with the requirements specified in the United States Pharmacopeia (“U.S.P.”) and the British Pharmacopeia (“B.P.”). Pharmaceutical grade, typically 99.9 percent pure, usually requires more testing than other grades and requires recrystallization to remove additional impurities or to meet customer specifications. Consequently, the production cost and price of the pharmaceutical grade are higher than those of the technical and free-flowing grades.³⁸

The major application of potassium permanganate is in purification of water, and that end use, as discussed in the past reviews, remains a substantial end use.³⁹ All three grades can be used in water and wastewater treatment, the primary uses for potassium permanganate in the U.S. market, but customers that use a dry chemical feeder to inject the chemical into water typically use the free-flowing grade. As reported during the first (and only prior) full five-year review, potassium permanganate is used principally as an oxidizing agent in the following applications:

³⁶ ***. U.S. producer questionnaire, section II-5; Email from ***, August 30, 2021.

³⁷ The chemical name of the anticaking agent used by Carus is silica. This is ***. Carus’s posthearing brief, p.4 and Response #1, Answers to Additional Staff Questions; Respondent’s posthearing brief, Attachment 1, pp. 12-13.

³⁸ ***. Email from ***, September 20, 2021.

³⁹ Grandview Research, [“Potassium Permanganate Market Size, Share & Trends Analysis Report by Application, Regional Outlook, Competitive Strategies, And Segment Forecasts, 2019 To 2025,”](#) accessed October 15, 2021; IMARC Group, [“North America Potassium Permanganate Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2020-2025,”](#) accessed October 15, 2021; Vukovic, [“Potassium Permanganate: 5 Surprising Survival Uses,”](#) June 11, 2021; Yu et al., [“Hazardous Waste Treatment Technologies \(a review\),”](#) *Water Environmental Research*, September 28, 2020.

1. Municipal water treatment: Removes iron, manganese, and hydrogen sulfide; eliminates taste, odor, and color; and controls algae growth. Other applications for potassium permanganate are as a substitute for prechlorination to prevent the formation of trihalomethane ("THM"), a possible carcinogen, and as an inhibitor of zebra mussel attachment.
2. Wastewater treatment:
 - (a) Municipal: Oxidizes organic and inorganic contaminants, removes toxic and corrosive hydrogen sulfide from sanitary sludge, deodorizes wastewater streams, and dewateres sludge; and
 - (b) Industrial: Removes soluble iron and manganese from acid mine wastes, removes hydrogen sulfide from sludge, and dewateres sludge; controls phenol and other industrial pollutants.
3. Chemical manufacture and processing: Aids in synthesis of organic products for the chemical process and pharmaceutical industries.
4. Aquaculture (fish farming): Controls fish diseases and parasites. Detoxifies poisons while relieving oxygen depletion in fishponds.
5. Metal processing: Removes oxides, mill scale, and carbon residues on steel.
6. Air and gas purification: Removes pollutants from air and impurities from industrial gases, and quenches slag from foundry operations.

In addition to the above applications, potassium permanganate is used as a decoloring and bleaching agent in the textile and tanning industries, as an oxidizer in the decontamination of radioactive wastes, as an aid in flotation processes used in mining, in cleaning printed circuit boards, and in numerous other applications.

As reported during the first five-year review, there were no products that competed with potassium permanganate over the complete range of its applications.⁴⁰ However, there are competing products or alternative processes for specific end uses. Substitutes for potassium permanganate in drinking water and wastewater treatment include activated carbon, hydrogen peroxide, ozone, chlorine, iron salts, and nitrates. For example, growth of the use of potassium

⁴⁰ Sodium permanganate can be used in applications where potassium permanganate is used but is more expensive than potassium permanganate. Potassium permanganate is a raw material in the production of sodium permanganate.

permanganate in potable water was significantly curtailed because of competition from other oxidants, especially ozone and hydrogen peroxide. However, increasingly stringent environmental and safety regulations resulted in increased consumption of potassium permanganate for certain applications.

In this current review, Carus reports that municipal water and wastewater treatment are the primary uses for potassium permanganate consumption in the United States, accounting for an estimated *** percent of demand in 2020, similar to levels of *** percent in 1999 and 2005, *** percent in 2009, and *** percent in 2014.⁴¹

Data reported by purchasers indicated the following shares by end use in 2020: industrial and municipal water treatment (36.1 percent), industrial and municipal wastewater treatment (22.8 percent), treatment of oil and gas well produced water (17.0 percent), air and gas purification (11.0 percent), chemical manufacture and processing (3.6 percent), remediation (1.7 percent), metal processing (0.3 percent), and other uses (7.5 percent).⁴²

Potassium permanganate and its downstream product, sodium permanganate, are currently regulated by the Drug Enforcement Administration (DEA) under the Controlled Substances Act (CSA) because they are used in the purification of cocaine. Handlers of both of those chemicals are subject to chemical regulatory controls including recordkeeping, reporting, and import/export requirements.⁴³ Respondent Changyuan states that due to regulations on

⁴¹ Carus's response to the notice of institution, p. 22.

⁴² Responding purchasers accounted for about one-third of apparent U.S. consumption in 2020 and *** of apparent U.S. consumption excluding Carus's internal consumption so these share data may not be fully representative of the U.S. market.

Two of the 13 purchasers that submitted questionnaire responses reported purchasing imported product in 2020. One of these firms, ***, reported that its end use was *** and the other, ***, reported that its end use was ***.

⁴³ Both chemicals are DEA List II chemicals. Department of Justice (DOJ), the Drug Enforcement Administration (DEA), "[Title 21 Code of Federal Regulations \(CFR\): Part 1310: Records and Reports of Listed Chemicals and Certain Machines](#)," accessed October 15, 2021; DOJ, DEA, "[Title 21 CFR: Part 1313: Importation and Exportation of List I and List II Chemicals](#)," accessed October 15, 2021; [71 FR 60823](#), October 17, 2006; DOJ, DEA, "[Lists of Scheduling Actions, Controlled Substances, Regulated Chemicals](#)," August 2021. Effective December 18, 2006, a rulemaking was finalized for control of sodium permanganate. As a List II chemical, handlers of sodium permanganate shall be subject to Controlled Substances Act (CSA) chemical regulatory controls including recordkeeping, reporting, and import/export requirements. The DEA determined that these controls are necessary to prevent the diversion of this chemical to cocaine laboratories.

both importation (in the United States by the DEA) and exportation (by the Chinese Ministry of Public Security), it is difficult to export product from China to the United States.⁴⁴

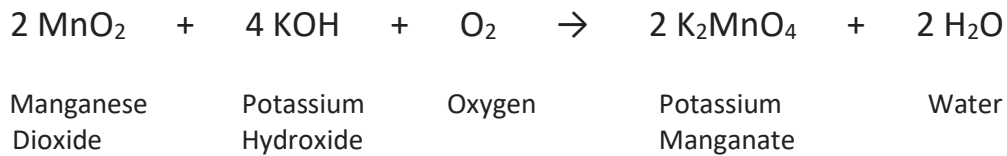
Manufacturing processes

Potassium permanganate is manufactured by the oxidation of potassium manganate (K_2MnO_4), which is prepared by the fusion of pyrolusite (black manganese dioxide) and potassium hydroxide. The manganese ion in potassium manganate is oxidized to potassium permanganate, as shown in figure I-2.⁴⁵

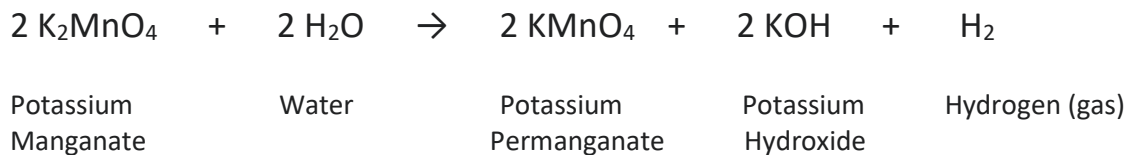
⁴⁴ Hearing transcript, pp. 127-128 (Tam); Respondent interested party's prehearing brief, p. 49; Respondent interested party's posthearing brief, p. 7, footnote 22. Carus states that regulations are not a significant barrier to entry into the U.S., as it contends that importers are used to complying with regulations. Hearing transcript, p. 26 (Frasco); Carus's posthearing brief, Response 1, answer to Question 3, p. 8.

⁴⁵ Both domestic interested party Carus and respondent interested party Changyuan confirm that this is the chemical reaction used in the manufacturing of potassium permanganate. Email from ***, July 29, 2021 and ***, July 26, 2021.

Figure I-2
Potassium permanganate: Chemical reaction for the manufacturing process of potassium permanganate



Potassium manganate is then converted into permanganate by electrolytic oxidation in alkaline media:



The commercial manufacturing process used in the United States is:

- Oxidation at high temperature of potassium hydroxide (KOH) and manganese dioxide (MnO₂ or manganese ore) to produce potassium manganate.
- Continuous electrolysis of a solution of potassium manganate with continuous crystallization, resulting in the production of potassium permanganate and the byproducts potassium hydroxide and hydrogen gas.
- Crystallization of the potassium permanganate out of the solution.⁴⁶

As of the first review and as of this current fifth review, the production process used by Carus ***.⁴⁷

During this current review, respondent interested party Changyuan stated that Carus’s manufacturing process results in a higher quality product.⁴⁸ Changyuan describes its

⁴⁶ This is the current commercial manufacturing process for this fifth review period. Email from ***, September 14, 2021.

⁴⁷ Potassium Permanganate from China and Spain, Inv. Nos. 731-TA -125-126 (Review), USITC Publication 3245, October 1999 (“First review publication”), pp. I-10-11. Processes are current as of this fifth review. Email from ***, September 14, 2021.

⁴⁸ Respondent interested parties’ response to the notice of institution, p. 9. At the hearing, Changyuan stated its technical grade product is the same as the technical grade product of Carus;

(continued...)

manufacturing process for free-flowing grade as leading to an output product that has irregular needle shapes compared to Carus's spherical shapes.⁴⁹ Changyuan states their manufacturing process is different because ***.⁵⁰ Carus reports that the parameters of dustiness, crystal shape, and bulk density ***.⁵¹ Changyuan states that its anticaking agent within its free-flowing grade product degrades in transit; however, Carus states the Chinese ship to other countries, and data shows ***.⁵² American Water Works Association's B603 was mentioned as the standard for water municipalities, and Carus contends that Changyuan's brochures are stated to meet that standard.⁵³

Figure I-3 is a schematic of the manufacturing process of different grades. The manufacturing process for the addition of the anticaking agent to the technical grade material ***.⁵⁴

(...continued)

however, in its posthearing brief, Changyuan states that technical grade potassium permanganate is elongated and needle-shaped, not spherically shaped like Carus' potassium permanganate, and it has ***. Hearing transcript, p. 172 (Tam); Respondent interested party's posthearing brief, p. 5. Whether needle or sphere shaped solid, the primary end use will be to dissolve in water for water treatment processes.

⁴⁹ Hearing transcript, p. 111 (Mohan).

⁵⁰ Respondent interested parties posthearing brief, Attachment 1, pp. 1-7.

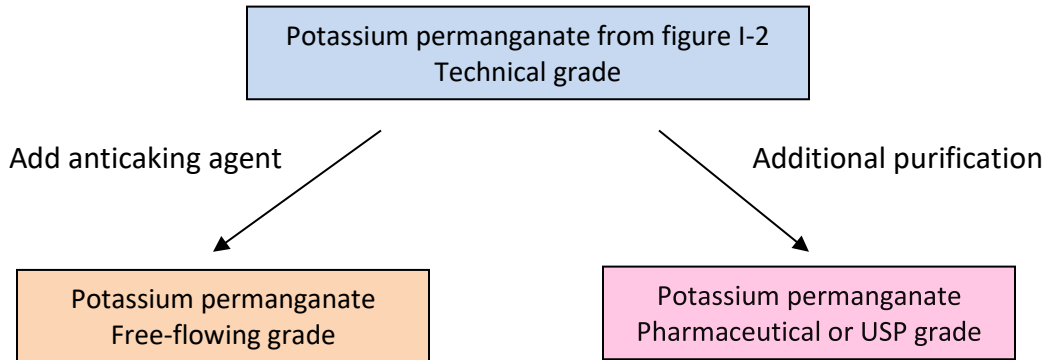
⁵¹ Carus's posthearing brief, Carus's posthearing brief, Response #1, Answers to Additional Staff Questions.

⁵² Hearing transcript, pp. 148-149 (Tam); p. 26 (Frasco); Changyuan submitted data on its potassium permanganate product. Respondent interested parties posthearing brief, Exhibit 11.

⁵³ Hearing transcript, p. 35 (Klett); Respondent parties posthearing brief, Exhibit 10.

⁵⁴ The manufacturing process of adding the anticaking agent ***. Carus's posthearing brief, Response #1, Answers to Additional Staff Questions; Respondent's posthearing brief, Attachment 1, pp. 12-13.

Figure I-3
Potassium permanganate: Manufacturing process of potassium permanganate for different grades

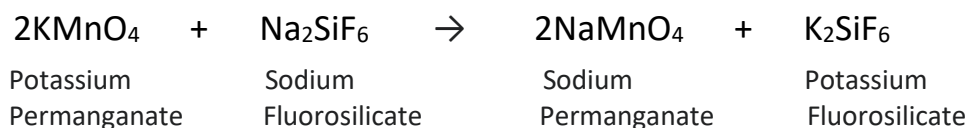


Source: Based on hearing transcript, pp. 27 (Frasco), 36-37 (Klett); First Review; Carus's posthearing brief, p. 4.

Carus internally consumes some of its potassium permanganate product to produce sodium permanganate. The chemical reaction for Carus’s process is shown in figure I-4.⁵⁵ Certain Chinese companies produce sodium permanganate. For the Chinese firm Changyuan, sodium permanganate is not produced using the same equipment or same line. Changyuan states that its workers are dedicated to their position and not shared.⁵⁶ Carus states that potassium permanganate can be used as an input for the production of sodium permanganate, but sodium capacity is limited to the amount of specific capacity in the sodium facility.⁵⁷ For Carus, potassium permanganate is shipped by pipeline to a separate adjacent facility to produce sodium permanganate.⁵⁸

Figure I-4

Potassium permanganate: Chemical reaction utilized by U.S. producer Carus for the manufacturing process of sodium permanganate from potassium permanganate



⁵⁵ Carus confirms that this is the chemical reaction used in the manufacturing of sodium permanganate. Email from ***, July 29, 2021. Respondent Changyuan states that it ***. Email from ***, July 26, 2021.

⁵⁶ ***. Email from ***, July 26, 2021.

⁵⁷ Email from ***, July 29, 2021.

⁵⁸ Email from ***, July 29, 2021 and September 1, 2021.

Domestic like product issues

The domestic like product is defined as the domestically produced product or products which are like, or in the absence of like, most similar in characteristics and uses with, the subject merchandise. The domestic industry is defined as the U.S. producers as a whole of the domestic like product, or those producers whose collective output of the domestic like product constitutes a major proportion of the total domestic production of the product. Under the related parties provision, the Commission may exclude a U.S. producer from the domestic industry for purposes of its injury determination if “appropriate circumstances” exist.⁵⁹

In its original determination, its full first five-year review determination, and its expedited second, third, and fourth five-year review determinations, the Commission defined a single domestic like product as potassium permanganate, coextensive with Commerce’s scope. In its original determination, its full first five-year review determination, and its expedited second, third, and fourth five-year review determinations, the Commission defined the domestic industry as all domestic producers of potassium permanganate.⁶⁰ In their responses to the Commission's notice of institution, the interested parties indicated that they agreed with the Commission's definition of the domestic like product and domestic industry.⁶¹

U.S. market participants

U.S. producers

During the final phase of the original investigation, the Commission received a U.S. producer questionnaire from Carus, the petitioner and sole producer of potassium permanganate in the United States during 1982.⁶² During the first five-year review, the Commission received a U.S. producer questionnaire from Carus, which accounted for 100 percent of production of potassium permanganate in the United States during 1998.⁶³ During the subsequent five-year reviews, Carus was the domestic interested party in each proceeding

⁵⁹ Section 771(4)(B) of the Tariff Act of 1930, 19 U.S.C. § 1677(4)(B).

⁶⁰ 86 FR 7743, February 1, 2021.

⁶¹ Carus’s response to the notice of institution, p. 8. ***. Pal and Changyuan’s response to the notice of institution, p. 20. ***.

⁶² Original publication, p. 7, n. 16.

⁶³ First review publication, p. III-1.

and continued to be the only known and currently operating U.S. producer of potassium permanganate in the United States during 2003, 2009, 2014, and 2020.⁶⁴

Carus accounts for all U.S. production of potassium permanganate. Details regarding Carus’s production location, share of 2020 potassium permanganate production, and position on continuation of the order are presented in table I-5.

Table I-5
Potassium permanganate: U.S. producer, positions on order, U.S. production locations, and share of 2020 reported U.S. production

Firm	Position on order	Production location(s)	Share of production
Carus	***	LaSalle, IL Peru, IL	***

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

Table I-6 presents information on U.S. producer’s ownership and related and affiliate firms. Carus is not related to foreign producers of the subject merchandise and is not related to U.S. importers of the subject merchandise.

Table I-6
Potassium permanganate: U.S. producers’ ownership, related and/or affiliated firms

Reporting firm	Relationship type and related firm	Details of relationship
Carus	***	***

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

⁶⁴ Potassium Permanganate from China, Inv. No. 731-TA -125 (Second Review), USITC Publication 3778, June 2005 (“Second review publication”), p I-3, n. 2; Potassium Permanganate from China, Inv. No. 731-TA-125 (Third Review), USITC Publication 4183, September 2010 (“Third review publication”) p. I-3, n. 4; Fourth review publication, p. I-2; and domestic interested party’s response to the notice of institution, March 3, 2021, p. 6.

U.S. importers

During the final phase of the original investigation, the Commission sent U.S. importer questionnaires to 14 firms that accounted for 100 percent of total U.S. imports of potassium permanganate from China and Spain during 1982.⁶⁵ During the first five-year review, the Commission received U.S. importer questionnaires from four firms, one of which accounted for all U.S. imports of potassium permanganate from China during 1998.⁶⁶ Import data presented in both proceedings were based on official Commerce statistics and questionnaire responses. The Commission did not receive responses from any respondent interested parties in its second, third, and fourth reviews and thus the import data presented in these proceedings were based on official Commerce statistics.⁶⁷

In the current proceedings, the Commission issued U.S. importers' questionnaires to 15 firms believed to be importers of potassium permanganate, as well as to the U.S. producer of potassium permanganate. Usable questionnaire responses were received from seven firms, that are believed to have accounted for *** percent of the total U.S. imports from nonsubject sources. Table I-7 lists all responding U.S. importers of potassium permanganate from China and other sources, their locations, and their shares of U.S. imports in 2020 (a year in which there were no imports of potassium permanganate from China).⁶⁸

⁶⁵ Potassium Permanganate from Spain, Inv. No. 731-TA-126 (Final), USITC Publication 1474, January 1984, p. A-24. During January 1981-June 1983 there were eight importers of potassium permanganate from China. Investigation Nos. 731-TA-125-126 (Final): Potassium Permanganate from China and Spain, Confidential Report, INV-G-226, December 14, 1983, as supplemented in INV-H-004, January 6, 1984 ("Original confidential report"), p. A-13.

