

In the Matter of

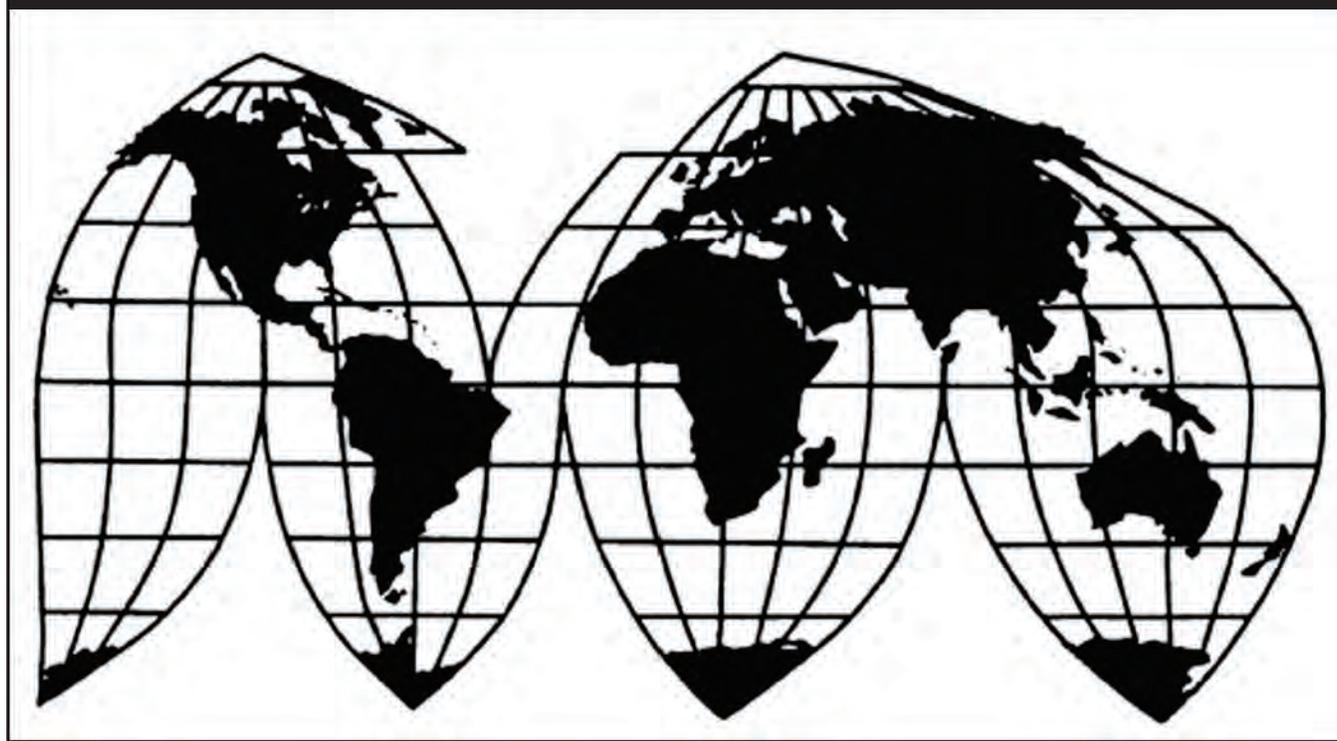
**CERTAIN SULFENTRAZONE
SULFENTRAZONE COMPOSITIONS, AND
PROCESSES FOR MAKING
SULFENTRAZONE**

337-TA-914

Publication 4869

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U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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United States International Trade Commission
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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of

**CERTAIN SULFENTRAZONE,
SULFENTRAZONE COMPOSITIONS,
AND PROCESSES FOR MAKING
SULFENTRAZONE**

Investigation No. 337-TA-914

**NOTICE OF THE COMMISSION'S DETERMINATION TO REVIEW IN PART
A FINAL INITIATION DETERMINATION FINDING NO VIOLATION OF
SECTION 337, AND, ON REVIEW, TO SET ASIDE FINDINGS ON ONE ISSUE
AND CORRECT A TYPOGRAPHICAL ERROR; TERMINATION OF THE
INVESTIGATION**

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to review in part a final initial determination ("ID") issued by the presiding administrative law judge ("ALJ"). On review, the Commission determined to vacate the ALJ's findings on one issue and to correct a typographical error. The Commission has found no violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in this investigation. The investigation is terminated.

FOR FURTHER INFORMATION CONTACT: Robert Needham, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-5468. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-2000. General information concerning the Commission may also be obtained by accessing its Internet server (<http://www.usitc.gov>). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at <http://edis.usitc.gov>. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on April 14, 2014, based on a complaint filed by FMC Corporation ("FMC") on March 5, 2014. 79 Fed. Reg. 20907-08. The complaint alleges violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("section 337"), in the importation into

the United States, the sale for importation, and the sale within the United States after importation of certain sulfentrazone active ingredient and formulated sulfentrazone compositions made by a process that infringes certain claims of U.S. Patent No. 7,169,952 (“the ’952 patent”). The Commission’s notice of investigation named as respondents Beijing Nutrichem Science and Technology Stock Co., Ltd., of Beijing, China (“Beijing Nutrichem”); Summit Agro USA, LLC, of Cary, North Carolina; Summit Agro North America, Holding Corporation of New York, New York; and Jiangxi Heyi Chemicals Co. Ltd. of Jiujiang City, China. *Id.* at 20908. The ALJ later granted FMC’s motion to amend the complaint and notice of investigation to replace Beijing Nutrichem with Nutrichem Co., Ltd. (“Nutrichem”). Order No. 9 (May 29, 2014), *not reviewed* June 23, 2014. The Office of Unfair Import Investigations is also a party to the investigation.

On April 10, 2015, the ALJ issued her final ID finding no violation of section 337. She found that, under her claim constructions, there was insufficient evidence to conclude that the respondents infringed the asserted claims or that FMC satisfied either the technical prong or the economic prong of the domestic industry requirement. She further found that the respondents showed by clear and convincing evidence that the asserted claims of the ’952 patent are invalid under 35 U.S.C. § 102(g).

On April 22, 2015, FMC filed a timely petition for review challenging nearly all of the ID’s findings. On April 30, 2015, the respondents and the Commission investigative attorney timely opposed FMC’s petition.

Having examined the record of this investigation, including the ALJ’s final ID, the petition for review, and the responses thereto, the Commission has determined to review the final ID in part. The Commission has determined to review and set aside the ALJ’s findings on the economic prong of the domestic industry requirement *See* 19 C.F.R. § 210.45(c).

The Commission has also determined to review the the ALJ’s construction of “a temperature in the range of about 120°C to about 160°C” because it contains a typographical error. The ALJ cites the Commission’s affirmance of her construction of the claim phrase during the temporary phrase of this investigation, but adds the word “about” to her quotation of the Commission’s construction and to her final construction. Because the ID indicates the intent to be consistent with the Commission’s construction, the Commission finds that the inclusion of the word “about” in the construction is a typographical error. On review, the Commission finds that “a temperature in the range of about 120°C to about 160°C” means “a temperature in the range of 120°C (+/-2.5°C) to 160°C (+/-2.5°C).” This minor change does not impact any of the ALJ’s findings on infringement, invalidity, or the technical prong of the domestic industry requirement.

The Commission has determined not to review the remaining findings in the ID.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in Part 210 of the Commission's Rules of Practice and Procedure (19 C.F.R. Part 210).

By order of the Commission.

A handwritten signature in black ink, appearing to read 'Lisa R. Barton', written in a cursive style.

Lisa R. Barton
Secretary to the Commission

Issued: June 8, 2015

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **NOTICE** has been served by hand upon the Commission Investigative Attorney, **John Shin, Esq.**, and the following parties as indicated, on **June 8, 2015**.



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street SW, Room 112
Washington, DC 20436

On Behalf of Complainants FMC Corporation:

Lisa A. Chiarini, Esq.
FISH & RICHARDSON, P.C.
601 Lexington Avenue
New York, NY 10022

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Nutrichem Co., Ltd., and Jiangxi Hevi Chemicals Co., Ltd.:

Elizabeth A. Niemeyer, Esq.
**FINNEGAN, HENDERSON, FARABOW, GARRETT, &
DUNNER LLP**
901 New York Avenue, NW
Washington, DC 20001-4413

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Summit Agro USA, LLC and Summit Agro North America Holding Corporation:

Michael R. Franzinger, Esq.
SIDLEY AUSTIN LLP
1501 K Street, NW
Washington, DC 20005

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of

**CERTAIN SULFENTRAZONE,
SULFENTRAZONE COMPOSITIONS,
AND PROCESSES FOR MAKING
SULFENTRAZONE**

Investigation No. 337-TA-914

COMMISSION OPINION

On August 12, 2014, the presiding administrative law judge (“ALJ”) issued an Initial Determination (“ID”) denying complainant FMC Corporation’s (“FMC”) motion for temporary relief against the respondents for their alleged violation of 19 U.S.C. § 1337 (2012) (“section 337”) with respect to U.S. Patent No. 7,169,952 (“the ‘952 patent”) in the above-identified investigation. Specifically, the ID found that FMC had not shown: (1) that it was likely to succeed on the merits, (2) that it would suffer irreparable harm if temporary relief is not granted, (3) that the balance of hardships favors granting temporary relief, or (4) that the public interest favors granting temporary relief.

On August 22, 2014, FMC filed comments contending that the ID erred by denying the motion. On August 26, 2014, respondents Jiangxi Heyi Chemicals Co. Ltd.; Nutrichem Co., Ltd.; Summit Agro USA, LLC; and Summit Agro North America Holding Corporation (“Respondents”), and the Commission investigative attorney (“IA”) filed responses in opposition.

Having considered the ID, the comments and responses, and the record in this investigation, the Commission has determined to deny FMC’s motion for temporary relief. The Commission affirms-in-part and modifies-in-part the ID as explained below.

I. BACKGROUND

The Commission instituted this investigation on April 14, 2014, to investigate alleged violations of 19 U.S.C. § 1337 (“section 337”) by reason of infringement of certain claims of the ’952 patent. 79 *Fed. Reg.* 20907-08. The Commission’s notice of investigation named as respondents Beijing Nutrichem Science and Technology Stock Co., Ltd. (“Beijing Nutrichem”); Summit Agro USA, LLC; Summit Agro North America, Holding Corporation; and Jiangxi Heyi Chemicals Co. Ltd. *Id.* at 20908. The complaint was later amended to replace respondent Beijing Nutrichem with Nutrichem Co., Ltd. Order No. 9 (May 29, 2014), *not reviewed* June 23, 2014. The Office of Unfair Import Investigations is participating in this investigation. 79 *Fed. Reg.* 20908.