⁶⁶ First review publication, p. I-12.

⁶⁷ Second review publication, p. I-13; Third review publication, p. I-15; Fourth review publication, p. I-12.

⁶⁸ ***.

Table I-7

Potassium permanganate: U.S. importers, source(s) of imports, U.S. headquarters, and shares of imports in 2020

Shares in percent

Firm	Headquarters	China	Nonsubject sources	All import sources
Brintel	Phoenix, AZ	***	***	***
Carus	Peru, IL	***	***	***
Marubeni	Harrison, NY	***	***	***
Shannon	Malvern, PA	***	***	***
UMC	Lyndhurst, NJ	***	***	***
Valudor	Encintas, CA	***	***	***
Wintersun	Ontario, CA	***	***	***
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.
***.

U.S. purchasers

The Commission received 13 usable questionnaire responses from firms that have purchased potassium permanganate since January 1, 2015.⁶⁹ Nine responding purchasers are end users, three are distributors, and one is other (***). Responding end users include municipalities and others that use potassium permanganate for water and wastewater treatment, as well as ***. The largest responding purchasers of potassium permanganate were ***.

⁶⁹ Twelve of the 13 responding purchasers reported purchasing domestic potassium permanganate in 2020, including one that also reported purchasing imports from India in 2020. ***.

Apparent U.S. consumption

Data concerning apparent U.S. consumption of potassium permanganate are shown in table I-8 and figure I-5. Apparent U.S. consumption by quantity decreased by *** percent during 2018-20 but was *** percent higher in January-June 2021 than in January-June 2020. Apparent U.S. consumption by value decreased by *** percent during 2018-20 but was *** percent higher in January-June 2021 than in January-June 2020.

Table I-8
Potassium permanganate: Apparent U.S. consumption, by period

Quantity in 1,000 pounds; value in 1,000 dollars

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers: Internal consumption and transfers	Quantity	***	***	***	***	***
U.S. producers: Commercial U.S. shipments	Quantity	***	***	***	***	***
U.S. producers: U.S. shipments	Quantity	***	***	***	***	***
China	Quantity	42	---	---	---	---
Nonsubject sources	Quantity	3,166	2,734	1,605	626	989
All import sources	Quantity	3,208	2,734	1,605	626	989
All sources	Quantity	***	***	***	***	***
U.S. producers: Internal consumption and transfers	Value	***	***	***	***	***
U.S. producers: Commercial U.S. shipments	Value	***	***	***	***	***
U.S. producers: U.S. shipments	Value	***	***	***	***	***
China	Value	45	---	---	---	---
Nonsubject sources	Value	3,997	3,410	2,018	768	1,157
All import sources	Value	4,042	3,410	2,018	768	1,157
All sources	Value	***	***	***	***	***

Source: Compiled from data submitted in response to Commission questionnaires and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series. Value data are based on landed duty paid values.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Figure I-5
Potassium permanganate: Apparent U.S. consumption, by quantity, by period

* * * * *

Source: Compiled from data submitted in response to Commission questionnaires and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

U.S. market shares

U.S. market share data are presented in table I-9. U.S. producer Carus's market share increased by *** percentage points during 2018-20 but was *** percentage points lower in January-June 2021 than in January-June 2020. Subject imports' market share decreased by *** percentage points during 2018-20. There were no subject imports from 2019 to June 2021. Nonsubject imports' market share decreased by *** percentage points from 2018 to 2020 but was *** percentage points higher in January-June 2021 than in January-June 2020.

Table I-10 and table I-11 and figure I-6 presents data by grade.⁷⁰ ***.

⁷⁰ Additional data by grade are presented in appendix E.

Table I-9
Potassium permanganate: Market shares, by period

Share in percent

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. producers: Internal consumption and transfers	Share of quantity	***	***	***	***	***
U.S. producers: Commercial U.S. shipments	Share of quantity	***	***	***	***	***
U.S. producers: U.S. shipments	Share of quantity	***	***	***	***	***
China	Share of quantity	***	***	***	***	***
Nonsubject sources	Share of quantity	***	***	***	***	***
All import sources	Share of quantity	***	***	***	***	***
All sources	Share of quantity	***	***	***	***	***
U.S. producers: Internal consumption and transfers	Share of value	***	***	***	***	***
U.S. producers: Commercial U.S. shipments	Share of value	***	***	***	***	***
U.S. producers: U.S. shipments	Share of value	***	***	***	***	***
China	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 and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series. Value data are based on landed duty paid values.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

Table I-10**Potassium permanganate: Share of U.S. producer's and U.S. importers' U.S. shipments within source, and share of Chinese producer's total shipments, by grade, 2020**

Share in percent

Source	Free-flowing	Technical	Pharmaceutical	Other	All grades
U.S. producer	***	***	***	***	***
China	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
All sources	***	***	***	***	***
China producer	***	***	***	***	***

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

Table I-11**Potassium permanganate: Share of U.S. producer's and U.S. importers' U.S. shipments, by grade, 2020**

Share in percent

Source	Free-flowing	Technical	Pharmaceutical	Other	All grades
U.S. producer	***	***	***	***	***
China	***	***	***	***	***
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 I-6
Potassium permanganate: U.S. producer's and U.S. importers' U.S. shipments by grade, and total shipments by Chinese producer Changyuan by grade

* * * * *

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

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

U.S. market characteristics

The U.S. industry has consisted of one U.S. producer, Carus, since the original investigation. Carus reported slightly lower capacity in 2020 (***) pounds) than it did in the original investigation (***) pounds).¹ Capacity in China has grown substantially since the original investigation, with a large portion of that production consumed in the Chinese home market.² At the time of the original investigation, Spain held a larger share of the U.S. market than did China (see table I-1).³

As discussed in Part I, there are different grades of potassium permanganate. Free-flowing grade is the most common grade sold in the U.S. market. Carus markets its potassium permanganate under its global Cairox brand, and advertises free-flowing grade, technical grade, as well as an ACS reagent grade on its website.⁴ On its website, it recommends the free-flowing grade for high-humidity conditions and where the product is dry fed or stored in a bin or

¹ Original investigation confidential report, p. A-18.

² Capacity in China was reported to be ***) pounds during the original investigation. Original investigation report, p. A-16. Carus estimates that capacity in China was ***) pounds in 2020. Carus's posthearing brief, exhibit 2. Chinese producer Changyuan reported that its capacity in 2020 was ***) pounds. It reported that ***) percent of its shipments were to the Chinese home market in 2020.

³ The original antidumping investigation involved imports from China and Spain. The order on Spain was revoked by Commerce on January 1, 2000, following a Commission determination that revocation of the antidumping duty order on potassium permanganate from Spain 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.

According to the European Commission, the Spanish producer of potassium permanganate was purchased in August 2000 from Industrial Química del Nalón by Carus. The European Commission concluded that, absence of any production during July 1, 2003 to June 30, 2004, the company could no longer be considered as a Community producer (and cited the closure of production in its repeal of the antidumping duty order on potassium permanganate from China). "Notice concerning the anti-dumping measures in force on imports of potassium permanganate originating in the People's Republic of China," May 5, 2005, https://trade.ec.europa.eu/tdi/case_history.cfm?id=292&init=292; Water & Wastes Digest, "Carus Chemical Purchases Industrial Química del Nalón," December 28, 2000, <https://www.wwdmag.com/carus-chemical-purchases-industrial-quimica-del-nalon>.

⁴ Carus also sells potassium permanganate under the brand name Aquox, which is manufactured exclusively for the Europe, Middle East, and Africa markets. Carus's website, <https://www.carusllc.com/industrial/products>.

hopper and it recommends the technical grade when the product is fed as a solution and where the particle size is not critical.

Water and wastewater treatment continue to be the major end uses for potassium permanganate, with Carus estimating that these uses accounted for *** percent of U.S. demand in 2020.⁵ Data reported by purchasers indicated the following shares by end use in 2020: industrial and municipal water treatment (36.1 percent), industrial and municipal wastewater treatment (22.8 percent), treatment of oil and gas well produced water (17.0 percent), air and gas purification (11.0 percent), chemical manufacture and processing (3.6 percent), remediation (1.7 percent), metal processing (0.3 percent), and other uses (7.5 percent).⁶

Both Carus and Changyuan also produce sodium permanganate, which is produced using potassium permanganate.⁷ Sodium permanganate is in liquid form whereas potassium permanganate is in crystal form. Sodium permanganate has many of the same end uses as potassium permanganate, including treatment of drinking water and wastewater.⁸ Changyuan stated that sodium permanganate is widely used in soil remediation and although it is also used in water treatment, this is not its primary use.⁹

Apparent U.S. consumption of potassium permanganate decreased by *** percent from 2018 to 2020 but was higher by *** percent in January-June 2021 compared to January-June 2020.

⁵ Carus's response to the notice of institution, pp. 11, 22.

⁶ Responding purchasers accounted for about one-third of apparent U.S. consumption in 2020 and *** of apparent U.S. consumption excluding Carus's internal consumption so these share data may not be fully representative of the U.S. market.

As noted in Part I, two of the 13 purchasers that submitted questionnaire responses reported purchasing imported product in 2020. One of these firms, ***, reported that its end use was *** and the other, ***, reported that its end use was ***.

⁷ As noted in Part I, Carus ships potassium permanganate by pipeline to a separate adjacent facility to produce sodium permanganate.

⁸ Carus website, <https://www.carusllc.com/water/products/our-carusol-line-of-sodium-permanganate>.

⁹ Changyuan's posthearing brief, attachment 2, p. 92.

Impact of section 301 tariffs

As discussed in Part I, potassium permanganate imported from China is subject to section 301 tariffs of 25 percent. Most responding U.S. firms (***, 5 of 6 importers, and 11 of 13 purchasers) reported either that the imposition of tariffs on Chinese-origin products under section 301 did not have an impact on the U.S. potassium permanganate market or that they did not know if there was an impact.¹⁰ Chinese producer Changyuan reported that the section 301 tariffs ***. Importer ***.

Channels of distribution

The U.S. producer Carus and importers shipped potassium permanganate to both distributors and end users (table II-1). Carus reported that *** of its U.S. shipments were to end users. ***.¹¹ The majority of import shipments from nonsubject countries were to distributors. None of the responding importers reported shipments of Chinese product.

Table II-1

Potassium permanganate: Share of U.S. shipments by source, channel of distribution, and period

Shares in percent

Channel	Source	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Share to distributors	United States	***	***	***	***	***
Share to end users	United States	***	***	***	***	***
Share to distributors	China	***	***	***	***	***
Share to end users	China	***	***	***	***	***
Share to distributors	Nonsubject	***	***	***	***	***
Share to end users	Nonsubject	***	***	***	***	***

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

¹⁰ These firms' responses likely reflect that subject imports have been effectively absent from the U.S. market and are subject to an antidumping duty rate of 128.94 percent.

¹¹ ***.

Carus sells both potassium permanganate and sodium permanganate to U.S. distributors. Distributors have an advantage in supplying smaller customers with limited storage space since the distributor can warehouse the product for the customer and also because they sell other products. Carus has different agreements with its distributors; some are exclusive while some of its distributors may also buy imported product “from time to time.”¹² Bids to municipalities for Carus product are made both directly by Carus as well as by distributors of Carus’s product, and multiple distributors of Carus product may compete for the same bid.¹³

Distributors of imported potassium permanganate include Chemrite and Shannon, which both sell potassium permanganate imported from India as well as selling sodium permanganate produced by Changyuan.¹⁴

Geographic distribution

Carus reported selling potassium permanganate to *** regions in the United States. For the U.S. producer, *** percent of sales were within 100 miles of its production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. No data were reported for subject imports.

Supply and demand considerations

U.S. supply

Table II-2 provides a summary of the supply factors regarding potassium permanganate from U.S. producer Carus and the responding Chinese producer Changyuan. Changyuan reported a *** capacity to produce potassium permanganate than Carus, ***. Actual capacity in China is higher than shown in the table since there are several other producers in China that did not respond to the Commission’s questionnaire.

***. According to estimates by Carus, China is the largest worldwide producer of potassium permanganate and accounts for *** percent of world

¹² Hearing transcript, pp. 81-83 (Frasco).

¹³ Hearing transcript, p. 42 (Carus).

¹⁴ Hearing transcript, pp. 86-87 (Klett).

capacity, with the United States accounting for *** percent, and additional capacity existing in India and Iran.¹⁵

Table II-2

Potassium permanganate: Supply factors that affect the ability to increase shipments to the U.S. market, by country

Quantity in 1,000 pounds; ratio and share in percent; share is share of total shipments

Factor	Measure	United States	China
Capacity 2018	Quantity	***	***
Capacity 2020	Quantity	***	***
Capacity utilization 2018	Ratio	***	***
Capacity utilization 2020	Ratio	***	***
Inventories to total shipments 2018	Ratio	***	***
Inventories to total shipments 2020	Ratio	***	***
Home market shipments 2020	Share	***	***
Non-US export market shipments 2020	Share	***	***
Ability to shift production (firms reporting “yes”)	Count	***	***

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

Note: The responding U.S. producer accounted for all of U.S. production of potassium permanganate in 2020. The responding foreign producer estimates that it accounted for *** percent of production of potassium permanganate in China during 2020. For additional data on the number of responding firms and their share of production in the United States and China, please refer to Part I, “Summary Data and Data Sources.”

Domestic production

Based on available information, the U.S. producer of potassium permanganate has the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of U.S.-produced potassium permanganate 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 shipments from alternate markets, and some inventories. Factors mitigating responsiveness of supply include ***.

U.S. capacity to produce potassium permanganate was ***. Capacity utilization decreased from 2018 to 2020 from ***

¹⁵ ***. Carus’s posthearing brief, exhibit 2.

percent to *** percent but was higher in interim 2021 (*** percent) than in interim 2020 (*** percent).

Exports comprised about *** percent of Carus's total shipments in 2020. Its principal export market ***.¹⁶ ***.

Carus reported that it is *** to switch production between potassium permanganate and other products using the same equipment and/or labor.

Subject imports from China

Based on available information, producers of potassium permanganate from China have the ability to respond to changes in demand with large changes in the quantity of shipments of potassium permanganate to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the large overall capacity, the availability of unused capacity, and the ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply include ***.

One Chinese producer, Changyuan, provided a usable questionnaire response. ***. Carus identified four producers in China and provided capacity estimates for these firms: Changyuan (*** metric tons ("MT")), Guangdong (*** MT), Jianshui (*** MT), and Groupstars (*** MT); for a total of *** capacity in China.¹⁷ ***

¹⁶ ***. Carus's posthearing brief, exhibit 1, response 1.

¹⁷ Carus's posthearing brief, exhibit 2.

*** that Groupstars has announced plans to increase capacity by ***. Changyuan reported that Groupstars has shut down its plant and dismantled its production equipment and that Groupstars's new production facility has not yet started production.¹⁸ Changyuan stated that it accounted for more than 98 percent of Chinese exports of potassium permanganate to all export markets from 2018 to June 2021.¹⁹

Changyuan reported lower capacity in 2020 than in 2018 but its capacity utilization rate was relatively constant at approximately *** percent. ***.

Changyuan reported that *** was its largest export market, but it also exported potassium permanganate to the ***.²⁰ ***

¹⁸ According to Changyuan, Groupstars's new production facility is devoted exclusively to technical grade product. Changyuan's posthearing brief, attachment 2, pp. 72-73.

¹⁹ It stated that Guandong and Jianshui sell only to the Chinese market. Changyuan's posthearing brief, p. 12; attachment 2, p. 75; and exhibit 16.

²⁰ ***.

Changyuan reported that it exported free-flowing grade during January 2018-June 2021 to ***. In 2020, its free-flowing grade exports totaled *** pounds, with *** going to the EU. Its free-flowing grade exports accounted for *** percent of its total exports and its free-flowing exports to the EU accounted for *** percent of its total exports to the EU. Changyuan stated that the major uses in Europe are textiles, zinc production, pharmaceuticals, and water treatment and that water treatment accounts for a smaller portion of the market than in the U.S. market. It stated that it does not compete with Carus in the free-flowing grade market in Europe for water treatment. Changyuan's posthearing brief, p. 12, exhibit 11, exhibit 14, and Changyuan's foreign producer questionnaire response.

***.

***, 21

Imports from nonsubject sources

Potassium permanganate from nonsubject sources accounted for virtually all of U.S. imports during January 2018-June 2021.²² The largest source of such imports was India, which accounted for 97.4 percent of the quantity of U.S. imports in 2020.

²¹ ***. Changyuan's posthearing brief, attachment 1, pp. 23, and exhibit 13A.

²² Imports of potassium permanganate from China were 42,000 pounds in 2018, and zero in 2019, 2020, and January-June 2021, according to official U.S. import statistics.

Regarding changes in the supply of imports from nonsubject sources, *** reported that imports from India have fluctuated since 2015 but declined from 2019 to 2020 because of the COVID-19 pandemic. *** reported that two additional non-Chinese producers are selling into the U.S. market and *** reported that freight conditions affected the supply of imports from nonsubject sources. *** reported that *** had affected the supply of nonsubject imports.

Supply constraints

Carus reported that *** supply constraints since January 1, 2015, ***. ***.

All but one importer reported no supply constraints. Importer ***. ***.

All 13 responding purchasers reported that no firm had refused, declined, or been unable to supply their firm with potassium permanganate since January 1, 2015.

New suppliers

All 13 responding purchasers reported that no new suppliers had entered the U.S. market since January 1, 2015.

U.S. demand

Based on available information, the overall demand for potassium permanganate is likely to experience small changes in response to changes in price. The main contributing factors are the somewhat limited range of substitute products and the small cost share of potassium permanganate in end-use products.

End uses

U.S. demand for potassium permanganate depends on the demand for water and wastewater treatment and industrial applications in which the product is used. All four responding importers and all nine responding purchasers reported no changes in end uses since

January 1, 2015.²³ *** reported several changes in end uses, including declines in potable water consumption resulting from conservation efforts and water restrictions and a related decline in wastewater volumes. In addition to less water use, *** stated that potassium permanganate faces competition from alternative odor control technologies in water treatment. Accordingly, ***. ***.

Business cycles

Most responding firms reported that the market was not subject to business cycles or other distinct conditions of competition. However, *** reported that demand for potassium permanganate is higher during hot, dry weather ***. It also reported that industrial and economic downturns negatively impact sales of potassium permanganate. *** reported that demand for water treatment is seasonal and importer *** similarly reported increased usage of potassium permanganate in the summer months and in warmer temperatures.

Demand trends

***. In contrast, most importers and purchasers reported no change in U.S. demand for potassium permanganate since January 1, 2015, and no anticipated change in U.S. demand (tables II-3 and II-4). All but one responding purchaser reported no changes or anticipated changes in demand for their end-use products. Purchaser *** reported that its need for potassium permanganate follows demand for ***.

²³ Among the two purchasers that reported a change, one firm did not provide an explanation and the other reported that its usage increases as its market share and number of jobs increase.

Table II-3**Potassium permanganate: Count of firms' responses regarding demand since January 1, 2015, by market**

Market	Firm type	Increase	No change	Decrease	Fluctuate
U.S. demand	U.S. producer	***	***	***	***
U.S. demand	Importer	1	4	0	0
U.S. demand	Purchaser	2	9	2	0
U.S. demand	Foreign producer	***	***	***	***
Foreign demand	U.S. producer	***	***	***	***
Foreign demand	Importer	0	3	0	0
Foreign demand	Purchaser	1	3	1	0
Demand in China	Foreign producer	***	***	***	***
Demand in other export markets	Foreign producer	***	***	***	***

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

Table II-4**Potassium permanganate: Count of firms' responses regarding anticipated demand, by market**

Market	Firm type	Increase	No change	Decrease	Fluctuate
U.S. demand	U.S. producer	***	***	***	***
U.S. demand	Importer	1	4	0	0
U.S. demand	Purchaser	2	7	2	0
U.S. demand	Foreign producer	***	***	***	***
Foreign demand	U.S. producer	***	***	***	***
Foreign demand	Importer	0	3	0	0
Foreign demand	Purchaser	1	3	1	0
Demand in China	Foreign producer	***	***	***	***
Demand in other export markets	Foreign producer	***	***	***	***

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

***.²⁴ ***. Carus stated that sales to local and municipal water authorities remain the largest segment of the market, but the share to this segment is decreasing with alternate technologies for water treatment and as conservation efforts have led to decreased U.S. water consumption.²⁵ Carus estimates that

²⁴ ***. Apparent U.S. consumption quantity data shown in table I-2 show a decrease from 2015 to 2016, increases in 2017, 2018, and 2019, and then a decrease in 2020.

²⁵ Carus's response to the notice of institution, p. 7, 11.

water and wastewater treatment accounted for *** percent of demand in 2020, similar to levels of *** percent in 1999 and 2005.²⁶ Survey results published by the American Water Works Association indicate that 28 percent of respondents report declining water sales over the past 10 years, 27 percent report flat sales and 40 percent report increased sales.²⁷

***.²⁸

Substitute products

Reported substitutes for potassium permanganate include calcium or sodium hypochlorite, hydrogen peroxide, chlorine, and sodium permanganate. ***. According to Carus, some customers have been moving to sodium permanganate in place of potassium permanganate because it is easier to use, although sodium permanganate is much more expensive to ship since it is in liquid form.²⁹

***.

Most importers (4 of 6) and most purchasers (10 of 13) reported that there were no substitutes for potassium permanganate. Of the purchasers reporting substitutes, one firm reported hydrogen peroxide as a substitute for odor control but reported that changes in the price had not affected potassium permanganate prices. One importer reported that sodium permanganate is a substitute in water treatment but reported that changes in the price had not affected potassium permanganate prices. This importer reported that replacing potassium

²⁶ Carus's response to the notice of institution, p. 22.

²⁷ State of the Water Industry, American Water Works Association, 2020, p. 20.

²⁸ ***.

²⁹ Hearing transcript, pp. 80-81 (Frasco).

permanganate with sodium permanganate creates demand for potassium permanganate since potassium permanganate is used to produce sodium permanganate. Importer ***.

All responding importers and purchasers reported no changes or anticipated changes to substitutes. ***.

Substitutability issues

This section assesses the degree to which U.S.-produced potassium permanganate and imports of potassium permanganate from China can be substituted for one another by examining the importance of certain purchasing factors and the comparability of potassium permanganate from domestic and imported sources based on those factors. In this review, information from purchasers and importers regarding imports from China is extremely limited since subject imports have been largely absent from the U.S. market. Only one responding firm (***) reported importing product from China and only in ***. Only one purchaser reported purchasing subject imports, but the purchaser's supplier reported that it imported the product from India not China.

Based on available data, staff believes that there is a moderate degree of substitutability between domestically produced potassium permanganate and potassium permanganate imported from China.³⁰ Factors contributing to a higher level of substitutability include the importance of price in purchase decisions, the lack of supplier certification requirements for most purchasers, and that most sales are from inventories rather than produced-to-order which would likely reduce lead time differences. Factors reducing substitutability include grade

³⁰ The degree of substitution between domestic and imported potassium permanganate depends upon the extent of product differentiation between the domestic and imported products and reflects how easily purchasers can switch from domestically produced potassium permanganate to potassium permanganate imported from the China (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.).

differences between potassium permanganate produced in the United States and in China, preferences for U.S.-produced product or Cairox product, and the large share of Carus’s U.S. shipments that is internally consumed.

Factors affecting purchasing decisions³¹

Purchaser decisions based on source

As shown in table II-5, most purchasers and their customers sometimes or never make purchasing decisions based on the producer or country of origin. One of the four purchasers that reported that it always makes decisions based on the manufacturer provided a reason, stating that it purchases only from its qualified source list. One purchaser, a distributor, reported that its customers sometimes request a particular brand name. One purchaser reported that it does not keep the product in stock, so it needs a supplier to have the product available to ship within one to two days.

Table II-5
Potassium permanganate: 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	1	2	6
Customer	Producer	0	1	3	5
Purchaser	Country	3	1	2	7
Customer	Country	0	0	3	6

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

Importance of purchasing domestic product

Seven of 11 responding purchasers reported that none of their purchases required domestic product in 2020.³² Three purchasers reported that domestic product was required by law (for 10, 30, and 100 percent of their purchases) and two reported that domestic product was required by their customers (for 50 and 80 percent of their purchases). ***. Purchaser responses indicate that about one-third of the 2020 reported purchases required

³¹ Ten purchasers indicated they had marketing/pricing knowledge of domestic product, one of Chinese product, and one of product from nonsubject countries.

³² Two firms did not answer the question. One of these firms did not purchase potassium permanganate in 2020. The other firm that did not respond accounted for a small share (1 percent) of total reported purchases.

domestic product, but these data may overstate domestic requirements since the responding purchasers reported a higher share of domestic purchases relative to import purchases compared to the U.S. market as a whole.^{33 ***}³⁴

Most important purchase factors

The most often cited top three factors firms consider in their purchasing decisions for potassium permanganate were price/cost (12 firms), availability/supply (10 firms), and quality (7 firms) as shown in table II-6. Price/cost was the most frequently cited first-most important factor (cited by 4 firms), followed by quality (3 firms); price/cost was the most frequently reported second-most important factor (7 firms), followed by availability/supply (5 firms); and price/cost, availability/supply, and contract were tied for the most frequently reported third-most important factor (3 firms each). As noted previously, only two of the 13 responding purchasers reported purchasing imports in 2020. Both firms reported that price was the second-most important factor in their purchasing decisions and listed availability or quality as the first-most important factor. The four firms that listed price as the first-most important factor reported purchasing only domestic product in 2020.

Table II-6
Potassium permanganate: Count of ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Factor	First	Second	Third	Total
Price/cost	4	7	3	12
Availability/supply	2	5	3	10
Quality	3	2	2	7
Contract	0	0	3	3
Domestic product	2	0	0	2
All other factors	2	0	2	4

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

Note: Other factors include purpose of the product and meet technical specifications of the bid for first factor and delivery and payment terms for third factor.

³³ Calculation based on the shares of domestic requirements reported by each purchaser weighted by each firm's reported 2020 purchases. Responding purchasers reported purchasing *** pounds from the United States, equivalent to *** percent of Carus's reported U.S. commercial shipments, and *** pounds from importers, equivalent to *** percent of total imports in 2020, as well as *** pounds from unknown sources.

³⁴ ***. Carus's posthearing brief, exhibit 1, response 1.

A majority of responding purchasers reported that they sometimes or never purchase the lowest-priced product. Five of 13 purchasers always purchase the lowest-priced product, one usually, four sometimes, and three never.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 17 factors in their purchasing decisions (table II-7). The factors rated as very important by more than half of responding purchasers were price (13 purchasers); availability and product consistency (12 each); quality meets industry standards and reliability of supply (10 each); delivery time (8); and delivery terms and technical support/service (7 each). There were no factors rated as not important by a majority of purchasers, although purchasers more often identified brand and minimum quantity requirements as “not important” than “very important.”

Lead times

Potassium permanganate is primarily sold from inventory. Carus reported that *** percent of its commercial shipments were from inventories, with an average lead time of *** days. The remaining *** percent of its commercial shipments were produced-to-order, with lead times averaging *** days.

Table II-7
Potassium permanganate: Count of importance of purchase factors, as reported by U.S. purchasers, by factor

Factor	Very important	Somewhat important	Not important
Availability	12	0	1
Brand	2	6	4
Delivery terms	7	5	1
Delivery time	8	4	1
Discounts offered	6	3	3
Minimum quantity requirements	2	7	3
Packaging	5	4	3
Payment terms	4	7	2
Price	13	0	0
Product consistency	12	1	0
Product range	3	6	3
Proprietary specifications	4	4	4
Quality meets industry standards	10	3	0
Quality exceeds industry standards	5	6	1
Reliability of supply	10	3	0
Technical support/service (including lab/field services)	7	3	3
U.S. transportation costs	4	6	2

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

Supplier certification

Nine of 13 responding purchasers do not require their suppliers to become certified or qualified to sell potassium permanganate to their firm. Three of the four purchasers that reported certification or qualification requirements reported the number of days to qualify a new supplier; reported times were 10, 30, and 210 days. In describing the qualification process, purchasers reported that the product must meet specifications. One purchaser reported that quality, reliability of shipment, and on-time delivery are also considered. Another purchaser conducts a trial of production using the new material, followed by rigorous internal and external laboratory testing to evaluate chemical properties and performance in application.

All but one responding purchaser reported that no suppliers had failed in their attempt to qualify potassium permanganate or had lost their approved status since 2015. One purchaser reported that potassium permanganate supplied by importer *** failed requalification testing.

Minimum quality specifications

As can be seen from table II-8, eight responding purchasers reported that domestically produced product always met minimum quality specifications, one reported usually, and four reported they did not know. Only a few purchasers reported with respect to imports, with one purchaser reporting that Chinese potassium permanganate sometimes met minimum quality specifications and one reporting that it rarely or never met specifications. One purchaser each reported that potassium permanganate from nonsubject sources always, usually, or rarely/never met minimum quality specifications.

Table II-8
Potassium permanganate: Count of firms' responses regarding suppliers' ability to meet minimum quality specifications, by source

Source of purchases	Always	Usually	Sometimes	Rarely or never	Don't Know
United States	8	1	0	0	4
China	0	0	1	1	9
Nonsubject sources	1	1	0	1	8

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

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

Purchasers reported that the following factors are important in determining quality: free-flowing capability, purity, particle size, uniformity, and meeting specifications. *** stated that the Carus product is high purity, explaining that ***

***.³⁵

Grades

Most of the commercial U.S. market uses free-flowing grade. Carus reported that free-flowing grade product is specified in *** of the bids it processes each year.³⁶

Most of Carus's U.S. commercial shipments are of free-flowing grade, although it also sells the technical grade commercially ***. Importers of potassium permanganate from nonsubject sources reported that most of their U.S. shipments consisted of free-flowing grade.³⁷ Chinese producer Changyuan reported that technical grade made up most of its shipments (*** percent in 2020), with *** grade accounting for most of the remainder of shipments. It reported that *** of its shipments in 2020 were of free-flowing grade.³⁸

As explained in Part I, the free-flowing grade is produced by adding an anticaking agent to the technical grade product. When asked whether an anticaking agent could be added to the Chinese product after importation, Carus stated that an importer or distributor could employ a toll blender to blend in the additive while Changyuan reported that it would not be viable or practical to add the anticaking agent after importation because of the hazardous nature of the product.³⁹

³⁵ ***.

³⁶ Carus's posthearing brief, exhibit 1, response 1.

³⁷ Six importers reported shipments by grade, all of which shipped free-flowing grade. One importer also reported shipments of technical grade. ***.

³⁸ Changyuan produced a small amount of free-flowing grade. Its shipments of free-flowing grade accounted for approximately *** percent of its total shipments during January 2018-June 2021. During the original investigation, no importers reported importing free-flowing grade from China.

***.

³⁹ Carus's posthearing brief, exhibit 1, response 1. Changyuan's posthearing brief, p. 13.

Customized product

Twelve of 13 purchasers reported that they had not purchased customized product. One purchaser (***) reported that the domestic product it purchases is a custom chemical formulation specific to its products.

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2015 (table II-9). Most responding purchasers reported that their purchases of domestic product increased or were constant. Reasons reported for increased purchases of domestic product were superior product performance, pricing went down, and ***. A reason cited for constant domestic purchases was a Buy-American policy.

Several purchasers reported switching potassium permanganate suppliers since January 1, 2015, all of whom reported purchasing more product from Carus. *** reported that in *** it switched from purchasing from *** to purchasing from Carus because of quality issues.⁴⁰ *** stated that it has moved towards 100 percent domestic supply, explaining that it had purchased some product from India at one point but ***. *** reported that its supplier *** stopped bidding and that Carus is now its sole supplier. *** reported that it had used multiple suppliers but that Carus is now its primary supplier because of better customer service, delivery, and cost.

Table II-9
Potassium permanganate: 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	0	5	6	1	0
China	1	0	0	0	7
Nonsubject sources	2	1	0	0	5
Sources unknown	1	1	0	0	5

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

⁴⁰ ***.

Purchase factor comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing potassium permanganate 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-10) for which they were asked to rate the importance. Three of the 13 responding purchasers compared U.S. and Chinese product, although, as noted earlier, purchasers' knowledge of the Chinese product is likely to be very limited. Three purchasers compared U.S. and nonsubject imported product.

All three responding purchasers rated the U.S. product as superior to the Chinese product on delivery terms, two purchasers rated the U.S. and Chinese product as comparable on six factors (availability, minimum quantity requirements, packaging, payment terms, product range, and proprietary specifications), and two rated the U.S. product to the Chinese product as superior on eight factors (brand, delivery time, product consistency, quality meets industry standards, quality exceeds industry standards, reliability of supply, technical support/service, and U.S. transportation costs). Purchaser responses were evenly divided between superior, comparable, and inferior for discounts offered and price.

In comparing the U.S. product to that imported from nonsubject sources, two firms rated the products as comparable on nine of the factors, two firms rated the domestic product as superior on three factors (availability, delivery time, and reliability of supply), and responses were split for discounts offered and technical support/service.

Table II-10
Potassium permanganate: Count of purchasers' responses comparing U.S.-produced and imported product

Factor	Country pair	Superior	Comparable	Inferior
Availability	US vs. China	1	2	0
Brand	US vs. China	2	1	0
Delivery terms	US vs. China	3	0	0
Delivery time	US vs. China	2	0	1
Discounts offered	US vs. China	1	1	1
Minimum quantity requirements	US vs. China	1	2	0
Packaging	US vs. China	1	2	0
Payment terms	US vs. China	1	2	0
Price	US vs. China	1	1	1
Product consistency	US vs. China	2	1	0
Product range	US vs. China	1	2	0
Proprietary specifications	US vs. China	1	2	0
Quality meets industry standards	US vs. China	2	1	0
Quality exceeds industry standards	US vs. China	2	1	0
Reliability of supply	US vs. China	2	1	0
Technical support/service (including lab/field services)	US vs. China	2	1	0
U.S. transportation costs	US vs. China	2	1	0

Table continued.

Table II-10 Continued
Potassium permanganate: Count of purchasers' responses comparing U.S.-produced and imported product

Factor	Country pair	Superior	Comparable	Inferior
Availability	US vs. Nonsubject	2	1	0
Brand	US vs. Nonsubject	1	1	0
Delivery terms	US vs. Nonsubject	1	2	0
Delivery time	US vs. Nonsubject	2	1	0
Discounts offered	US vs. Nonsubject	0	1	1
Minimum quantity requirements	US vs. Nonsubject	0	2	0
Packaging	US vs. Nonsubject	0	2	0
Payment terms	US vs. Nonsubject	0	2	0
Price	US vs. Nonsubject	0	2	1
Product consistency	US vs. Nonsubject	1	2	0
Product range	US vs. Nonsubject	1	1	0
Proprietary specifications	US vs. Nonsubject	1	1	0
Quality meets industry standards	US vs. Nonsubject	0	2	0
Quality exceeds industry standards	US vs. Nonsubject	0	2	0
Reliability of supply	US vs. Nonsubject	2	1	0
Technical support/service (including lab/field services)	US vs. Nonsubject	1	1	0
U.S. transportation costs	US vs. Nonsubject	0	2	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.

Comparison of U.S.-produced and imported potassium permanganate

In order to determine whether U.S.-produced potassium permanganate can generally be used in the same applications as imports from China, the U.S. producer, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-11, Carus reported that domestic and imported product from China and other countries were *** interchangeable. Two of three responding importers reported that domestic and imported product from China were always interchangeable and three of five responding importers reported that domestic and nonsubject imported product were always interchangeable. ***. Most responding purchasers reported that the domestic and imported products from China and other countries were always or frequently interchangeable.

Table II-11
Potassium permanganate: Count of firms reporting the interchangeability between potassium permanganate produced in the United States and in other countries, by country pair and firm type

Firm type	Country pair	Always	Frequently	Sometimes	Never
U.S. producer	U.S. vs. China	***	***	***	***
U.S. producer	U.S. vs. Other	***	***	***	***
U.S. producer	China vs. Other	***	***	***	***
Importer	U.S. vs. China	2	0	1	0
Importer	U.S. vs. Other	3	1	1	0
Importer	China vs. Other	2	0	1	0
Purchaser	U.S. vs. China	1	2	1	0
Purchaser	U.S. vs. Other	1	3	0	0
Purchaser	China vs. Other	2	1	0	0

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

***.

In addition, the U.S. producer, importers, and purchasers were asked to assess how often differences other than price were significant in sales of potassium permanganate from the United States, subject, or nonsubject countries. As seen in table II-12, Carus reported that differences other than price were *** significant in its sales. Most responding importers reported that such differences between domestic and imported product were sometimes or never significant in their sales. On the other hand, most responding purchasers reported that differences other than price between domestic and imported potassium permanganate were always significant factors in their purchases. ***. In addition, ***.