In conjunction with its complaint, FMC filed a motion for a temporary exclusion order and temporary cease and desist orders based on Respondents’ alleged infringement of claims 25-28 of the ’952 patent (“the asserted claims”). On August 12, 2014, the ALJ issued an ID denying the motion. The ID found that FMC had failed to show that it was likely to succeed on the merits on the issues of literal infringement, infringement under the doctrine of equivalents, invalidity, the technical prong of the domestic industry requirement, and the economic prong of the domestic industry requirement. The ID also found that FMC failed to show that the irreparable harm, balance of hardships, and public interests factors favor granting temporary relief.

On August 22, 2014, FMC filed comments contending that the ID erroneously found that FMC failed to establish its likelihood of success on the merits, and specifically challenged the following findings: the likely claim construction of the limitations “in the presence of N,N-dimethylformamide,” “a temperature in the range of about 120°C. to about 160°C.,” and “about

three to about seven hours;” that FMC had not shown that it was likely to succeed on the issues of literal infringement and infringement under the doctrine of equivalents; that Respondents had shown that the ’952 patent will likely be found to be invalid; and that FMC had not shown that it is likely to succeed in establishing the economic and technical prongs of the domestic industry requirement. *See* Comments of Complainant FMC Corporation on the Initial Determination Concerning Temporary Relief (“Comments”). FMC also challenged the ID’s findings on irreparable harm, the balance of hardships, and the public interest. *Id.* On August 26, 2014, Respondents and the IA filed responses in opposition. Respondents’ Response to Complainant’s Comments on the Initial Determination Denying FMC’s Motion for Temporary Relief (“Respondents’ Resp.”); The Office of Unfair Import Investigations’ Response to FMC’s Comments on the Initial Determination Concerning Temporary Relief (“OUII’s Resp.”). On September 11, 2014, the Commission issued notice of its final determination to affirm, under modified reasoning, the ALJ’s determination to deny FMC’s motion.

II. ANALYSIS

The Commission determined to modify the supporting reasoning for the ID’s likely claim construction of the limitations “a temperature in the range of about 120°C. to about 160°C.” and “about three to about seven hours.” Under this modified reasoning, the Commission has affirmed the ID’s likely constructions for those limitations. The Commission also determined to modify the supporting reasoning for the ID’s finding that FMC has not shown that it is likely to succeed in establishing that Respondents infringe under the doctrine of equivalents. Under this modified reasoning, the Commission affirmed the ID’s conclusion that FMC has not shown a likelihood of success under the doctrine of equivalents. The Commission’s modified reasoning

is set forth below. Any findings, conclusions, and supporting analysis in the ID that are not inconsistent with our analysis and conclusions are adopted by the Commission.

A. Construction of “A Temperature in the Range of About 120°C. to About 160°C.”

The ID determined that the limitation “at a temperature in the range of about 120°C. to about 160°C.”¹ is likely to be construed to mean “at a temperature in the range of 120°C (+/- 2.5°C) to 160°C (+/- 2.5°C).” ID at 25. The ID noted that independent claim 18 of the '952 patent requires the limitation “about 120°C. to about 160°C.” and its dependent claim 29 narrows the limitation to “about 125°C. to about 150°C.” *Id.* (citing JTX-0001 at col. 11, ll. 12-13; col. 12, ll. 24-26). The ID found that the doctrine of claim differentiation creates the presumption that claim 29 does not overlap in scope with claim 18, and concluded that the term “about” will likely be construed in the context of these limitations to mean (+/- 2.5°C) to ensure that the temperature ranges of claims 18 and 29 do not overlap. *Id.* The ID also rejected all of FMC’s claim construction arguments for the limitation. *Id.* at 25-26.

FMC contends that the ID’s use of the doctrine of claim differentiation is erroneous. FMC argues that the doctrine of claim differentiation is generally employed to avoid rendering claims superfluous, but claim 18 will not render claim 29 superfluous because the limitation “about 125°C. to about 150°C.” will always be narrower than the limitation “about 120°C. to about 160°C.” regardless of the construction of “about.” Comments at 5-6. Respondents contend that the ID did not err in its likely construction of the limitation, but do not explicitly endorse its reliance on claim differentiation. Respondents’ Resp. at 3-8. The IA contends that the ALJ’s use of claim differentiation was not erroneous, but focuses on other grounds that support the ALJ’s construction. OUII Resp. at 3-5.

¹ This limitation appears in claim 18 of the '952 patent, which, by dependency, is incorporated into all of the asserted claims.

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The Commission affirms the ID's likely claim construction under modified reasoning. The term "about" "avoids a strict numerical boundary," and thus "must be interpreted in its technologic and stylistic context." *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995).² Such a context can be derived based upon how "about" is "used in the patent specification, the prosecution history, and other claims," "the effects of varying the parameter," and "extrinsic evidence of meaning and usage in the art." *Id.* Expert testimony may be necessary to show what a person of ordinary skill in the art would consider to encompass "about." See *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litigation*, 676 F.3d 1063, 1072 n.2 (Fed. Cir. 2012) (holding that expert testimony is necessary to show whether a person of ordinary skill in the art would consider 129.25% to be "about 125%").