Table II-12
Potassium permanganate: Count of firms reporting the significance of differences other than price between potassium permanganate produced in the United States and in other countries, by country pair and firm type

Firm type	Country pair	Always	Frequently	Sometimes	Never
U.S. producer	U.S. vs. China	***	***	***	***
U.S. producer	U.S. vs. Other	***	***	***	***
U.S. producer	China vs. Other	***	***	***	***
Importer	U.S. vs. China	0	1	1	1
Importer	U.S. vs. Other	0	2	1	2
Importer	China vs. Other	0	1	0	2
Purchaser	U.S. vs. China	3	0	0	1
Purchaser	U.S. vs. Other	2	0	0	1
Purchaser	China vs. Other	1	0	0	1

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

Elasticity estimates⁴¹

This section discusses elasticity estimates. Carus commented on the estimates, stating that it agreed with the supply and demand elasticity estimates but disagreed with the substitution elasticity estimate.⁴² Changyuan did not comment on the estimates.

U.S. supply elasticity

The domestic supply elasticity for potassium permanganate measures the sensitivity of the quantity supplied by the U.S. producer to changes in the U.S. market price of potassium permanganate. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which the producer can alter capacity, the producer's ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced potassium permanganate. Analysis of these factors above indicates that the U.S. industry has a moderate to high ability to increase or decrease shipments to the U.S. market; an estimate in the range of 4 to 8 is suggested.

U.S. demand elasticity

The U.S. demand elasticity for potassium permanganate measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of potassium permanganate. 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 potassium permanganate in the production of any downstream products. Based on the available information, the aggregate demand for potassium permanganate is likely to be inelastic; a range of -0.5 to -0.9 is suggested.

⁴¹ Elasticity estimates were not provided in the report in the original investigation or any of the reviews.

⁴² Carus's prehearing brief, p. 44.

Substitution elasticity⁴³

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.⁴⁴ 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 potassium permanganate and imported potassium permanganate is likely to be in the range of 2 to 4. The different grade produced in China than that demanded in the U.S. market, some customer preferences or requirements for U.S.-produced product, and the large share of domestic product that is internally consumed somewhat limit substitutability. If Chinese producers produced more free-flowing grade potassium permanganate, the substitution elasticity would be higher.

Carus argues for a substitution elasticity estimate of 3 to 5, stating that product differences cited by Changyuan have no merit and that Changyuan would have an incentive to produce free-flowing grade, which involves the addition of an additive at the end of production.

Although additional evidence on the record indicates that the share of consumer preferences for domestic product is lower than cited in the prehearing report, this factor still limits substitutability somewhat as does the small share of free-flowing grade produced in China, and the large share of U.S. production that is internally consumed.

⁴³ No elasticity estimates were presented in the staff reports in the original investigation or in the prior reviews. However, in the first review, staff proposed a moderate-to-high degree of substitutability “to the extent that the Chinese producers are able to produce free-flowing potassium permanganate.” First review public report, p. II-8.

⁴⁴ 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: Condition of the U.S. industry

Overview

The information in this section of the report was compiled from the response by domestic interested party Carus to the Commission's questionnaire. Carus, which accounted for all U.S. production of potassium permanganate during 2020, supplied information on its operations in this review and in other proceedings on potassium permanganate.

Changes experienced by the industry

The Commission requested Carus to report whether it had experienced any plant openings, relocations, expansions, acquisitions, consolidations, closures, or prolonged shutdowns because of strikes or equipment failure; curtailment of production because of shortages of materials or other reasons, including revision of labor agreements; or any other change in the character of its operations or organization relating to the production of potassium permanganate since 2015. Carus indicated that it had experienced such changes; its responses are presented in table III-1.

Table III-1
Potassium permanganate: Changes in operations reported by U.S. producer Carus

Item	Narrative response
Prolonged shutdowns or curtailments	***
Revised labor agreements	***
Other	***

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

Anticipated changes in operations

The Commission requested Carus to report anticipated changes in the character of its operations relating to the production of potassium permanganate. Carus reported that ***.¹

U.S. production, capacity, and capacity utilization

Table III-2 and figure III-1 presents U.S. producer production, capacity, and capacity utilization. Carus reported stable capacity during 2018-20. The firm’s production decreased by *** percent from 2018 to 2020, diminishing from *** pounds in 2018 to *** pounds in 2019 and to *** pounds in 2020. Capacity utilization decreased by *** percentage points from 2018 to 2020, declining from *** percent in 2018 to *** percent in 2019 and to *** percent in 2020. Carus reported higher production in January-June 2021 than in January-June 2020, with capacity utilization reaching *** percent.

¹ Carus’s U.S. producer’s questionnaire, section II-2b.

Table III-2
Potassium permanganate: U.S. capacity, production, and capacity utilization reported by Carus, by period

Capacity and production in 1,000 pounds; capacity utilization in percent

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Capacity	***	***	***	***	***
Production	***	***	***	***	***
Capacity utilization	***	***	***	***	***

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 III-1

Potassium permanganate: U.S. capacity, production, and capacity utilization reported by Carus, by period

* * * * *

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

Constraints on capacity

Carus reported constraints in the manufacturing process that set the limit of its production capacity, observing that ***.²

U.S. producer’s U.S. shipments and exports

Tables III-3 and III-4 present U.S. shipments, export shipments, and total shipments reported by Carus. The firm’s U.S. shipments increased by *** percent from *** pounds in 2018 to *** pounds in 2019, then decreased by *** percent to *** pounds in 2020. U.S. shipments during January-June 2021 were *** percent higher than those reported in the comparable

² Carus’s U.S. producer questionnaire, section II-3d.

period in 2020. The unit values of such shipments decreased by *** percent from 2018 to 2019, continued to decrease in 2020 by *** percent, and were *** percent lower in January-June 2021 compared to January-June 2020.

Commercial U.S. shipments by share of U.S. shipments quantity increased by *** percentage points from 2018 to 2020. Commercial U.S. shipments by share of quantity during January-June 2021 were *** percentage points lower than those reported in the comparable period in 2020. Commercial U.S. shipments by share of value increased by *** percentage points from 2018 to 2020. Commercial U.S. shipments by share of value during January-June 2021 were *** percentage points lower than those reported in the comparable period in 2020.

Internal consumption by share of U.S. shipments quantity decreased by *** percentage points from 2018 to 2020. Internal consumption by share of quantity during January-June 2021 were *** percentage points higher than those reported in the comparable period in 2020. Internal consumption by share of value decreased by *** percentage points from 2018 to 2020. Internal consumption by share of value during January-June 2021 were *** percentage points higher than those reported in the comparable period in 2020.³

Transfers to related firms accounted for ***.

³ Internal consumption is ***. Internal consumption is discussed later in this part of the report.

Exports by share of total shipment quantity decreased by *** percentage points from 2018 to 2020. Exports by share of quantity during January-June 2021 were *** percentage points lower than those reported in the comparable period in 2020. Exports by share of value decreased by *** percentage points from 2018 to 2020. Exports by share of value during January-June 2021 were *** percentage points lower than those reported in the comparable period in 2020.⁴

Table III-5 and figure III-2 presents shipments by grade reported by Carus.⁵ The shares of reported U.S. producers' U.S. shipments of free-flowing grade, technical grade, pharmaceutical grade and other grades accounted for *** percent, ***, *** percent and *** percent of total U.S. producer shipments, respectively in 2020. ***.⁶

⁴ ***.

⁵ Appendix E presents additional shipment data by grade for the U.S. producer and importers. Appendix G presents the U.S. producer and foreign producer exports by grade.

⁶ ***. Carus's posthearing brief, Exh. 1.

Table III-3
Potassium permanganate: U.S. shipments, export shipments, and total shipments reported by Carus, by period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound; shares in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 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.

Table III-4
Potassium permanganate: U.S. shipments reported by Carus, by type and period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial U.S. shipments	Quantity	***	***	***	***	***
Internal consumption	Quantity	***	***	***	***	***
Transfers to related firms	Quantity	***	***	***	***	***
U.S. shipments	Quantity	***	***	***	***	***
Commercial U.S. shipments	Value	***	***	***	***	***
Internal consumption	Value	***	***	***	***	***
Transfers to related firms	Value	***	***	***	***	***
U.S. shipments	Value	***	***	***	***	***
Commercial U.S. shipments	Unit value	***	***	***	***	***
Internal consumption	Unit value	***	***	***	***	***
Transfers to related firms	Unit value	***	***	***	***	***
U.S. shipments	Unit value	***	***	***	***	***
Commercial U.S. shipments	Share of quantity	***	***	***	***	***
Internal consumption	Share of quantity	***	***	***	***	***
Transfers to related firms	Share of quantity	***	***	***	***	***
U.S. shipments	Share of quantity	***	***	***	***	***
Commercial U.S. shipments	Share of value	***	***	***	***	***
Internal consumption	Share of value	***	***	***	***	***
Transfers to related firms	Share of value	***	***	***	***	***
U.S. 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.

Table III-5
Potassium permanganate: U.S. shipments reported by Carus, by type and by period

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollar per pound

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing grade	Quantity	***	***	***	***	***
Technical grade	Quantity	***	***	***	***	***
Pharmaceutical grade	Quantity	***	***	***	***	***
Other grades	Quantity	***	***	***	***	***
All types	Quantity	***	***	***	***	***
Free-flowing grade	Share of quantity	***	***	***	***	***
Technical grade	Share of quantity	***	***	***	***	***
Pharmaceutical grade	Share of quantity	***	***	***	***	***
Other grades	Share of quantity	***	***	***	***	***
All types	Share of quantity	***	***	***	***	***

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 III-2
Potassium permanganate: U.S. shipments reported by Carus, by grade and by period

* * * * *

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

U.S. producer's inventories

Table III-6 presents the end-of-period inventories reported by Carus and the ratio of these inventories to its production, U.S. shipments, and total shipments. Carus's end-of-period inventories increased by *** percent from 2018 to 2019 and decreased by *** percent from 2019 to 2020. The firm's end-of-period inventories during January-June 2021 were *** percent lower than those reported in the comparable period in 2020.

Table III-6
Potassium permanganate: U.S. inventories reported by Carus, by period

Quantity in 1,000 pounds; ratio are inventories to production and shipments

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 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.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

U.S. producer's imports

Table III-7 presents data on U.S. production and U.S imports of potassium permanganate by Carus.

Table III-7
Potassium permanganate: Carus's U.S. production, imports, and import ratios to U.S. production, by period

Quantity in 1,000 pounds; ratio in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
U.S. production	Quantity	***	***	***	***	***
Imports from nonsubject sources (India)	Quantity	***	***	***	***	***
Imports from nonsubject sources (India) to U.S. production	Ratio	***	***	***	***	***

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. employment, wages, and productivity

Table III-8 shows employment-related data reported by Carus during 2018-20, January-June 2020, and January-June 2021. The number of production and related workers (“PRWs”) employed by Carus increased from 2018 to 2020 by *** percent to reach *** PRWs. The number of PRWs employed during January-June 2021 was *** percent lower than January-June 2020, returning to ***. Hourly wages decreased between 2018 to 2020 by *** percent but were *** percent higher in January-June 2021 compared to January-June 2020. Productivity decreased by *** percent from 2018 to 2020 but was *** percent higher in January-June 2021 compared to January-June 2020. Unit labor costs increased between 2018 and 2020, but were lower during January-June 2021 than during January-June 2020.

Table III-8
Potassium permanganate: Employment-related data reported by U.S. producer Carus, by period

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 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 (pounds per hour)	***	***	***	***	***
Unit labor costs (dollars per 1,000 pounds)	***	***	***	***	***

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

Financial experience of U.S. producer Carus

Background⁷

Carus, the sole known U.S. producer of potassium permanganate, provided usable financial results on its operations. Carus reported financial data on a calendar-year basis and its sales data reconciled with its trade data reported in the Commission's questionnaire. The company's data were reported on the basis of GAAP.⁸

Operations on potassium permanganate

Table III-9 presents aggregated data on the operations of U.S. producer Carus in relation to potassium permanganate, while table III-10 presents corresponding changes in AUVs.

⁷ 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 ("R&D") expenses, and return on assets ("ROA").

⁸ Staff verified the questionnaire response of Carus LLC. Changes to data have been incorporated into the report. Verification Report, September 13, 2021.

Table III-9
Potassium permanganate: Results of operations of U.S. producer Carus, by item and period

Quantity in 1,000 pounds; Value in 1,000 dollars; Ratios in percent and represent ratios to net sales value

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Commercial sales	Quantity	***	***	***	***	***
Internal consumption	Quantity	***	***	***	***	***
Transfers to related firms	Quantity	***	***	***	***	***
Total net sales	Quantity	***	***	***	***	***
Commercial sales	Value	***	***	***	***	***
Internal consumption	Value	***	***	***	***	***
Transfers to related firms	Value	***	***	***	***	***
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 III-9—Continued**Potassium permanganate: Results of operations of U.S. producer Carus, by item and period**

Shares in percent and represent share of cost of goods sold; Unit values in dollars per pound; Count in number of firms reporting

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Raw material costs	Share	***	***	***	***	***
Direct labor costs	Share	***	***	***	***	***
Other factory costs	Share	***	***	***	***	***
Cost of goods sold	Share	***	***	***	***	***
Commercial sales	Unit value	***	***	***	***	***
Internal consumption	Unit value	***	***	***	***	***
Transfers to related firms	Unit value	***	***	***	***	***
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 III-10
Potassium permanganate: Changes in AUVs between comparison periods

Changes in percent

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales	▼***	▼***	▼***	▼***
Internal consumption	▼***	▼***	▼***	▲***
Transfers to related firms	▼***	▼***	▼***	▲***
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)	▼***	▼***	▼***	▲***

Table continued.

Table III-10—Continued
Potassium permanganate: Changes in AUVs between comparison periods

Changes in dollars per pound

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Commercial sales	▼***	▼***	▼***	▼***
Internal consumption	▼***	▼***	▼***	▲***
Transfers to related firms	▼***	▼***	▼***	▲***
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.

Net sales

As shown in table III-9, the quantity and value of commercial sales and internal consumption increased from 2018 to 2019 before declining in 2020 while transfers declined between 2018 and 2019 before increasing in 2020. As a result, total net sales, by both quantity and value, decreased in successive years between 2018 and 2020, *** percent by quantity and *** percent by value, respectively.⁹ Net sales quantity and value were higher in January-June 2021 (“interim 2021”) compared with the same period in 2020 (“interim 2020”), *** percent by quantity and *** percent by value. This increase was due to higher commercial sales and internal consumption but lower transfers. Average unit net sales values declined each year from \$*** per pound in 2018 to \$*** per pound in 2020, resulting in a larger decline in total net sales value compared to total net sales quantity. Average unit net sales values were lower in January-June 2021 compared to January-June 2020 by \$*** per pound.

Carus reported commercial sales, transfers, and internal consumption. There are differences in classification between the trade and financial sections of the questionnaire, but shipments/sales in the trade section and financial section reconcile in the aggregate. In this section, commercial sales *** and transfers are made to a related firm, ***.¹⁰ With respect to internal consumption, potassium permanganate is used to produce a downstream

⁹ Carus stated that the impact of COVID-19 was ***. U.S. producer questionnaire, section II-2c. Carus also stated that the ***. U.S. producer questionnaire, section II-14.

¹⁰ Carus stated that ***. At the request of staff, Carus reclassified its transfers to *** as exports in the trade section of the Commission’s questionnaire, but Carus did not classify those transfers as exports in the financial section. Exports by Carus U.S. are included in commercial sales in the financial section of the Commission’s questionnaire. Transfers also include small amounts of potassium permanganate ***. Emails from ***, August 17 and 20, 2021 and verification report, September 13, 2021.

product, sodium permanganate, at a facility adjacent to the main plant owned by Carus.¹¹ Carus *** but revalued the category at fair market value¹² for reporting data in the Commission's questionnaire.¹³

Carus's U.S. shipments are composed of the following grades: free flowing, technical, pharmaceutical, and other. AUVs by grade in 2020 were as follows: free-flowing \$***; pharmaceutical \$***; technical \$***; and other \$***.¹⁴ Included in the "other" category is ***.¹⁵ Technical grade is the basic product from which other grades are produced. Free-flowing grade is produced from technical grade by adding an anticaking agent. Carus stated that the

¹¹ Carus transports potassium permanganate by pipeline to the facility where it produces sodium permanganate. Email from ***, September 1, 2021. ***.

¹² *** Carus's response to the notice of institution, March 3, Attachment 10, and confirmed by email from ***, July 2, 2021. ***. Verification report, September 13, 2021.

¹³ Both internal consumption and transfers consist of finished potassium permanganate. The simplest and most common method of determining the fair market value would be to apply prices for comparable goods sold to unrelated customers as commercial sales. In the absence of internal use, the finished potassium permanganate could be sold to the company's customers for a similar unit value as its commercial sales. Similarly, transfers are sales to affiliates of finished potassium permanganate for export and fair market value is a standard for transfers under GAAP (as well as instructed in the Commission's questionnaire for both internal consumption and transfers). As noted, Carus agreed to value its internal consumption and transfers to related firms at fair market value. Email from ***, July 8, 2021.

¹⁴ U.S. producer questionnaire, section II-5. The different technical grades ***. U.S. producer questionnaire, section II-5. ***. Submission from *** to USITC staff, August 30, 2021 and email from ***, September 1, 2021.

¹⁵ U.S. producer questionnaire, section II-5.

Cost of goods sold and gross profit or loss

Raw materials

Total raw material cost is the largest component of COGS, ranging from *** percent in January-June 2020 to *** percent in 2018. Raw material inputs mainly consist of manganese dioxide and potassium hydroxide ***. Carus also ***. The value of total raw materials declined in each year, 2018 to 2020 but was higher in interim 2021 than in interim 2020. On an average per pound basis, the firm's raw material cost ***. Potassium hydroxide per-pound raw material costs ***. Manganese dioxide per-pound raw material costs ***. Other material input costs, per-pound, which include ***, ***,¹⁷ Carus ***.¹⁸ Table III-10 presents raw materials, by type.¹⁹

¹⁶ Carus's posthearing brief, response #1, answers to additional staff questions, and responses to Commission questions, #6. Carus stated ***. See respondent Changyuan posthearing brief, exhibit 13A.

¹⁷ U.S. producer questionnaire, section III-9c.

¹⁸ U.S. producer questionnaire, section III-8.

¹⁹ Carus purchased potassium hydroxide, manganese dioxide, and packaging ***.

Table III-11
Potassium permanganate: Raw material costs, by period

Value in 1,000 dollars; Unit values in dollars per pound; Shares in percent and represent ratios to total raw material costs

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Potassium hydroxide costs	Value	***	***	***	***	***
Manganese dioxide costs	Value	***	***	***	***	***
Other material input costs	Value	***	***	***	***	***
Total raw material costs	Value	***	***	***	***	***
Potassium hydroxide costs	Unit value	***	***	***	***	***
Manganese dioxide costs	Unit value	***	***	***	***	***
Other material input costs	Unit value	***	***	***	***	***
Total raw material costs	Unit value	***	***	***	***	***
Potassium hydroxide costs	Share	***	***	***	***	***
Manganese dioxide costs	Share	***	***	***	***	***
Other material input costs	Share	***	***	***	***	***
Total raw material costs	Share	***	***	***	***	***

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

In its posthearing brief, Carus provided information and price trends for raw material inputs of potassium hydroxide and manganese ore.²⁰ Carus stated that overall, raw material prices have decreased from 2015 to June 2021. For example, prices of potassium hydroxide declined from approximately \$*** per pound in 2015 to \$*** per pound in 2018, and further to \$*** per pound in June of 2021. Prices of manganese ore increased from \$*** per pound in 2015 to \$*** per pound in 2018 before declining to \$*** per pound in June 2021. Carus stated that it expects prices of potassium hydroxide to exceed the 2015-level, and for manganese ore to exceed the 2017 level of \$*** per pound by end-2021.²¹

Direct labor and other factory costs

Direct labor costs represented between *** and *** percent of total COGS during the period for which data were collected. The value of direct labor costs increased from 2018 to 2019 but declined in 2020; these costs were higher in interim 2021 than in interim 2020. Direct

²⁰ Carus stated that the terms manganese ore and manganese dioxide are used interchangeably in many cases. Carus further stated that ***. Email from ***, October 20, 2021.

²¹ Raw material cost data rounded to two digits. Carus's posthearing brief, response #1, answers to additional staff questions. Raw material costs are also discussed in Part V.

labor costs increased from \$*** per pound in 2018 to \$*** per pound in 2020. Direct labor costs were lower in January-June 2021 (\$*** per pound) than in January-June 2020 (\$*** per pound). Other factory costs represented between *** and *** percent of total COGS during this time. The value of these costs increased from 2018 to 2019 but were lower in 2020; they were *** higher in interim 2021 than in interim 2020. Other factory costs increased irregularly from \$*** per pound in 2018 to \$*** per pound in 2020 but were lower in 2021 (\$*** per pound) than in 2020 (\$*** per pound). Both direct labor and other factory costs followed the trend in sales.

COGS

Generally, total COGS followed the trend in sales. The value of total COGS was higher in 2019 than in 2018 but lower in 2020; it was higher in interim 2021 than in interim 2020. The AUV of COGS was \$*** in 2018, \$*** in 2019, and \$*** in 2020. The AUV of COGS was lower in January-June 2021 (\$***) than in January-June 2020 (\$***) due to lower average raw material, direct labor, and other factory costs. The average COGS to net sales ratio increased from *** percent in 2018 to *** percent in 2019 and to *** percent in 2020, reflecting the relative increase in direct labor and other factory costs compared to net sales value. However, the COGS to net sales ratio was lower in January-June 2021 (***) percent) compared to the same period in 2020 (***) percent), reflecting the relatively lower costs in 2021 for raw materials, direct labor, and other factory costs compared to net sales value.

Gross profit or loss

From 2018 to 2020, the overall decline in net sales value was greater than the decline in COGS, thus gross profit declined from \$*** in 2018 to \$*** in 2019, and to \$*** in 2020. Gross profit was higher in January-June 2021 (\$***) than in 2020 (\$***), reflecting higher net sales in January-June 2021. Gross profit on a per-pound basis and as a ratio to net sales declined from 2018 to 2020 but was higher in January-June 2021 than in January-June 2020.

SG&A expenses and operating income or loss

Table III-9 shows that total SG&A expenses declined from \$*** in 2018 to \$*** in 2020 and were lower in January-June 2021 (\$***) than in January-June 2020 (\$***). The SG&A expense ratio (SG&A expenses as a share of net sales) irregularly declined from *** percent in 2018 to *** percent in 2020 and was lower in January-June 2021 (***) percent) than in January-June 2020 (***) percent). Operating income declined from \$*** in 2018 to \$*** in 2019, and to \$*** in 2020, with

January-June 2021 (\$***) higher than January-June 2020 (\$***). The operating income margins (operating income as a share of net sales) declined from *** percent in 2018 to *** percent in 2019 and to *** percent in 2020, with January-June 2021 higher than January-June 2020 (*** percent and *** percent, respectively). Most of the decline overall in *** occurred in 2020, attributable to *** as described earlier.

All other expenses and net income or loss

Classified below the operating income level are interest expense, other expense, and other income. Carus reported ***, which is shown in table III-9. *** increased from \$*** in 2018 to \$*** in 2020 but was lower in January-June 2021 (\$***) than in January-June 2020 (\$***).²²

Variance analysis

A variance analysis for the operations of Carus on potassium permanganate is presented in table III-12.²³ The information for this variance analysis is derived from table III-9. The data in this table indicate that the reduction in operating income between 2018 and 2020 (\$***) was primarily due to an unfavorable price and volume variance (unit sales values and volume declined) that was greater than a favorable net cost variance (unit costs and expenses declined). This differs from the interim periods when operating income rose by \$***, attributable to increased sales volume and lower unit costs and expenses, despite an unfavorable price variance.

²² ***. Verification Report, September 13, 2021.

²³ The Commission's variance analysis is calculated in three parts: Sales variance, cost of sales variance (COGS variance), and SG&A expense variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expense variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. Summarized at the bottom of the table, the price variance is from sales; the cost/expense variance is the sum of those items from COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expense variances. The overall volume component of the variance analysis is generally small.

Table III-12**Potassium permanganate: Variance analysis on the operations of U.S. producer Carus between comparison periods**

Value in 1,000 dollars

Item	2018-20	2018-19	2019-20	Jan-Jun 2020-21
Net sales price variance	***	***	***	***
Net sales volume variance	***	***	***	***
Net sales total variance	***	***	***	***
COGS cost variance	***	***	***	***
COGS volume variance	***	***	***	***
COGS total variance	***	***	***	***
Gross profit variance	***	***	***	***
SG&A cost variance	***	***	***	***
SG&A volume variance	***	***	***	***
SG&A total variance	***	***	***	***
Operating income price variance	***	***	***	***
Operating income cost variance	***	***	***	***
Operating income volume variance	***	***	***	***
Operating income total variance	***	***	***	***

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

Note: Unfavorable variances are shown in parentheses; all others are favorable.

Capital expenditures and research and development expenses

Data reported by Carus for capital expenditures and research and development (“R&D”) expenses are presented in table III-13. Table III-14 presents the firm’s narrative explanations of the nature, focus, and significance of its capital expenditures and R&D expenses.

Total capital expenditures decreased irregularly by *** percent from \$*** in 2018 to \$*** in 2020 but were *** higher in interim 2021 than in interim 2020. R&D expenses also decreased by *** percent between 2018 (\$***) and 2020 (\$***) and were lower in interim 2021 than in interim 2020.²⁴

²⁴ Carus states it has been developing and promoting new applications for potassium permanganate. It has worked closely with researchers, consulting engineering firms, state and federal regulatory agencies and other interested parties. Reportedly, Carus incurred considerable R&D expenses, including direct expenses and support and equipment expenses totaling in excess of *** during 2016-20. Carus’s response to the notice of institution, p. 41.

Table III-13**Potassium permanganate: Capital expenditures and R&D expenses of U.S. producer Carus, by period**

Value in 1,000 dollars

Item	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Capital expenditures	***	***	***	***	***
R&D expenses	***	***	***	***	***

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

Table III-14**Potassium permanganate: Narrative description of capital expenditures and R&D expenses of U.S. producer Carus**

Item	Narrative explanation
Capital expenditures	***
R&D expenses	***

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

Assets and return on assets

Table III-15 presents data on the firm's total net assets and its return on assets ("ROA").²⁵ Table III-16 presents narrative responses by Carus explaining their major asset categories and any significant changes in asset levels over time. Total net assets declined by *** percent from \$*** in 2018 to \$*** in 2020. The calculated ROA increased from *** percent in 2018 to *** percent in 2020.

²⁵ The return on assets ("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 may have been required in order to report a total asset value for potassium permanganate.

Table III-15**Potassium permanganate: Total net assets and return on assets of U.S. producer Carus, by period**

Value in 1,000 dollars; ratio in percent

Item	2018	2019	2020
Net assets	***	***	***
Return on assets	***	***	***

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

Table III-16**Potassium permanganate: Narrative descriptions of total net assets of U.S. producer Carus**

Firm	Narrative explanation
Carus	***

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

Part IV: U.S. imports and the foreign industries

U.S. imports

Overview

The Commission issued questionnaires to 15 firms believed to have imported potassium permanganate between 2015 to 2020.¹ Seven firms provided data and information in response to the questionnaires, while eight firms did not respond to questionnaires. Based on official Commerce statistics for imports of potassium permanganate, importers' questionnaire data are believed to have accounted for *** percent of U.S. imports during 2020. There were no imports of potassium permanganate from China in 2020.

Imports from subject and nonsubject countries

Table IV-1 and figure IV-1 present information on U.S. imports of potassium permanganate during 2018-20, January-June 2020, and January-June 2021. Official import statistics indicate an entry of potassium permanganate from China into the United States in February 2018. However, no responding firm has confirmed this entry. Imports of potassium permanganate from nonsubject sources decreased by 1.6 million pounds from 2018 to 2020 and by \$2.0 million in value. During January-June 2021, imports of potassium permanganate from nonsubject sources were 363,000 pounds and \$389,000 million higher than the comparable 2020 period.

According to official import statistics, 97.4 percent of imports of potassium permanganate in 2020 were from India. In 2018, imports of potassium permanganate from India were 3.2 million pounds and \$3.9 million, while 2019 imports from India were 2.7 million pounds and \$3.4 million, and 2020 imports were 1.6 million pounds and \$1.9 million. During January-June 2020, imports of potassium permanganate from India were 608,000 pounds and \$721,000, while during January-June 2021, imports of potassium permanganate from India were 906,000 pounds and \$1.1 million. Other sources of imports of potassium permanganate include Australia and Japan.

¹ The Commission issued questionnaires to those firms identified in responses to the notice of institution, along with firms that, based on a review of data from third-party sources, may have imported more than one percent of total imports under HTSUS subheading 2841.61.00 (statistical reporting number 2841.61.0000) in any one year since 2015.

Table IV-1
Potassium permanganate: U.S. imports by source and period

Quantity in 1,000 pounds; Value in 1,000 dollars; Unit values in dollars per pound

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
China	Quantity	42	---	---	---	---
Nonsubject sources	Quantity	3,166	2,734	1,605	626	989
All import sources	Quantity	3,208	2,734	1,605	626	989
China	Value	45	---	---	---	---
Nonsubject sources	Value	3,997	3,410	2,018	768	1,157
All import sources	Value	4,042	3,410	2,018	768	1,157
China	Unit value	1.07	---	---	---	---
Nonsubject sources	Unit value	1.26	1.25	1.26	1.23	1.17
All import sources	Unit value	1.26	1.25	1.26	1.23	1.17

Table continued.

Table IV-1--Continued
Potassium permanganate: U.S. imports by source and period

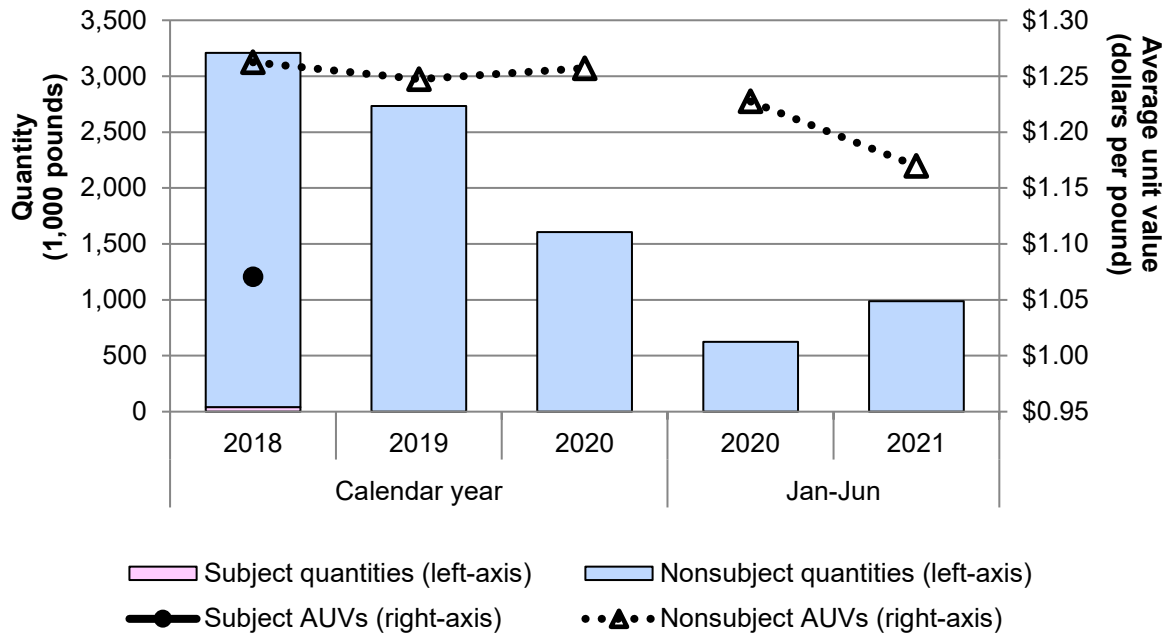
Shares and ratios in percent; Ratios represents the ratio to U.S. production

Source	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
China	Share of quantity	1.3	---	---	---	---
Nonsubject sources	Share of quantity	98.7	100.0	100.0	100.0	100.0
All import sources	Share of quantity	100.0	100.0	100.0	100.0	100.0
China	Share of value	1.1	---	---	---	---
Nonsubject sources	Share of value	98.9	100.0	100.0	100.0	100.0
All import sources	Share of value	100.00	100.0	100.0	100.0	100.0
China	Ratio	***	***	***	***	***
Nonsubject sources	Ratio	***	***	***	***	***
All import sources	Ratio	***	***	***	***	***

Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.61.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series. Value data are based on landed duty paid values. Ratios are 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-1
Potassium permanganate: U.S. import quantities and average unit values, by period



Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.61.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

U.S. importers' imports subsequent to June 30, 2021

The Commission requested importers to indicate whether they had imported or arranged for the importation of potassium permanganate for delivery after June 30, 2021. None of the responding importers had arranged imports from China, while *** importers reported arranged imports from nonsubject sources for delivery after June 30, 2021 (table IV-2).

Table IV-2
Potassium permanganate: Quantity of arranged U.S. imports, by quarter

Quantity in 1,000 pounds

Source of arranged imports	Jul-Sept 2021	Oct-Dec 2021	Jan-Mar 2022	Apr-Jun 2022	Total
China	---	---	---	---	---
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

U.S. importers' inventories

Table IV-3 presents inventories of imported potassium permanganate held in the United States. No importer reported inventories for potassium permanganate from China. Inventories for potassium permanganate from nonsubject sources increased from 2018 to 2020 by *** percent but were *** percent lower in January-June 2021 than in January-June 2020, reflecting inventories held by ***.²

² Email correspondence to USITC staff from ***, September 13, 2021.

Table IV-3
Potassium permanganate: U.S. importers' inventories of imports, by source and by period

Quantity in 1,000 pounds; ratios in percent

Measure	Source	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Inventories quantity	China	---	---	---	---	---
Ratio to imports	China	---	---	---	---	---
Ratio to U.S. shipments of imports	China	---	---	---	---	---
Ratio to total shipments of imports	China	---	---	---	---	---
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.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent.

The industry in China

Overview

During the final phase of the original investigation, the Commission received no foreign producer/exporter questionnaires from Chinese firms. During the first five-year review, the Commission received foreign producer/exporter questionnaires from two firms, which accounted for approximately *** percent of production of potassium permanganate in China during 1998,³ and approximately *** percent of potassium permanganate U.S. imports from China during 1998.⁴

Although the Commission did not receive responses from any respondent interested parties in its second five-year review, the domestic interested party provided a list of 11 possible producers of potassium permanganate in China, along with each of the ten producers' estimated capacity and production in that proceeding.⁵ Although the Commission did not

³ Investigation Nos. 731-TA-125-126 (Review): Potassium Permanganate from China and Spain, Confidential Report, INV-W-216, September 20, 1999 ("First review confidential report"), pp. IV-5-6.

⁴ First review confidential report, pp. IV-1 and IV-8. The two responding firms were Chongqing Jialing and Zunyi.

⁵ Second review publication, pp. I-16-17.

receive responses from any respondent interested parties in its third five-year review, the domestic interested party provided a list of *** possible producers of potassium permanganate in China.⁶ Although the Commission did not receive responses from any respondent interested parties in its fourth five-year review, the domestic interested party provided a list of six possible producers of potassium permanganate in China.⁷

In this fifth full five-year review, the Commission issued foreign producer/exporter questionnaires to seven firms identified as possible producers or exporters of potassium permanganate in China. The Commission received a usable questionnaire response from one firm: Chongqing Changyuan Group Limited – Baiyin Changyuan Chemical Co. Limited – Pacific Accelerator Limited (“Changyuan”).⁸ By its estimate, Changyuan accounted for approximately *** percent of potassium permanganate production in China during 2020.

Table IV-4 presents information on the potassium permanganate operations of the responding producer and exporter in China.

Table IV-4
Potassium permanganate: Summary data for Changyuan in China, 2020

Quantity in 1,000 pounds; ratio in percent

Firm	Production (1,000 pounds)	Share of reported production (percent)	Exports to the United States (1,000 pounds)	Share of reported exports to the United States (percent)	Total shipments (1,000 pounds)	Share of firm's total shipments exported to the United States (percent)
Changyuan	***	***	***	***	***	***

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.

⁶ Investigation No. 731-TA-125 (Third Review): Potassium Permanganate from China, Confidential Report, INV-HH-088, September 2, 2010, p. I-28.

⁷ Investigation No. 731-TA-125 (Fourth Review): Potassium Permanganate from China, Confidential Report, INV-NN-087, November 23, 2015, pp. I-26-27.

⁸ ***, a foreign producer / exporter of potassium permanganate, submitted an unusable questionnaire. Staff sent multiple emails to complete the questionnaire which was submitted ***. No response was received.

Changes in operations

As presented in table IV-5, Changyuan in China reported several operational and organizational changes since January 1, 2015.

Table IV-5
Potassium permanganate: Reported changes in operations by Changyuan in China, since January 1, 2015

Item	Narrative response
Prolonged shutdowns or curtailments	***

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

Operations on potassium permanganate

Table IV-6 presents information on Changyuan's potassium permanganate operations in China for 2018-20, January-June 2020, and January-June 2021. Changyuan's capacity for potassium permanganate decreased by *** pounds from 2018 to 2020. This decrease in capacity was associated with ***.⁹ Changyuan's capacity was *** pounds lower in January-June 2021 than January-June 2020.¹⁰ Production decreased by *** pounds from 2018 to 2020 but was *** pounds higher in January-June 2021 than January-June 2020. Capacity utilization decreased by *** percentage points from 2018 at *** percent to 2020 at *** percent. Capacity utilization was *** percentage points higher in January-June 2021 than January-June 2020. End-of-period inventories decreased by *** percent from 2018 to 2020 and were *** percent lower in January-June 2021 than January-June 2020. Changyuan's total shipments by quantity decreased by *** percent from 2018 to 2020 and were *** percent lower in January-June 2021 than January-June 2020. Changyuan exports were primarily to ***.