Here, the specification and claims support a finding that "about" will likely be interpreted narrowly in the context of the temperature limitations of the asserted claims in the '952 patent. The specification shows that the 5°C difference between about 120°C and about 125°C is the difference between a basic embodiment of the invention and a preferred embodiment of the invention. See JTX-0001, col. 4, ll. 51-53 (disclosing running the reaction "at about 120°C. to about 160°C., preferably about 125°C. to about 150°C."). The patentee likewise chose to claim the ranges "about 120°C. to about 160°C." and "about 125°C. to about 150°C." separately, indicating that the 5°C difference is meaningful in the context of the invention. The Federal Circuit has also construed "about" narrowly to avoid rendering other claims meaningless. *Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs, Ltd.*, 476 F.3d 1321, 1328

² See also *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed. Cir. 1988) ("A term such as 'about' is not subject to such a precise construction . . . but is dependent on the factual situation presented."); *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1554 (Fed. Cir. 1996) ("it is a question of technologic fact whether the accused device meets a reasonable meaning of 'about' in the particular circumstances").

(Fed. Cir. 2007) (construing the limitation “about 1:5” narrowly to avoid rendering the limitation “about 1:1” meaningless). Consistent with *Ortho-McNeil*, we find that the likely construction of “about” must be sufficiently narrow to be consistent with the intrinsic evidence.

The effect of varying the temperature parameter also supports a narrow construction of “about” in the context of the temperature limitations. Respondents presented expert testimony that a person of ordinary skill in the art would understand that a change in temperature of 5°C would significantly impact chemical reaction rates. RTX-0086C (Gribble WS) at Q&A 59-60. Additionally, FMC’s experiments showed that the sulfentrazone reaction run at 115°C took two hours longer than the reaction run at 120°C. *Id.* at Q&A 62-63. Respondents presented expert testimony that a person of ordinary skill in the art would consider this two hour time difference to be significant, and that the slower reaction time of the 115°C experiment would be contrary to the purpose of the invention to reduce the “time needed to complete the reaction.” *Id.* at Q&A 64-65 (quoting JTX-0001 at col. 5, ll. 6-10). FMC’s experiments also showed that the reaction run at 115°C yielded less sulfentrazone than the reaction run at 120°C. *Id.* at Q&A 66. Respondents presented expert testimony that a person of ordinary skill in the art would consider these yield differences to be significant, and that the lower yield from the 115°C experiment would be contrary to the purpose of the invention. *Id.* at Q&A 67-68. Thus, the evidence shows that varying the temperature even 5°C below the recited 120°C would be detrimental to the stated goals of the invention. *See Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir. 2008) (holding that “we must look to the purpose that the ‘about 30 μm’ limitation serves, to determine how much smaller than 30 μm the average particular diameter can be and still serve that purpose”).

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Respondents also provided expert testimony that “about” should not permit a deviation of more than 2.5°C. *Id.* at Q&A 70. Respondents’ expert, Dr. Gribble, reasoned that such a construction is required to maintain a 5°C difference between claims 18 and 29, and is consistent with the experimental testing discussed above. *Id.* at Q&A 70, 73. He also reasoned that the specification refers to exact temperatures throughout, and thus the context of the specification indicates that temperatures should be construed narrowly. *Id.* at Q&A 70.

In light of the context of the specification, the claims, the data showing the effects of varying the temperature parameter, and the expert testimony, the Commission finds that Respondents have persuasively shown that “about,” in context of the temperature limitation of the asserted claims of the ’952 patent, will likely mean (+/- 2.5°C). Accordingly, for the reasons set forth above, the Commission affirms the ID’s determination that the limitation “a temperature in the range of about 120°C. to about 160°C.” is likely to be construed to mean “at a temperature in the range of 120°C (+/- 2.5°C) to 160°C (+/- 2.5°C).”

The Commission finds that the ID erred by relying upon the doctrine of claim differentiation in its likely construction. The doctrine of claim differentiation “create[s] a presumption that each claim in a patent has a different scope.” *Comark Comme’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998). Here, as FMC points out, the limitations “about 120°C. to about 160°C.” and “about 125°C. to about 150°C.” will always have a different scope regardless of the meaning of “about.” The doctrine of claim differentiation, therefore, does not apply to these limitations, and the Commission sets aside the ID’s reliance on claim differentiation for this limitation. We affirm the ID’s claim construction findings on this limitation that are not contrary to the reasoning above, including its analysis of FMC’s arguments.

B. Construction of “About Three to About Seven Hours”

The ID determined that the limitation “about three to about seven hours”³ will likely be construed to mean “three (+/- 30 minutes) to seven (+/- 30 minutes) hours.” ID at 31. The ID noted that independent claim 18 of the ’952 patent requires the limitation “about three to about seven hours” and its dependent claim 29 narrows the limitation to “about four to about seven hours” *Id.* at 32 (citing JTX-0001 at col. 11, ll. 13-14; col. 12, ll. 24-26). The ID found that the doctrine of claim differentiation creates the presumption that claim 29 does not overlap in scope with claim 18, and concluded that the term “about” will likely be construed in the context of these limitations to mean “(+/- 30 minutes)” to ensure that the temperature ranges of claims 18 and 29 do not overlap. *Id.* at 32. The ID also rejected all of FMC’s arguments for its proposed construction of the limitation. *Id.* at 33-34.

FMC contends that the ID’s use of the doctrine of claim differentiation is erroneous. FMC states that the doctrine of claim differentiation is generally employed to avoid rendering claims superfluous, but claim 18 will not render claim 29 superfluous because the limitation “about four to about seven hours” will always be narrower than the limitation “about three to about seven hours,” regardless of the construction of “about.” Comments at 5-7. Respondents contend that the ID did not err in its construction of the limitation, but do not explicitly endorse its reliance on claim differentiation. Respondents’ Resp. at 3-4, 8-9. The IA contends that the ID’s use of claim differentiation was not erroneous, but focuses on other grounds that support its construction. OUII Resp. at 3-7.

As noted above, the construction of the term “about” is highly context-dependent, and depends upon the specification and claims, as well as evidence concerning the effect of varying

³ This limitation appears in claim 18 of the ’952 patent, which, by dependency, is incorporated into all of the asserted claims.

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the parameter and extrinsic evidence concerning the understanding of persons of ordinary skill in the art. *Pall*, 66 F.3d at 1217. Here, the specification and claims show that “about” will likely be interpreted narrowly in the context of the time limitations of the asserted claims of the ’952 patent. The specification shows that the one hour difference between “about three hours” and “about four hours” is the difference between a basic embodiment of the invention and a preferred embodiment of the invention. *See* JTX-0001, col. 4, ll. 50-51 (disclosing running the reaction “for about three to about seven hours, preferably about four to about seven hours”). Furthermore, the patentee chose to claim the ranges “about three to about seven hours” and “about four to about seven hours” separately. Consistent with *Ortho-McNeil*, the likely construction of “about” must be sufficiently narrow to be consistent with the intrinsic evidence. *See Ortho-McNeil*, 476 F.3d at 1328.

Respondents provided expert testimony that “about” should not permit a deviation of more than 30 minutes. RTX-0086C at Q&A 85. Dr. Gribble reasoned that such a construction is required to maintain the one hour difference between claims 18 and 29. *Id.* He also noted that an inventor of the ’952 patent testified that he considered two hours to be a significant difference in time. *Id.* at Q&A 86.

In light of the context of the specification, the claims, evidence concerning the effect of varying the time parameter, and the expert testimony concerning the understanding of persons skilled in the art, the Commission finds that Respondents have persuasively shown that “about,” in context of the time limitation of the asserted claims of the ’952 patent, will likely mean (+/- 30 minutes). Accordingly, for the reasons set forth above, the Commission affirms the ID’s determination that construction of the limitation “about three to about seven hours” is likely to be construed to mean “three (+/- 30 minutes) to seven (+/- 30 minutes) hours.”

The Commission, however, finds that the ID erred by relying upon the doctrine of claim differentiation in its construction for the reasons set forth above in our discussion of the temperature limitation. The limitations “about three to about seven hours” and “about four to about seven hours” have a different scope regardless of the meaning of “about.” The doctrine of claim differentiation, therefore, does not apply to these limitations, and the Commission sets aside the ID’s reliance on claim differentiation to support its construction of this limitation. We affirm the ID’s claim construction findings on this limitation that are not contrary to the reasoning above, including its analysis of FMC’s arguments.

C. Disclosure-Dedication Rule

The ID found that FMC failed to show that it was likely to succeed in establishing that Respondents infringe the ’952 patent under the doctrine of equivalents. One reason for this conclusion was the disclosure-dedication rule. ID at 80. The ID found that the specification disclosed running 1-methyl-2-pyrrolidinone (“NMP”) reactions at temperatures below the claimed temperature range for longer periods of time. *Id.* at 80-81. *Id.* The ID also found that the ’952 patent disclosed but did not claim Example 8, a reaction that takes place for eight hours.

FMC argues that the ID erred because the disclosure-dedication rule requires the disclosure of an alternative to the claimed invention. Comments at 27-29. Here, FMC argues that the temperatures for NMP reactions are not disclosed as an alternative to the claimed N,N-dimethylformamide (“DMF”) reactions, and that the temperature range given in Example 8 is not disclosed as an alternative to the temperature range limitation of the asserted claims. *Id.* at 29. Respondents and the IA contend that the ID properly applied the disclosure-dedication rule. Respondents’ Resp. at 17-18; OUII Resp. at 11-12.

The Commission finds that the ID erred in its application of the disclosure-dedication

rule. The Federal Circuit has held that “before unclaimed subject matter is deemed to have been dedicated to the public, that unclaimed subject matter must have been identified by the patentee as an alternative to a claim limitation.” *Pfizer, Inc. v. Teva Pharms. USA, Inc.*, 429 F.3d 1364, 1379 (Fed. Cir. 2005); *see also SanDisk Corp v. Kingston Tech. Co., Inc.*, 695 F.3d 1348, 1363 (Fed. Cir. 2012) (finding no dedication because the patent did not disclose that the disclosure in the specification could serve as an alternative to the claim limitation at issue). Here, the ’952 patent does not disclose the NMP temperature range as an alternative to the temperature range of the asserted claims. The ’952 patent has two main embodiments: a non-DMF reaction that is disclosed from col. 2, ln. 40, to col. 4, ln. 44, and claimed in claims 1-17; and a DMF reaction that is disclosed from col. 4, ln. 45, to col. 5, ln. 3, and claimed in claims 18-33. JTX-0001. While the specification does state that the non-DMF reaction can be run at lower temperatures for a longer period of time, col. 4, ll. 25-27, the specification does not disclose the use of lower temperatures for the DMF reaction. Accordingly, the ’952 patent does not disclose the use of temperatures below “about 120°C” for the DMF reaction, and therefore does not dedicate such subject matter to the public.