⁹ Changyuan foreign producer questionnaire response, section II-2c.

¹⁰ Changyuan foreign producer questionnaire exhibit 1 indicated ***.

Table IV-6
Potassium permanganate: Data on Changyuan in China, by period

Quantity in 1,000 pounds; value in 1,000 dollars

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Capacity	Quantity	***	***	***	***	***
Production	Quantity	***	***	***	***	***
End-of-period inventories	Quantity	***	***	***	***	***
Internal consumption and transfers	Quantity	***	***	***	***	***
Commercial home market shipments	Quantity	***	***	***	***	***
Home market shipments	Quantity	***	***	***	***	***
Exports to the United States	Quantity	***	***	***	***	***
Exports to the European Union	Quantity	***	***	***	***	***
Exports to Asia	Quantity	***	***	***	***	***
Exports to the Middle East	Quantity	***	***	***	***	***
Exports to all other markets	Quantity	***	***	***	***	***
Export shipments	Quantity	***	***	***	***	***
Total shipments	Quantity	***	***	***	***	***
Internal consumption and transfers	Value	***	***	***	***	***
Commercial home market shipments	Value	***	***	***	***	***
Home market shipments	Value	***	***	***	***	***
Exports to the United States	Value	***	***	***	***	***
Exports to the European Union	Value	***	***	***	***	***
Exports to Asia	Value	***	***	***	***	***
Exports to the Middle East	Value	***	***	***	***	***
Exports to all other markets	Value	***	***	***	***	***
Export shipments	Value	***	***	***	***	***
Total shipments	Value	***	***	***	***	***

Table continued.

Table IV-6
Potassium permanganate: Data on Changyuan in China, by period

Unit values in dollars per pound; shares in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Internal consumption and transfers	Unit value	***	***	***	***	***
Commercial home market shipments	Unit value	***	***	***	***	***
Home market shipments	Unit value	***	***	***	***	***
Exports to the United States	Unit value	***	***	***	***	***
Exports to the European Union	Unit value	***	***	***	***	***
Exports to Asia	Unit value	***	***	***	***	***
Exports to the Middle East	Unit value	***	***	***	***	***
Exports to all other markets	Unit value	***	***	***	***	***
Export shipments	Unit value	***	***	***	***	***
Total shipments	Unit value	***	***	***	***	***
Capacity utilization ratio	Ratio	***	***	***	***	***
Inventory ratio to production	Ratio	***	***	***	***	***
Inventory ratio to total shipments	Ratio	***	***	***	***	***
Internal consumption and transfers	Share	***	***	***	***	***
Commercial home market shipments	Share	***	***	***	***	***
Home market shipments	Share	***	***	***	***	***
Exports to the United States	Share	***	***	***	***	***
Exports to the European Union	Share	***	***	***	***	***
Exports to Asia	Share	***	***	***	***	***
Exports to the Middle East	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

Changyuan produced *** on the same equipment and machinery used to produce potassium permanganate.¹¹

Table IV-7
Potassium permanganate: Overall capacity and production on the same equipment as in-scope production by Changyuan in China, by period

Quantity in 1,000 pounds; shares and ratios in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Overall capacity	Quantity	***	***	***	***	***
Potassium permanganate production	Quantity	***	***	***	***	***
Other production	Quantity	***	***	***	***	***
Total production	Quantity	***	***	***	***	***
Overall capacity utilization	Ratio	***	***	***	***	***
Potassium permanganate production	Share	***	***	***	***	***
Other production	Share	***	***	***	***	***
Total production	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.

Exports

According to GTA, exports of potassium permanganate from China increased from 28.2 million pounds in 2018 to 36.2 million pounds in 2020 (table IV-8). There were no reported exports of potassium permanganate from China to the United States during 2018-20. During 2020, Vietnam was the leading export market for potassium permanganate from China, accounting for 21.4 percent of exports, followed by Iran, accounting for 18.7 percent of exports, and Thailand (16.5 percent). The unit value of exports from China to all destinations decreased from \$1.05 per pound in 2018 to \$0.96 per pound in 2020.

¹¹ Changyuan foreign producer questionnaire exhibit 1 indicated ***.

Table IV-8
Potassium permanganate: Quantity and value of exports from China by destination market, by period

Quantity in 1,000 pounds; value 1,000 dollars

Destination market	Measure	2018	2019	2020
United States	Quantity	---	---	---
Vietnam	Quantity	4,403	5,548	7,751
Iran	Quantity	2,969	---	6,774
Thailand	Quantity	5,114	5,954	5,955
Bangladesh	Quantity	1,698	2,271	2,663
Japan	Quantity	1,695	1,861	1,742
Poland	Quantity	1,069	1,118	1,259
Turkey	Quantity	1,177	843	1,220
Taiwan	Quantity	856	1,085	909
All other destination markets	Quantity	9,266	7,901	7,927
All destination markets	Quantity	28,246	26,581	36,201
United States	Value	---	---	---
Vietnam	Value	4,740	5,698	6,422
Iran	Value	2,719	---	7,484
Thailand	Value	5,188	6,192	5,347
Bangladesh	Value	1,942	2,534	2,555
Japan	Value	1,790	2,012	1,842
Poland	Value	1,156	1,157	1,234
Turkey	Value	1,164	796	1,083
Taiwan	Value	859	1,101	804
All other destination markets	Value	9,997	8,525	7,948
All destination markets	Value	29,555	28,017	34,719

Table continued on next page.

Table IV-8—Continued
Potassium permanganate: Quantity and value of exports from China by destination market, by period

Unit values in dollars per pound; shares in percent

Destination market	Measure	2018	2019	2020
United States	Unit value	---	---	---
Vietnam	Unit value	1.08	1.03	0.83
Iran	Unit value	0.92	---	1.10
Thailand	Unit value	1.01	1.04	0.90
Bangladesh	Unit value	1.14	1.12	0.96
Japan	Unit value	1.06	1.08	1.06
Poland	Unit value	1.08	1.03	0.98
Turkey	Unit value	0.99	0.94	0.89
Taiwan	Unit value	1.00	1.01	0.89
All other destination markets	Unit value	1.08	1.08	1.00
All destination markets	Unit value	1.05	1.05	0.96
United States	Share of quantity	---	---	---
Vietnam	Share of quantity	15.6	20.9	21.4
Iran	Share of quantity	10.5	---	18.7
Thailand	Share of quantity	18.1	22.4	16.5
Bangladesh	Share of quantity	6.0	8.5	7.4
Japan	Share of quantity	6.0	7.0	4.8
Poland	Share of quantity	3.8	4.2	3.5
Turkey	Share of quantity	4.2	3.2	3.4
Taiwan	Share of quantity	3.0	4.1	2.5
All other destination markets	Share of quantity	32.8	29.7	21.9
All destination markets	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2841.61 as reported by China Customs in the Global Trade Atlas database, accessed June 24, 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 shown in descending order of 2020 data.

Third-country trade actions

There are no known current antidumping or countervailing duty orders on potassium permanganate in third-country markets. Chinese potassium permanganate was subject to an antidumping duty order in Europe in 1988;¹² however, the order was terminated in 2006.¹³ India maintained an antidumping duty order on imports of potassium permanganate from China from 1995 to 2013.¹⁴

Global market

Carus provided estimates of global capacity, production, and consumption for 2020 as shown in table IV-9.¹⁵ The largest producers of potassium permanganate were ***. The countries with the greatest production capacity were ***. The largest consuming countries were ***.

During 2018 to 2020, China was the largest global exporter of potassium permanganate, with its share of global exports ranging from a low of 54.9 percent in 2019 to a high of 65.4

¹² An antidumping duty order on potassium permanganate from China was issued in 1988, and in November 1994 a more stringent, per-kilogram duty was imposed in the amount of 1.26 ECU per kilogram. *Potassium Permanganate from China and Spain, Investigation Nos. 731-TA-125-126 (Review)*, 1999, p. IV-5; Commission of the European Communities, “Imposing a Definitive Anti-dumping Duty on Imports of Potassium Permanganate Originating in the People’s Republic of China,” COM(94) 424 Final, October 19, 1994, http://aei.pitt.edu/46648/1/COM_94_424_final.pdf; Official Journal of the European Communities, Council Regulation (EC) 299/2001, “Imposing a Definitive Anti-dumping Duty on Imports of Potassium Permanganate Originating in the People’s Republic of China,” February 12, 2001, <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:044:0004:0011:EN:PDF>.

¹³ *Potassium Permanganate from China, Investigation No. 731-TA-125 (Fourth Review)*, February 2016, pp. I-19-20; Commission of the European Communities, “Commission Staff Working Document, Accompanying Document to the 25th Annual Report from the Commission to the European Parliament on the Community’s Anti-dumping, Anti-Subsidy, and Safeguard Measures (2006),” SEC(2007) 1076, https://trade.ec.europa.eu/doclib/docs/2007/august/tradoc_135663.pdf. In 2000, Carus bought the Spanish company Industrial Química del Nalón. In 2005, The Commission in Europe found that Carus was not a producer in Spain and concluded Spolchemie of the Czech Republic was the sole Community producer. “Notice concerning the anti-dumping measures in force on imports of potassium permanganate originating in the People’s Republic of China,” May 5, 2005, https://trade.ec.europa.eu/tdi/case_history.cfm?id=292&init=292; Water & Wastes Digest, “Carus Chemical Purchases Industrial Química del Nalón,” December 28, 2000, [Carus Chemical Purchases Industrial Química del Nalón | WWD \(wwdmag.com\)](http://www.wwdmag.com).

¹⁴ *Potassium Permanganate from China, Investigation No. 731-TA-125 (Fourth Review)*, February 2016, pp. I-19-20.

¹⁵ Information regarding price levels in non-U.S. markets appears in Part V.

percent in 2020 (table IV-10). During this period, India, the largest nonsubject exporter, accounted for a low of 12.1 percent of global exports in 2018 and a high of 17.0 percent in 2019. U.S. global exports by destination, imports into the EU by exporting countries, and U.S. producer's and foreign producer's exports by grade into the EU are shown in appendix G.

Iran has one plant with a capacity of 5,000 tons per year.¹⁶ Changyuan reports that Iran's potassium permanganate industry ***.¹⁷

In addition to potassium permanganate, during 2018 to 2020, China was the largest global exporter of sodium permanganate, manganites, and other permanganates, with its share of global exports ranging from a low of 53.7 percent in 2018 to a high of 61.8 percent in 2020 (table IV-11).¹⁸ During this period, Japan accounted for a low of 9.6 percent of global exports in 2019 and a high of 12.9 percent in 2018.

¹⁶ Ana Kimia Manganese Company, "The First Producer of Potassium Permanganate in the Middle East," accessed October 14, 2021, <http://anakimia.com/index.aspx?lang=en>; Tasnim News Agency, "Iran Opens Middle East's First Potassium Permanganate Factory," October 31, 2015, <https://www.tasnimnews.com/en/news/2015/10/31/903175/iran-opens-middle-east-s-first-potassium-permanganate-factory>.

¹⁷ Respondent interested parties posthearing brief, Attachment 2, p. 79.

¹⁸ This HS category is salts of oxometallic or peroxometallic acids, and HS 2841.69 includes sodium permanganate and other manganites, manganates, and permanganate not elsewhere specified or included (nesoi). Staff estimates sodium permanganate is a large percentage of HS 2841.69. HS 2841.69 does not include in-scope potassium permanganate as potassium permanganate is specified elsewhere.

**Table IV-9
Potassium permanganate: Global supply and demand, 2020**

Region	Location or name	Capacity (1,000 pounds)	Production estimate (1,000 pounds)	Capacity utilization ratio (percent)	Potassium consumption for sodium production (1,000 pounds) ¹	Market consumption (1,000 pounds)	Total consumption (1,000 pounds)	Consumption as a ratio to capacity (percent)
Americas	Carus, USA ²	***	***	***	***	***	***	***
European Union	Spolchemie	***	***	***	***	***	***	***
China	Chongqing Jialing ³	***	***	***	***	***	***	***
China	Jianshui (Yunnan)	***	***	***	***	***	***	***
China	Groupstars Chemical (Yunnan)	***	***	***	***	***	***	***
China	Guangdong Hangxin	***	***	***	***	***	***	***
China	China Total	***	*** ⁴	***	***	***	***	***
India	Magnesia	***	***	***	***	***	***	***
India	Organic	***	***	***	***	***	***	***
India	Universal	***	***	***	***	***	***	***
India	Libox	***	***	***	***	***	***	***
India	Ken Chemicals	***	***	***	***	***	***	***
India	Black Diamond	***	***	***	***	***	***	***
India	India Total	***	*** ⁵	***	***	***	***	***
Rest of World	Ana Kimia, Iran	***	***	***	***	***	***	***
World ⁶	World Total	***	***	***	***	***	***	***

Source: Carus's posthearing brief, exhibit 2.

Notes:

1. For the column labeled "Potassium consumption for sodium production:" Potassium permanganate used as a raw material to produce sodium permanganate - captive use/not available for market consumption. Sodium permanganate conversion to potassium permanganate usage $\text{NaMnO}_4 \times 0.40 \times (158.04/141.93)$.
2. Carus's capacity: U.S. producer questionnaire.
3. Chongqing Jialing: Chongqing Changyuan's foreign producer questionnaire.
4. China's total production: Total China export volume plus domestic potassium permanganate sales.
5. India's total production: Total India export volume plus domestic potassium permanganate sales.
6. All other sources not specified in notes from public information (e.g., company websites) and Carus's market intelligence.

Table IV-10
Potassium permanganate: Global exports by exporter, by period

Quantity in 1,000 pounds; Value in 1,000 dollars; share of quantity is the share of total exports by quantity in percent

Exporting country	Measure	2018	2019	2020
United States	Quantity	7,633	6,641	6,769
China	Quantity	28,246	26,581	36,201
India	Quantity	5,840	8,215	7,324
Belgium	Quantity	3,919	2,665	2,652
Netherlands	Quantity	1,305	968	618
All other exporters	Quantity	1,488	3,326	1,808
All reporting exporters	Quantity	48,432	48,397	55,371
United States	Value	10,034	8,819	8,542
China	Value	29,555	28,017	34,719
India	Value	6,532	8,697	7,056
Belgium	Value	5,727	3,787	3,858
Netherlands	Value	1,646	1,229	1,014
All other exporters	Value	3,123	3,035	3,671
All reporting exporters	Value	56,617	53,583	58,861

Table continued on next page.

Table IV-10—Continued
Potassium permanganate: Global exports by exporter, by period

Unit values in dollars per pound; Share of quantity is the share of total exports by quantity in percent

Exporting country	Measure	2018	2019	2020
United States	Unit value	1.31	1.33	1.26
China	Unit value	1.05	1.05	0.96
India	Unit value	1.12	1.06	0.96
Belgium	Unit value	1.46	1.42	1.45
Netherlands	Unit value	1.26	1.27	1.64
All other exporters	Unit value	2.10	0.91	2.03
All reporting exporters	Unit value	1.17	1.11	1.06
United States	Share of quantity	15.8	13.7	12.2
China	Share of quantity	58.3	54.9	65.4
India	Share of quantity	12.1	17.0	13.2
Belgium	Share of quantity	8.1	5.5	4.8
Netherlands	Share of quantity	2.7	2.0	1.1
All other exporters	Share of quantity	3.1	6.9	3.3
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2841.61 reported by various national statistical authorities in the Global Trade Atlas database, accessed June 24, 2021.

Note: United States is shown at the top followed by the other leading exporting countries in descending order of 2020 quantity data.

Table IV-11
Sodium permanganate, manganites, and other permanganates, nesoi: Global exports by exporter,
by period

Quantity in 1,000 pounds; Value in 1,000 dollars

Exporting country	Measure	2018	2019	2020
United States	Quantity	2,444	2,264	1,386
China	Quantity	9,993	10,891	10,497
Japan	Quantity	2,400	1,749	1,963
South Korea	Quantity	1,557	1,467	1,454
Germany	Quantity	819	266	210
All other exporters	Quantity	1,406	1,639	1,471
All reporting exporters	Quantity	18,620	18,276	16,982
United States	Value	3,553	2,586	1,730
China	Value	14,763	14,848	12,427
Japan	Value	13,796	9,446	9,883
South Korea	Value	8,992	7,891	7,757
Germany	Value	1,203	465	402
All other exporters	Value	2,096	2,742	3,404
All reporting exporters	Value	44,404	37,977	35,602

Table continued on next page.

Table IV-11—Continued**Sodium permanganate, manganites, and other permanganates, nesoi: Global exports by exporter, by period**

Unit values in dollars per pound; Share of quantity is the share of total exports by quantity in percent

Exporting country	Measure	2018	2019	2020
United States	Unit value	1.45	1.14	1.25
China	Unit value	1.48	1.36	1.18
Japan	Unit value	5.75	5.40	5.04
South Korea	Unit value	5.77	5.38	5.34
Germany	Unit value	1.47	1.74	1.91
All other exporters	Unit value	1.49	1.67	2.31
All reporting exporters	Unit value	2.38	2.08	2.10
United States	Share of quantity	13.1	12.4	8.2
China	Share of quantity	53.7	59.6	61.8
Japan	Share of quantity	12.9	9.6	11.6
South Korea	Share of quantity	8.4	8.0	8.6
Germany	Share of quantity	4.4	1.5	1.2
All other exporters	Share of quantity	7.6	9.0	8.7
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 2841.69 reported by various national statistical authorities in the Global Trade Atlas database, accessed October 6, 2021. Nesoi indicates not elsewhere specified or included. Potassium permanganate is not included in HS subheading 2841.69 as it is specified elsewhere.

Note: United States is shown at the top followed by the other leading exporting countries in descending order of 2020 quantity data.

Part V: Pricing data

Factors affecting prices

Raw material costs

The major raw materials used to produce potassium permanganate are manganese ore and potassium hydroxide. Carus reported that its unit raw material costs decreased from *** per pound in 2018 to *** per pound in 2020 and were *** per pound in January-June 2021 (see Part III). As a share of COGS, Carus's raw material costs declined from *** percent in 2018 to *** percent in 2020 and were *** percent in January-June 2021.

Carus reported that the prices it paid for manganese ore and potassium hydroxide declined from 2018 to 2020 (table V-1). Prices of manganese ore continued to decline in the first half of 2021 while prices of potassium hydroxide increased slightly. Carus stated that by the end of 2021 it expects prices of manganese ore *** and that it expects prices of potassium hydroxide to ***.¹

Table V-1
Raw materials: Prices for manganese ore and potassium hydroxide

Price in dollars per pound

Raw material	2018	2019	2020	Jan-June 2021
Manganese ore	***	***	***	***
Potassium hydroxide	***	***	***	***

Source: Carus's posthearing brief, exhibit 1, response 1.

Note: Data are rounded from the figures presented in the brief. The brief also presents prices from 2015 to 2017.