Additionally, an example is not identified as an alternative to a claim limitation if the example does not relate to the claimed invention. *See Pfizer*, 429 F.3d at 1379 (finding no dedication based on the disclosure of Example C because “In short, Example C does not appear to relate to the claimed invention”). Here, Example 8 discloses a complex “50 Gallon Pilot Plant Scale” protocol that discloses the use of nine distinct temperature ranges and nine distinct time intervals, nearly all of which fall outside of the claimed temperature and time ranges. JTX-0001 at col. 7, ln. 58 – col. 8, ln. 60. There is no record evidence that the complex protocol of Example 8 is an alternative or even relates to the single temperature range and single time

interval of the asserted claims. Accordingly, it is likely that Example 8 is not an alternative to the time limitation of the asserted claims, and its presence in the specification is not likely to invoke the disclosure-dedication doctrine.

For the reasons set forth above, the Commission sets aside the ID's finding that the disclosure-dedication rule will likely prohibit the use of the doctrine of equivalents. The Commission, however, affirms the ALJ's finding that FMC has not shown that it is likely to succeed in establishing infringement under the doctrine of equivalents because FMC has not shown that Respondents' process is likely equivalent to the claimed process under a proper function-way-result test. *See* ID at 80-83 (citing *TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1376-77 (Fed. Cir. 2008) (holding that an accused product contains the equivalent of a claim limitation if the product "performs substantially the same function in substantially the same way to achieve the same result") (internal citations omitted)).

D. Public Interest

The ID found that the public interest factor did not weigh in favor of granting temporary relief by reasoning that granting temporary relief without persuasive evidence of infringement would harm the public interest in a competitive marketplace. ID at 122-23. FMC contends that the ID erred by finding that the public interest in a competitive marketplace outweighs the public interest in enforcing valid patent rights. Comment at 45. FMC also contends that the ID reflects a bias against process patents. *Id.* Respondents contend that the ID properly found that the public does not have an interest in granting temporary relief without persuasive evidence of infringement. Respondents' Resp. at 30. The IA also agrees with the ID. OUII's Resp. at 15-16.

The Commission finds no error with the ID's finding that the public interest factor does

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not weigh in favor of granting temporary relief here. The Federal Circuit has held that it is not in the public interest to grant temporary relief in cases that are unlikely to succeed on the merits. *See, e.g., Wind Tower Trade Coalition v. U.S.*, 741 F.3d 89, 101 (Fed. Cir. 2014) (finding that the public interest factor weighed against granting temporary relief “given the unlikelihood of the Coalition success on the merits”); *Abbot Labs. v. Andrx Pharmas., Inc.*, 452 F.3d 1331, 1348 (Fed. Cir. 2006) (“As Abbot did not establish a likelihood of success on the merits, we conclude that the public interest is best served by denying the preliminary injunction”). Here, the ID properly found that the public interest weighs against granting temporary relief because FMC failed to show that it would likely succeed on the merits. We also see no bias against process claims in the ID. Regardless of the type of patent claim, it is not in the public interest to grant temporary relief where the complainant has failed to show that it will likely succeed in establishing a violation of section 337.

III. CONCLUSION

For the reasons set forth in this opinion, the Commission has determined to modify the final ID’s reasoning in support of its claim construction and its finding that FMC is not likely to prove infringement under the doctrine of equivalents as discussed herein, and to affirm the findings in the ID that are not inconsistent with this opinion or with the notice of final determination.

By order of the Commission.



Lisa R. Barton
Secretary to the Commission

Issued: October 1, 2014

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon the Commission Investigative Attorney, **John Shin, Esq.**, and the following parties as indicated, on **October 1, 2014**.



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street SW, Room 112
Washington, DC 20436

On Behalf of Complainants FMC Corporation:

Lisa A. Chiarini, Esq.
HUGHES, HUBBARD & REED LLP
One Battery Park Plaza
New York, NY 10004

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Nutrichem Co., Ltd., and Jiangxi Hevi Chemicals Co., Ltd.:

Elizabeth A. Niemeyer, Esq.
FINNEGAN, HENDERSON, FARABOW, GARRETT, & DUNNER LLP
901 New York Avenue, NW
Washington, DC 20001-4413

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Summit Agro USA, LLC and Summit Agro North America Holding Corporation:

Michael R. Franzinger, Esq.
SIDLEY AUSTIN LLP
1501 K Street, NW
Washington, DC 20005

- Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of

CERTAIN SULFENTRAZONE,
SULFENTRAZONE COMPOSITIONS,
AND PROCESSES FOR MAKING
SULFENTRAZONE

Investigation No. 337-TA-914

NOTICE OF COMMISSION DETERMINATION NOT TO REVIEW AN
INITIAL DETERMINATION GRANTING COMPLAINANT'S MOTION
TO AMEND THE COMPLAINT AND THE NOTICE OF INVESTIGATION

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined not to review an initial determination ("ID") (Order No. 9) issued by the presiding administrative law judge ("ALJ") on May 29, 2014, granting the complainant's unopposed motion to amend the complaint and notice of investigation to change the name of a respondent.

FOR FURTHER INFORMATION CONTACT: Robert Needham, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-5468. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-2000. General information concerning the Commission may also be obtained by accessing its Internet server (<http://www.usitc.gov>). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at <http://edis.usitc.gov>. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on (202) 205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on April 14, 2014, based on a complaint filed by FMC Corporation ("FMC"). 79 *Fed. Reg.* 20907-08. The complaint alleges violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("section 337"), in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain sulfentrazone, sulfentrazone compositions, and processes for making sulfentrazone, by reason of infringement of certain claims of U.S. Patent No. 7,169,952. *Id.* at 20907. The

Commission's notice of investigation named as respondents Beijing Nutrichem Science and Technology Stock Co., Ltd., of Beijing, China; Summit Agro USA, LLC, of Cary, North Carolina; Summit Agro North America Holding Corporation of New York, New York; and Jiangxi Heyi Chemicals Co. Ltd. of Jiujiang City, China. *Id.* at 20908.

On May 23, 2014, FMC filed an unopposed motion to amend the complaint and the notice of investigation to change the name of respondent Beijing Nutrichem Science and Technology Stock Co., Ltd., to Nutrichem Co., Ltd. FMC states that Beijing Nutrichem Science and Technology Stock Co., Ltd. is the literal English translation of the company's Chinese name, but that the company's recent response to the complaint explained that the company's proper English-language name is Nutrichem Co., Ltd. FMC contends that good cause exists to amend the complaint because Nutrichem Co., Ltd. received proper notice of the proceedings, and that such amendment is in the public interest because the name correction will prevent confusion should any remedy be granted in this investigation.

On May 29, 2014, the ALJ issued the subject ID, granting FMC's motion to amend the complaint and the notice of investigation. The ALJ found good cause for granting the motion because the amendment will prevent confusion, and, prejudice, if any, will be minimal. No petitions for review were filed.

The Commission has determined not to review the subject ID.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in Part 210 of the Commission's Rules of Practice and Procedure (19 C.F.R. Part 210).

By order of the Commission.



Lisa R. Barton
Secretary to the Commission

Issued: June 23, 2014

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION NOTICE** has been served by hand upon the Commission Investigative Attorney, John Shin, Esq., and the following parties as indicated, on **June 23, 2014**.



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants FMC Corporation:

Lisa A. Chiarini, Esq.
HUGHES, HUBBARD & REED LLP
One Battery Park Plaza
New York, NY 10004

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Nutrichem Co., Ltd., and Jiangxi
Hevi Chemicals Co., Ltd.:

Elizabeth A. Niemeyer, Esq.
**FINNEGAN, HENDERSON, FARABOW, GARRETT,
& DUNNER LLP**
901 New York Avenue, NW
Washington, DC 20001-4413

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

On Behalf of Respondents Summit Agro USA, LLC and
Summit Agro North America Holding Corporation:

Michael R. Franzinger, Esq.
SIDLEY AUSTIN LLP
1501 K Street, NW
Washington, DC 20005

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of

**CERTAIN SULFENTRAZONE,
SULFENTRAZONE COMPOSITIONS,
AND PROCESSES FOR MAKING
SULFENTRAZONE**

Inv. No. 337-TA-914

**INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND
RECOMMENDED DETERMINATION ON REMEDY AND BONDING**

Administrative Law Judge Dee Lord

(April 10, 2015)

Appearances:

For the Complainant FMC Corporation:

Frederick G. Michaud, Esq. of Capshaw Deriux of Washington, D.C.

Eric S. Parnes, Esq. of Hughes Hubbard of Washington, D.C.

Lisa A. Chiarini, Esq.; Peter A. Sullivan, Esq. of Hughes Hubbard of New York, New York

For Respondents Summit Agro USA, LLC and Summit Agro North America Holding Corporation:

Paul Zegger, Esq.; Michael Franzinger, Esq. of Sidley Austin of Washington, D.C.

Samuel Tiu, Esq.; Amanda Lopez, Esq. of Sidley Austin of Los Angeles, California

John Shaw, Esq.; Karen Keller, Esq.; David Fry, Esq.; of Shaw Keller of Wilmington, Delaware

For Respondents Nutrichem Co., Ltd. and Jiangxi Heyi Chemicals Co., Ltd.:

Elizabeth Niemeyer, Esq.; Richard Racine, Esq.; Maximilienne Bishop, Esq. of Finnegan Henderson of Washington, D.C.

Wen Li, Esq. of Finnegan Henderson of Palo Alto, California

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For the Commission Investigative Staff:

John Shin, Esq.; Anne Goalwin, Esq. of the Office of Unfair Import Investigations, U.S. International Trade Commission, of Washington, D.C.

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Pursuant to the Notice of Investigation and Rule 210.42 of the Rules of Practice and Procedure of the United States International Trade Commission, this is the Administrative Law Judge's Final Initial Determination in the matter of Certain Sulfentrazone, Sulfentrazone Compositions, and Processes for Making Sulfentrazone, Investigation No. 337-TA-914.

The Administrative Law Judge hereby determines that there is no violation of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain sulfentrazone, sulfentrazone compositions, and processes for making sulfentrazone in connection with U.S. Patent No. 7,169,952.