Two importers reported that raw material prices had increased since January 1, 2015, and two reported that they did not change. Importer *** reported increases in raw materials (potash) and ocean freight for imported product.

Three of 13 responding purchasers reported that they were familiar with the raw material costs for potassium permanganate. Two of these purchasers reported that information

¹ Carus's posthearing brief, exhibit 1, response 1. ***.

on raw material prices had affected their negotiations or contracts to purchase potassium permanganate, with one purchaser reporting that prices for potassium hydroxide had increased and one purchaser stating that it uses raw material pricing to assess appropriate prices.

Chinese producer Changyuan reported that raw material prices ***. ***.

Transportation costs to the U.S. market

Transportation costs for potassium permanganate shipped from all import sources to the United States averaged 7.9 percent in 2020. Transportation costs from the largest import source, India, averaged 7.0 percent. These estimates were derived from official import data and represent the transportation and other charges on imports.²

U.S. inland transportation costs

Carus reported that it typically *** and that its U.S. inland transportation costs averaged *** percent. All four importers that responded to the question reported that they typically arrange transportation to their customers. No importers reported estimates of U.S. inland transportation costs for imports from China.

Pricing practices

Pricing methods

*** (table V-2). Importers reported setting prices using transaction-by-transaction negotiations, competitive bids, contracts, and “cost plus.” No importers reported using set price lists.

² 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 HTS subheading 2841.60 (statistical reporting number 2841.60.0000).

Table V-2

Potassium permanganate: Price setting methods reported by U.S. producer Carus and by U.S. importers, count

Method	U.S. producer	Importers
Transaction-by-transaction	***	***
Bids (competitive bid for a specific project)	***	***
Contracts (other than competitive bid for a specific project)	***	***
Set price list	***	***
Other	***	***
Responding firms	1	6

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.

***.³ *** responding importers reported that they did not provide lab/field/technical services. ***.

Table V-3 presents share data for the U.S. producer's contract and spot sales in 2020. Carus reported ***. Such data are unavailable for China since there were no imports of potassium permanganate from China in 2020.

Table V-3

Potassium permanganate: U.S. producer Carus's U.S. commercial shipments by type of sale, 2020

Type of sale	Shares of U.S. producer's U.S. commercial shipments (percent)
Long-term contracts	***
Annual contracts	***
Short-term contracts	***
Spot sales	***
Total	100.0

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

³ Carus tries to sell "technical services along with the product, customer services, our supply chain logistical services" but customers may not be willing to pay a premium for such services. Hearing transcript, p. 72 (Carus).

Municipalities typically purchase potassium permanganate using a bid process in which specifications such as free-flowing, particle size, container type and size, and other requirements are detailed. Municipalities may specify Cairox or Cairox equivalent in their solicitations. They may also specify requirements for technical service. These bids are often hosted online and can be found on subscription services such as Bidnetdirect, Bidprime, and H2bid. Municipal bids may or may not be made public during the bidding process but the names of the bidders, the bids, and winning bidder are typically made public after the bid is awarded. Other purchasers, such as industrial users, may also use a bidding process to procure potassium permanganate.

Carus reported that *** percent of its commercial sales of potassium permanganate in 2020 involved a bidding process.⁴ It reported that *** of its sales are direct municipal bid accounts. ***.

Three importers reported that they did not engage in a bidding process to attempt to win contracts for the sale of potassium permanganate while three reported that they did. Importer *** reported that *** percent of its sales in 2020 involved bidding. It reported that in bidding to municipalities, it receives bid documents from subscription bid platforms, which list the products available for bid. It selects the bid for which it would like to participate and completes the required documents (which may be extensive or may be very simple). *** stated that there is typically no testing required for municipalities since “potassium permanganate is a well-known product,” and the bid is a single round bid, in which pricing is submitted and the bid awarded. It added that some municipalities may disclose competing suppliers during the process if the bid process is online. The importer estimates that this happens about 10 to 15 percent of the time but 85 percent of the time, it does not know who the competing suppliers are, until after the award is made when the bid tabulation is made available. The bid tabulation contains the competing bidders name and price submitted and the name of the firm awarded.

⁴ ***.

Importer *** stated that it identifies listings on a bid hosting website. When a bid is posted, it checks to see if it can meet the required product specifications, if the municipality is willing to accept imported material, and ***. After submitting a bid, it typically receives the results of the bid by email although sometimes the municipality will read the results aloud in a video session. ***.

Five of 13 purchasers reported that their purchases involve negotiations with the supplier. In describing these negotiations, purchasers reported the following: “pricing and threat to go to foreign based material;” “quality and delivery;” “review raw materials, competitive feedback from sales, review municipal bids;” and “we quoted multiple suppliers and ultimately ended up with 1 primary supplier.”

Six of 13 purchasers reported that they purchase product monthly, two purchase quarterly, one purchases annually, and four purchase as needed (including a one-time purchase for a remediation project and one project-based purchase). Seven purchasers contact only one supplier before making a purchase and four purchasers contact up to 2 or 3 suppliers.⁵

Sales terms and discounts

Carus reported that it typically quotes prices on an ***. ***. Carus offers *** discounts. Two importers reported offering quantity discounts and four reported no discount policy.

⁵ One firm reported contacting 15 to 20 suppliers.

Price leadership

Seven of 13 purchasers named a price leader in the U.S. market, with five firms listing Carus as a price leader and two firms listing import suppliers. The purchasers that identified Carus as the price leader reported that it controls the market, is the only domestic source, was the purchaser's only supplier, and that it is the firm's primary supplier and other suppliers have offered to match Carus's prices. One purchaser reported that importer UMC was a price leader, offering a comparable product to Carus at prices that were about 10 percent lower. This purchaser added that ***. Purchaser *** identified Indian producer Universal Chemicals as a price leader, stating that the "Indian producers drag pricing up or down based on broker activity in the U.S."

Price data

The Commission requested the U.S. producer and importers to provide quarterly data for the total quantity and f.o.b. value of the following potassium permanganate products shipped to unrelated U.S. customers during January 2018-June 2021.

Product 1.-- Free-flowing grade potassium permanganate.

Product 2.-- Technical grade potassium permanganate.

U.S. producer Carus provided usable pricing data for sales of the requested products. No responding importer reported importing potassium permanganate from China. Pricing data reported by Carus accounted for approximately *** percent of its commercial U.S. shipments of potassium permanganate and *** percent of its total U.S. shipments of potassium permanganate in 2020. Price data for products 1 and 2 are presented in table V-4 and figure V-1.

Table V-4
Potassium permanganate: Weighted-average f.o.b. prices and quantities of domestic products 1 and 2, by quarter

Price in dollars per pound, quantity in 1,000 pounds

Period	Product 1 U.S. price	Product 1 U.S. quantity	Product 2 U.S. price	Product 2 U.S. 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	***	***	***	***
2021 Q2	***	***	***	***

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

Note: Product 1 is free-flowing grade potassium permanganate. Product 2 is technical grade potassium permanganate.

Figure V-1
Potassium permanganate: Weighted-average prices and quantities of domestic products 1 and 2, by quarter

Price						
*	*	*	*	*	*	*

Quantity						
*	*	*	*	*	*	*

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

Note: Product 1: Free-flowing grade potassium permanganate. Product 2: Technical grade potassium permanganate.

Price trends

In general, prices for U.S.-produced product decreased during January 2018-June 2021. Prices of the free-flowing grade (product 1), the much higher volume product, decreased from 2018 to 2020 and then increased in the first half of 2021. Prices of the technical grade fluctuated throughout the period for which data were collected, with a *** in ***. Carus explained that the trends ***.⁶ Carus also stated that the quantities shipped of the free-flowing product ***.

Table V-5 summarizes the domestic price trends, by product. As shown in the table, domestic prices for product 1 (free-flowing grade) and product 2 (technical grade) decreased by *** and *** percent, respectively, during January 2018-June 2021.

Table V-5
Potassium permanganate: Summary of price data reported by U.S. producer Carus, by product

Quantity in 1,000 pounds, price in dollars per pound

Product	Number of quarters	Quantity of shipments	Low price	High price	First quarter price	Last quarter price	Percent change in price over period
Product 1	14	***	***	***	***	***	***
Product 2	14	***	***	***	***	***	***

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

Note: Percent change column is percentage change from the first quarter 2018 to the second quarter in 2021.

⁶ ***.

Price comparisons

Price comparisons are not available since no data were reported for imports from China. In the original investigations, drawing on data from January 1981-March 1983, subject imports from China were priced lower than the domestic product in all 11 comparisons, with underselling margins ranging from *** to *** percent.⁷ In the first review, drawing on data from January 1997-March 1999, subject imports from China were priced lower than the domestic product in all three comparisons, with underselling margins ranging from *** to *** percent.⁸ Price data were not collected in the second, third, and fourth reviews.

***.⁹ ***.

Prices in the U.S. market compared to non-U.S. markets

The U.S. producer and importers were asked to compare market prices of potassium permanganate in U.S. and non-U.S. markets, if known. No importers provided information on non-U.S. markets. ***. ***.

⁷ Original confidential report, p. A-56.

⁸ First review confidential report, p. V-11.

⁹ Carus's posthearing brief, exhibit 1, response 1.

***.

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
49 FR 3897, January 31, 1984	<i>Antidumping Duty Order; Potassium Permanganate From the People's Republic of China</i>	https://archives.federalregister.gov/issue_slice/1984/1/31/3895-3898.pdf#page=3
64 FR 66167, November 24, 1999	<i>Continuation of Antidumping Duty Order: Potassium Permanganate From the People's Republic of China</i>	https://www.govinfo.gov/content/pkg/FR-1999-11-24/pdf/99-30674.pdf
70 FR 35630, June 21, 2005	<i>Continuation of Antidumping Duty Order; Potassium Permanganate from the People's Republic of China</i>	https://www.govinfo.gov/content/pkg/FR-2005-06-21/pdf/E5-3210.pdf
75 FR 65448, October 25, 2010	<i>Potassium Permanganate From the People's Republic of China: Continuation of Antidumping Duty Order</i>	https://www.govinfo.gov/content/pkg/FR-2010-10-25/pdf/2010-26745.pdf

Citation	Title	Link
81 FR 14835, March 18, 2016	<i>Potassium Permanganate From the People's Republic of China: Continuation of Antidumping Duty Order</i>	https://www.govinfo.gov/content/pkg/FR-2016-03-18/pdf/2016-06172.pdf
86 FR 7743, February 1, 2021	<i>Potassium Permanganate From China; Institution of a Five-Year Review</i>	https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02027.pdf
86 FR 7709, February 1, 2021	<i>Initiation of Five-Year (Sunset) Reviews</i>	https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02078.pdf
86 FR 27477, May 20, 2021	<i>Potassium Permanganate From China; Notice of Commission Determination To Conduct a Full Five-Year Review</i>	https://www.govinfo.gov/content/pkg/FR-2021-05-20/pdf/2021-10647.pdf
86 FR 30256, June 7, 2021	<i>Potassium Permanganate From the People's Republic of China: Final Results of Expedited Fifth Sunset Review of the Antidumping Duty Order</i>	https://www.govinfo.gov/content/pkg/FR-2021-06-07/pdf/2021-11852.pdf
86 FR 32060, June 16, 2021	<i>Potassium Permanganate From China; Scheduling of a Full Five-Year Review</i>	https://www.govinfo.gov/content/pkg/FR-2021-02-26/pdf/2021-04032.pdf

Note: The press release announcing the Commission's determination concerning adequacy and the conduct of a full or expedited review can be found at:

[Potassium Permanganate from China | USITC](#)

Commission's explanation of its determination can be found at:

[USITC Five-Year \(Sunset\) Reviews: Case Profile List](#)

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: Potassium Permanganate from China

Inv. No.: 731-TA-125 (Fifth Review)

Date and Time: October 5, 2021 - 9:30 a.m.

CONGRESSIONAL APPEARANCE:

The Honorable Adam Kinzinger, U.S. Representative, 16th District, Illinois

OPENING REMARKS:

In Support of Continuation (**Edward Lebow**, Haynes and Boone, LLP)

In Opposition to Continuation

(**Andrew B. Schroth**, Grunfeld, Desiderio, Lebowitz, Silverman and Klestadt LLP)

In Support of the Continuation of Antidumping Duty Order:

Haynes and Boone, LLP
Washington, DC
on behalf of

Carus LLC

Inga Carus, Chair of the Board, Carus LLC

Chryss Crockett, Chief Financial Officer, Carus LLC

Daniel Harper, General Counsel, Carus LLC

Kelly Frasco, Director of Product Management, Carus LLC

Daniel Klett, Economist, Capital Trade, Inc.

Edward Lebow)
) – OF COUNSEL
Scott Benfield)

**In Opposition to the Continuation of
Antidumping Duty Order:**

Grunfeld, Desiderio, Lebowitz, Silverman and Klestadt LLP
Washington, DC
on behalf of

Chongqing Changyuan Group Limited (“Changyuan”)
Pacific Accelerator Limited (“PAL”)

Tin Shing Chan (Vincent), Director, PAL, and
Director and Vice President, Changyuan

Bene Siu-Cheung Tam, Sales Director, PAL, and
Sales Manager, International Sales, Changyuan

James Dougan, Partner, ION Economics, LLC

RoseAnna Bell Harrison, Economic Consultant, ION Economics, LLC

Kavita Mohan)
Ned H. Marshak) – OF COUNSEL
Andrew B. Schroth)

REBUTTAL/CLOSING REMARKS:

In Support of Continuation (**Edward Lebow**, Haynes and Boone, LLP)

In Opposition to Continuation
(**Ned H. Marshak**, Grunfeld, Desiderio, Lebowitz, Silverman and Klestadt LLP)

-END-

APPENDIX C
SUMMARY DATA

Table C-1

Potassium permanganate: Summary data concerning the U.S. market, 2018-20, January to June 2020, and January to June 2021

Quantity=1,000 pounds; Unit labor costs=dollars per 1,000 pounds; Value=1,000 dollars; Unit values and unit expenses=dollars per pound; Period changes=percent--

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. consumption quantity:									
Amount.....	***	***	***	***	***	▼***	▲***	▼***	▲***
producer's share (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▼***	▼***	***	***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
U.S. consumption value:									
Amount.....	***	***	***	***	***	▼***	▲***	▼***	▲***
producer's share (fn1).....	***	***	***	***	***	▲***	▲***	▲***	▼***
Importers' share (fn1):									
China.....	***	***	***	***	***	▼***	▼***	***	***
Nonsubject sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
All import sources.....	***	***	***	***	***	▼***	▼***	▼***	▲***
U.S. imports from:									
China:									
Quantity.....	42	---	---	---	---	▼(100.0)	▼(100.0)	---	---
Value.....	45	---	---	---	---	▼(100.0)	▼(100.0)	---	---
Unit value.....	\$1.07	---	---	---	---	▼(100.0)	▼(100.0)	---	---
Ending inventory quantity.....	---	---	---	---	---	---	---	---	---
Nonsubject sources:									
Quantity.....	3,166	2,734	1,605	626	989	▼(49.3)	▼(13.6)	▼(41.3)	▲58.0
Value.....	3,997	3,410	2,018	768	1,157	▼(49.5)	▼(14.7)	▼(40.8)	▲50.6
Unit value.....	\$1.26	\$1.25	\$1.26	\$1.23	\$1.17	▼(0.4)	▼(1.2)	▲0.8	▼(4.7)
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
All import sources:									
Quantity.....	3,208	2,734	1,605	626	989	▼(50.0)	▼(14.8)	▼(41.3)	▲58.0
Value.....	4,042	3,410	2,018	768	1,157	▼(50.1)	▼(15.6)	▼(40.8)	▲50.6
Unit value.....	\$1.26	\$1.25	\$1.26	\$1.23	\$1.17	▼(0.2)	▼(1.0)	▲0.8	▼(4.7)
Ending inventory quantity.....	***	***	***	***	***	▲***	▲***	▼***	▼***
U.S. producer's:									
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 (pounds per hour).....	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit labor costs.....	***	***	***	***	***	▲***	▲***	▲***	▼***

Table continued on next page.

Table C-1 continued

Potassium permanganate: Summary data concerning the U.S. market, 2018-20, January to June 2020, and January to June 2021

Quantity=1,000 pounds; Unit labor costs=dollars per 1,000 pounds; Value=1,000 dollars; Unit values and unit expenses=dollars per pound; Period changes=percent--

	Reported data					Period changes			
	Calendar year			Jan-Jun		Comparison years			Jan-Jun
	2018	2019	2020	2020	2021	2018-20	2018-19	2019-20	2020-21
U.S. producer's:--Continued									
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 and from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021. Imports are based on the imports for consumption data series.

SUMMARY DATA COMPILED FROM PREVIOUS PROCEEDINGS

Table I-4a
Potassium permanganate: U.S. imports, by sources, 1980-82 and 1989-2003

Source	Calendar year																	
	1980	1981	1982	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Quantity (1,000 pounds)																	
China	1,019	281	588	2,075	2,524	824	256	2,403	926	625	2	0	2	0	40	177	892	0
All other	178	830	1,158	2,321	1,714	1,323	2,045	1,916	2,669	3,553	3,209	3,693	2,721	3,791	3,315	3,248	2,505	3,235
Total	1,197	1,111	1,746	4,397	4,239	2,147	2,301	4,319	3,595	4,178	3,212	3,693	2,724	3,791	3,354	3,425	3,397	3,235
	Value (\$1,000)¹																	
China	695	183	323	1,303	1,383	424	145	1,242	426	228	2	0	2	0	24	105	592	0
All other	183	849	846	2,435	1,584	1,301	1,963	1,820	2,652	3,073	3,169	3,570	2,521	3,237	3,186	3,194	2,455	3,174
Total	878	1,032	1,169	3,738	2,968	1,725	2,108	3,062	3,078	3,301	3,170	3,570	2,523	3,237	3,210	3,298	3,047	3,174
	Unit value (per pound)																	
China	\$0.68	\$0.65	\$0.55	\$0.63	\$0.55	\$0.51	\$0.57	\$0.52	\$0.46	\$0.37	\$0.83	(²)	0.83	(²)	\$0.60	\$0.59	\$0.66	(²)
All other	1.03	1.02	0.73	1.05	0.92	0.98	0.96	0.95	0.99	0.86	0.99	\$0.97	0.93	\$0.85	0.96	0.98	0.98	\$0.98
Ave.	0.73	1.67	1.28	0.85	0.70	0.80	0.92	0.71	0.86	0.79	0.99	0.97	0.93	0.85	0.96	0.96	0.90	0.98
	Share of quantity (percent)																	
China	85.1	25.3	33.7	47.2	59.6	38.4	11.1	55.6	25.8	15.0	0.1	0.0	0.1	0.0	1.2	5.2	26.3	0.0
All other	14.9	74.7	66.3	52.8	40.4	61.6	88.9	44.4	74.2	85.0	99.9	100.0	99.9	100.0	98.8	94.8	73.7	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Share of value (percent)																	
China	79.2	17.7	27.6	34.9	46.6	24.6	6.9	40.6	13.8	6.9	0.1	0.0	0.1	0.0	0.7	3.2	19.4	0.0
All other	20.8	82.3	72.4	65.1	53.4	75.4	93.1	59.4	86.2	93.1	99.9	100.0	99.9	100.0	99.3	96.8	80.6	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Landed, duty-paid.

² Not applicable.

Source: Compiled from official Commerce statistics.

Table C-1

Potassium permanganate: Summary data concerning the U.S. market, 1997-98, Jan.-Mar. 1998, and Jan.-Mar. 1999

* * * * *

Table C-1
Potassium permanganate: Summary data concerning the U.S. market, 2004-09

(Quantity=1,000 pounds, value=1,000 dollars, unit values, unit labor costs, and unit expenses are per pound; period changes=percent, except where noted)

Item	Reported data						Period changes					
	2004	2005	2006	2007	2008	2009	2004-09	2004-05	2005-06	2006-07	2007-08	2008-09
U.S. consumption quantity:												
Amount	***	***	***	***	***	***	***	***	***	***	***	***
Producers' share (1)	***	***	***	***	***	***	***	***	***	***	***	***
Importers' share (1):												
China	***	***	***	***	***	***	***	***	***	***	***	***
All other sources	***	***	***	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***	***	***	***
U.S. consumption value:												
Amount	***	***	***	***	***	***	***	***	***	***	***	***
Producers' share (1)	***	***	***	***	***	***	***	***	***	***	***	***
Importers' share (1):												
China	***	***	***	***	***	***	***	***	***	***	***	***
All other sources	***	***	***	***	***	***	***	***	***	***	***	***
Total imports	***	***	***	***	***	***	***	***	***	***	***	***
U.S. imports from:												
China:												
Quantity	0	0	0	0	0	0	(2)	(2)	(2)	(2)	(2)	(2)
Value	0	0	0	0	0	0	(2)	(2)	(2)	(2)	(2)	(2)
Unit value	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Ending inventory quantity	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
All other sources:												
Quantity	2,461	2,310	2,859	2,465	1,575	2,519	2.4	-6.1	23.7	-13.8	-36.1	60.0
Value	2,501	2,496	3,262	2,938	2,166	4,043	61.6	-0.2	30.7	-9.9	-26.3	86.7
Unit value	\$1.02	\$1.08	\$1.14	\$1.19	\$1.38	\$1.60	57.9	6.3	5.6	4.4	15.4	16.7
Ending inventory quantity	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
All sources:												
Quantity	2,461	2,310	2,859	2,465	1,575	2,519	2.4	-6.1	23.7	-13.8	-36.1	60.0
Value	2,501	2,496	3,262	2,938	2,166	4,043	61.6	-0.2	30.7	-9.9	-26.3	86.7
Unit value	\$1.02	\$1.08	\$1.14	\$1.19	\$1.38	\$1.60	57.9	6.3	5.6	4.4	15.4	16.7
Ending inventory quantity	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
U.S. producers':												
Average capacity quantity	***	***	***	***	***	***	***	***	***	***	***	***
Production quantity	***	***	***	***	***	***	***	***	***	***	***	***
Capacity utilization (1)	***	***	***	***	***	***	***	***	***	***	***	***
U.S. shipments:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Export shipments:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Ending inventory quantity	***	***	***	***	***	***	***	***	***	***	***	***
Inventories/total shipments (1)	***	***	***	***	***	***	***	***	***	***	***	***
Production workers	***	***	***	***	***	***	***	***	***	***	***	***
Hours worked (1,000s hours)	***	***	***	***	***	***	***	***	***	***	***	***
Wages paid (\$1,000s)	***	***	***	***	***	***	***	***	***	***	***	***
Hourly wages	***	***	***	***	***	***	***	***	***	***	***	***
Productivity (pounds per hour)	***	***	***	***	***	***	***	***	***	***	***	***
Unit labor costs (dollars per 1,000 pounds)	***	***	***	***	***	***	***	***	***	***	***	***
Net sales:												
Quantity	***	***	***	***	***	***	***	***	***	***	***	***
Value	***	***	***	***	***	***	***	***	***	***	***	***
Unit value	***	***	***	***	***	***	***	***	***	***	***	***
Cost of goods sold (COGS)	***	***	***	***	***	***	***	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
SG&A expenses	***	***	***	***	***	***	***	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
Capital expenditures	***	***	***	***	***	***	***	***	***	***	***	***
Unit COGS	***	***	***	***	***	***	***	***	***	***	***	***
Unit SG&A expenses	***	***	***	***	***	***	***	***	***	***	***	***
Unit operating income or (loss)	***	***	***	***	***	***	***	***	***	***	***	***
COGS/sales (1)	***	***	***	***	***	***	***	***	***	***	***	***
Operating income or (loss)/sales (1)	***	***	***	***	***	***	***	***	***	***	***	***

(1) "Reported data" are in percent and "period changes" are in percentage points.
(2) Not applicable.
(3) Not available.

Note.--Financial data are reported on a fiscal year basis and may not necessarily be comparable to data reported on a calendar year basis. Because of rounding, figures may not add to the totals shown. Unit values and shares are calculated from the unrounded figures.

Source: Compiled from Carus Response, Attachment 31 and from official Commerce statistics.

APPENDIX D

LIKELY EFFECTS OF REVOCATION

Table D-1
Potassium permanganate: U.S. producer's, U.S. importers', U.S. purchasers', and foreign producer's narratives on the effect of the order or the likely effect of its revocation

Question	Firm type	Firm name and its narrative response on the effect of order or its revocation
Effect of order	U.S. producers	***
Likely impact of revocation	U.S. producers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Effect of order	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Importers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Likely impact of revocation	Purchasers	***
Effect of order	Foreign producers	***
Likely impact of revocation	Foreign producers	***

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

APPENDIX E

**U.S. PRODUCER'S AND U.S. IMPORTERS'
U.S. SHIPMENTS BY SOURCE, GRADE, AND PERIOD**

Table E-1**Potassium permanganate: U.S. producer's U.S. shipments by source, grade, and period**

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Quantity	***	***	***	***	***
Technical	Quantity	***	***	***	***	***
Pharmaceutical	Quantity	***	***	***	***	***
Other	Quantity	***	***	***	***	***
All grades	Quantity	***	***	***	***	***
Free-flowing	Value	***	***	***	***	***
Technical	Value	***	***	***	***	***
Pharmaceutical	Value	***	***	***	***	***
Other	Value	***	***	***	***	***
All grades	Value	***	***	***	***	***
Free-flowing	Unit value	***	***	***	***	***
Technical	Unit value	***	***	***	***	***
Pharmaceutical	Unit value	***	***	***	***	***
Other	Unit value	***	***	***	***	***
All grades	Unit value	***	***	***	***	***

Table continued on next page.

Table E-1—Continued**Potassium permanganate: U.S. producer's U.S. shipments by source, grade, and period**

Share in percent

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Share of quantity	***	***	***	***	***
Technical	Share of quantity	***	***	***	***	***
Pharmaceutical	Share of quantity	***	***	***	***	***
Other	Share of quantity	***	***	***	***	***
All grades	Share of quantity	***	***	***	***	***
Free-flowing	Share of value	***	***	***	***	***
Technical	Share of value	***	***	***	***	***
Pharmaceutical	Share of value	***	***	***	***	***
Other	Share of value	***	***	***	***	***
All grades	Share of value	***	***	***	***	***

Table continued on next page.

Table E-2**Potassium permanganate: U.S. importers' U.S. shipments by source, grade, and period**

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Quantity	***	***	***	***	***
Technical	Quantity	***	***	***	***	***
Pharmaceutical	Quantity	***	***	***	***	***
Other	Quantity	***	***	***	***	***
All grades	Quantity	***	***	***	***	***
Free-flowing	Value	***	***	***	***	***
Technical	Value	***	***	***	***	***
Pharmaceutical	Value	***	***	***	***	***
Other	Value	***	***	***	***	***
All grades	Value	***	***	***	***	***
Free-flowing	Unit value	***	***	***	***	***
Technical	Unit value	***	***	***	***	***
Pharmaceutical	Unit value	***	***	***	***	***
Other	Unit value	***	***	***	***	***
All grades	Unit value	***	***	***	***	***

Table continued on next page.

Table E-2—Continued

Potassium permanganate: U.S. importers' U.S. shipments by source, grade, and period

Share in percent

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Share of quantity	***	***	***	***	***
Technical	Share of quantity	***	***	***	***	***
Pharmaceutical	Share of quantity	***	***	***	***	***
Other	Share of quantity	***	***	***	***	***
All grades	Share of quantity	***	***	***	***	***
Free-flowing	Share of value	***	***	***	***	***
Technical	Share of value	***	***	***	***	***
Pharmaceutical	Share of value	***	***	***	***	***
Other	Share of value	***	***	***	***	***
All grades	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 F

U.S. IMPORTS, BY SOURCE AND BY YEAR

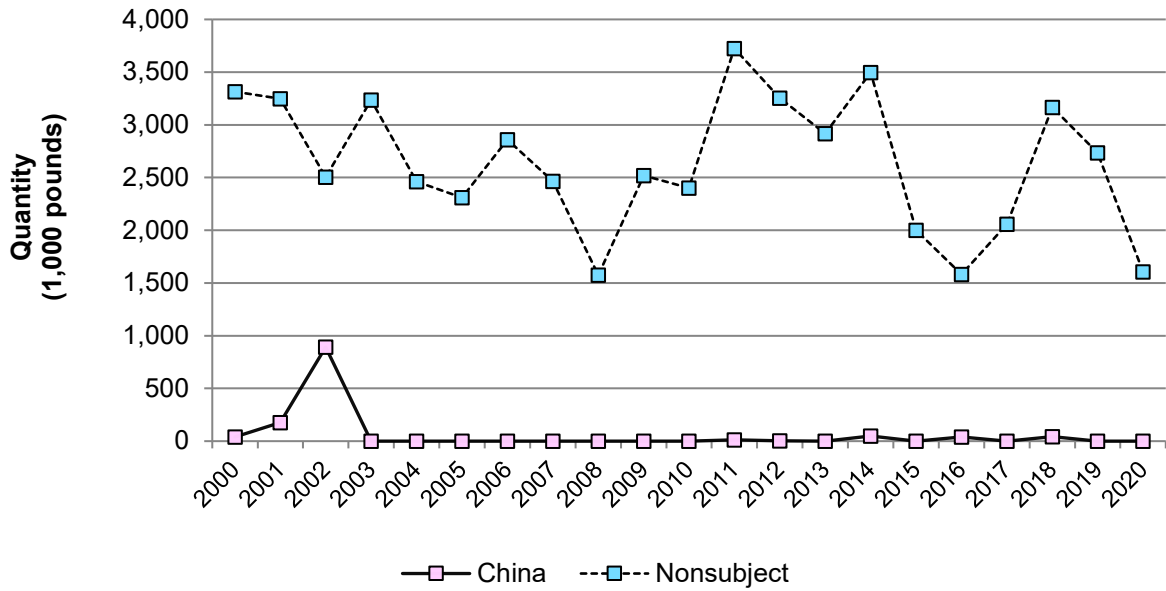
Table F-1**Potassium permanganate: U.S. imports, by source and by year, 2000-20**

Quantity in 1,000 pounds

Year	China	Nonsubject sources	All import sources
2000	40	3,315	3,354
2001	177	3,248	3,425
2002	892	2,505	3,397
2003	-	3,235	3,235
2004	-	2,461	2,461
2005	-	2,310	2,310
2006	-	2,859	2,859
2007	-	2,465	2,465
2008	-	1,575	1,575
2009	-	2,519	2,519
2010	-	2,402	2,402
2011	13	3,725	3,738
2012	3	3,255	3,258
2013	-	2,916	2,916
2014	48	3,497	3,545
2015	-	2,001	2,001
2016	40	1,583	1,622
2017	-	2,059	2,059
2018	42	3,166	3,208
2019	-	2,734	2,734
2020	-	1,605	1,605

Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021 and August 25, 2021. Imports are based on the imports for consumption data series.

Figure F-1
Potassium permanganate: U.S. imports, by source and by year, 2000-20



Source: Compiled from official U.S. imports statistics of the U.S. Department of Commerce Census Bureau using HTSUS subheading 2841.61.00 (statistical reporting number 2841.00.0000), accessed August 11, 2021 and August 25, 2021. Imports are based on the imports for consumption data series.

APPENDIX G

**U.S. PRODUCER'S AND FOREIGN PRODUCER'S
EXPORTS BY GRADE AND PERIOD**

Table G-1**Potassium permanganate: U.S. exports, by destination market and by period**

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound

Destination market	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Belgium	Quantity	3,682	2,549	2,937	1,555	1,358
Spain	Quantity	1,084	1,284	1,638	806	403
Brazil	Quantity	797	675	874	595	675
Mexico	Quantity	888	886	592	248	345
Canada	Quantity	860	624	428	227	268
All other destination markets	Quantity	323	623	301	145	114
All export destinations	Quantity	7,633	6,641	6,769	3,576	3,164
Belgium	Value	4,060	2,809	3,193	1,673	1,572
Spain	Value	1,184	1,355	1,662	772	460
Brazil	Value	855	746	928	628	690
Mexico	Value	1,795	1,884	1,284	536	757
Canada	Value	1,526	1,228	840	442	547
All other destination markets	Value	615	797	635	381	285
All export destinations	Value	10,034	8,819	8,542	4,431	4,311
Belgium	Unit value	1.10	1.10	1.09	1.08	1.16
Spain	Unit value	1.09	1.06	1.01	0.96	1.14
Brazil	Unit value	1.07	1.11	1.06	1.05	1.02
Mexico	Unit value	2.02	2.13	2.17	2.16	2.19
Canada	Unit value	1.77	1.97	1.97	1.95	2.04
All other destination markets	Unit value	1.90	1.28	2.11	2.63	2.49
All export destinations	Unit value	1.31	1.33	1.26	1.24	1.36

Table continued on next page.

Table G-1—Continued**Potassium permanganate: U.S. exports, by destination market and by period**

Shares in percent

Item	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Belgium	Share of quantity	48.2	38.4	43.4	43.5	42.9
Spain	Share of quantity	14.2	19.3	24.2	22.5	12.8
Brazil	Share of quantity	10.4	10.2	12.9	16.6	21.3
Mexico	Share of quantity	11.6	13.3	8.7	6.9	10.9
Canada	Share of quantity	11.3	9.4	6.3	6.3	8.5
All other destination markets	Share of quantity	4.2	9.4	4.4	4.1	3.6
All export destinations	Share of quantity	100.0	100.0	100.0	100.0	100.0
Belgium	Share of value	40.5	31.9	37.4	37.8	36.5
Spain	Share of value	11.8	15.4	19.5	17.4	10.7
Brazil	Share of value	8.5	8.5	10.9	14.2	16.0
Mexico	Share of value	17.9	21.4	15.0	12.1	17.6
Canada	Share of value	15.2	13.9	9.8	10.0	12.7
All other destination markets	Share of value	6.1	9.0	7.4	8.6	6.6
All export destinations	Share of value	100.0	100.0	100.0	100.0	100.0

Source: Compiled from official U.S. export statistics of the U.S. Department of Commerce Census Bureau using HTS statistical reporting number 2841.61, accessed October 7, 2021. Exports are based on the total exports data series. Value data are based on FAS values.

Note: Shares and ratios shown as "0.0" represent values greater than zero, but less than "0.05" percent. Zeroes, null values, and undefined calculations are suppressed and shown as "---".

Table G-2**Potassium permanganate: U.S. exports by grade (EU) reported by Carus**

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares in percent

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Quantity	***	***	***	***	***
Technical	Quantity	***	***	***	***	***
Other grades	Quantity	***	***	***	***	***
All grades	Quantity	***	***	***	***	***
Free-flowing	Value	***	***	***	***	***
Technical	Value	***	***	***	***	***
Other grades	Value	***	***	***	***	***
All grades	Value	***	***	***	***	***
Free-flowing	Unit value	***	***	***	***	***
Technical	Unit value	***	***	***	***	***
Other grades	Unit value	***	***	***	***	***
All grades	Unit value	***	***	***	***	***
Free-flowing	Share of quantity	***	***	***	***	***
Technical	Share of quantity	***	***	***	***	***
Other grades	Share of quantity	***	***	***	***	***
All grades	Share of quantity	***	***	***	***	***

Source: Carus's posthearing brief, exh 1.

Table G-3**Potassium permanganate: Chinese exports by grade (EU) reported by Changyuan**

Quantity in 1,000 pounds; value in 1,000 dollars; unit values in dollars per pound; shares in percent

Grade	Measure	2018	2019	2020	Jan-Jun 2020	Jan-Jun 2021
Free-flowing	Quantity	***	***	***	***	***
Technical	Quantity	***	***	***	***	***
Other grades	Quantity	***	***	***	***	***
All grades	Quantity	***	***	***	***	***
Free-flowing	Value	***	***	***	***	***
Technical	Value	***	***	***	***	***
Other grades	Value	***	***	***	***	***
All grades	Value	***	***	***	***	***
Free-flowing	Unit value	***	***	***	***	***
Technical	Unit value	***	***	***	***	***
Other grades	Unit value	***	***	***	***	***
All grades	Unit value	***	***	***	***	***
Free-flowing	Share of quantity	***	***	***	***	***
Technical	Share of quantity	***	***	***	***	***
Other grades	Share of quantity	***	***	***	***	***
All grades	Share of quantity	***	***	***	***	***

Source: Respondent's posthearing brief, exh 14.

Table G-4**Potassium permanganate: Imports into the European Union by exporting countries**

Quantity in 1,000 pounds; value in 1,000 dollars

Exporting country	Measure	2018	2019	2020
United States	Quantity	4,513	3,831	3,866
China	Quantity	1,801	2,037	1,471
All other exporters	Quantity	987	1,136	1,317
All reporting exporters	Quantity	7,300	7,004	6,654
United States	Value	4,976	4,391	4,418
China	Value	1,979	2,279	1,509
All other exporters	Value	1,162	1,260	1,447
All reporting exporters	Value	8,117	7,930	7,375

Table continued.

Table G-4—Continued**Potassium permanganate EU imports by exporting countries**

Unit values in dollars per pound; shares in percent

Exporting country	Measure	2018	2019	2020
United States	Unit value	1.10	1.15	1.14
China	Unit value	1.10	1.12	1.03
All other exporters	Unit value	1.18	1.11	1.10
All reporting exporters	Unit value	1.11	1.13	1.11
United States	Share of quantity	61.8	54.7	58.1
China	Share of quantity	24.7	29.1	22.1
All other exporters	Share of quantity	13.5	16.2	19.8
All reporting exporters	Share of quantity	100.0	100.0	100.0

Source: Official import statistics under HS subheading 2841.61 as reported by UN Comtrade in the Global Trade Atlas database, accessed October 20, 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 followed by the other leading exporting countries in descending order of 2020 data.