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The following abbreviations may be used in this Initial Determination:

CTDX	Complainant's temporary relief demonstrative exhibit
CTPX	Complainant's temporary relief physical exhibit
CTX	Complainant's temporary relief exhibit
CDX	Complainant's demonstrative exhibit
CPX	Complainant's physical exhibit
CX	Complainant's exhibit
Dep.	Deposition
JTX	Temporary relief Joint exhibit
JX	Joint exhibit
RTDX	Respondents' temporary relief demonstrative exhibit
RTPX	Respondents' temporary relief physical exhibit
RTX	Respondents' temporary relief exhibit
RDX	Respondents' demonstrative exhibit
RPX	Respondents' physical exhibit
RX	Respondents' exhibit
STDX	Staff's demonstrative exhibit
STPX	Staff's physical exhibit
STX	Staff's exhibit
SDX	Staff's temporary relief demonstrative exhibit
SPX	Staff's temporary relief physical exhibit
SX	Staff's temporary relief exhibit
TEO Tr.	Temporary relief hearing transcript
Tr.	Hearing transcript
CIB	Complainant's initial post-hearing brief
CRB	Complainant's reply post-hearing brief
RIB	Respondents' initial post-hearing brief
RRB	Respondents' reply post-hearing brief
SIB	Staff's initial post-hearing brief
SRB	Staff's reply post-hearing brief
TEO ID	Initial Determination on Complainant's Motion for Temporary Relief

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I. BACKGROUND

A. Procedural History

On April 9, 2014, the Commission issued a Notice of Investigation in this matter to determine:

[W]hether there is a violation of subsection (a)(1)(B)(ii) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain sulfentrazone, sulfentrazone compositions, and processes for making sulfentrazone by reason of infringement of one or more of claims 25-28 of [U.S. Patent No. 7,169,952] and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

See Notice of Investigation. The Commission further instructed:

Pursuant to section 210.58 of the Commission's Rules of Practice and Procedure 19 CFR 210.58, the motion for temporary relief under subsection (e) of section 337 of the Tariff Act of 1930, which was filed with the complaint, is provisionally accepted and referred to the presiding administrative law judge for investigation.

See id. The Investigation was instituted upon publication of the Notice of Investigation in the *Federal Register* on April 14, 2014. *See* 79 Fed. Reg. 20907-08 (2014); 19 C.F.R. § 210.10(b).

The complainant is FMC Corporation, 1735 Market Street, Philadelphia, PA 19103. The respondents are Nutrichem Co., Ltd., Building D-1, NO66 Xixiaokou Road, Haidian District, Beijing, China 100192; Summit Agro USA, LLC, 8000 Regency Park, Suite 265, Cary, NC 27518; Summit Agro North America, Holding Corporation, 300 Madison Avenue, 4th Floor, New York, NY 10017; Jiangxi Heyi Chemicals Co., Ltd., No. 43 Ji Shan Industry Park, Longcheng Town, Penze County, Jiujiang City, Jianxi Province, China 332700. The Office of Unfair Import Investigations ("Staff") is also a party in this Investigation.

When filing the complaint, complainant FMC Corporation ("Complainant" or "FMC") moved for temporary relief under subsection (e) of section 337 of the Tariff Act of 1930. FMC's motion for temporary relief was directed to respondents Summit Agro USA, LLC, Summit Agro

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North America, Holding Corporation (collectively “Summit”), Nutrichem Co., Ltd. (“Nutrichem”), and Jiangxi Heyi Chemicals Co., Ltd. (“Heyi”) (collectively “Respondents”). The only patent at issue in the motion for temporary relief was U.S. Patent No. 7,169,952 (“the ‘952 patent”). In the Notice of Investigation, the Commission provisionally accepted Complainant’s motion and referred it to the presiding administrative law judge.

Pursuant to Commission Rule 210.60, the investigation was designated “more complicated.” *See* Order No. 6. An evidentiary hearing regarding temporary relief was conducted from July 1-3, 2014. Complainant, Respondents, and Staff participated in the hearing.

On August 12, 2014, I issued an Initial Determination on Complainant’s Motion for Temporary Relief (“TEO ID”). In the Initial Determination, I denied Complainant’s motion, finding that Complainant did not demonstrate a likelihood of success on the merits. On September 11, 2014, the Commission issued a notice of its final determination to affirm, under modified reasoning, the Initial Determination denying Complainant’s motion for temporary relief. The Commission issued its opinion on September 23, 2014.

On January 26, 2015, the parties presented tutorials on technology. An evidentiary hearing in this Investigation was held over four days from Monday, February 2, 2015 through Thursday, February 5, 2015.

B. The Private Parties

1. Complainant

FMC is organized under the laws of the state of Delaware, with a principal place of business located at 1735 Market Street, Philadelphia, Pennsylvania 19103. Complaint at ¶ 2.1.

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2. Respondents

Nutrichem¹ is a corporation organized under the laws of China, with headquarters at Building D-1, NO66 Xixiaokou Road, Haidian District, Beijing, China 100192. Complaint at ¶ 3.1; Nutrichem and Heyi Answer to Complaint at ¶ 3.1.

Summit Agro USA, LLC, is a corporation organized under the laws of Delaware with an office at 8000 Regency Park, Suite 265, Cary, NC 27518. Complaint at ¶ 3.3; Summit Answer to Complaint at ¶ 3.3.

Summit Agro North America, Holding Corporation is a corporation organized under the laws of Delaware with an office at 300 Madison Avenue, 4th Floor, New York, NY 10017. Complaint ¶ 3.4; Summit Answer to Complaint at ¶ 3.4.

Jiangxi Heyi Chemicals Co., Ltd. is a corporation organized under the laws of China with an office at Pengze Ecological Industry Park, Jiujiang, Jianxi, China. Complaint ¶ 3.2; Nutrichem and Heyi Answer to Complaint at ¶ 3.2.

C. Overview Of The Patent At Issue

The '952 patent is entitled "Process to Prepare Sulfonamides." JX-0001 at [54]. The named inventors are Leland A. Smeltz, Thomas C. Sedergran, and Harold C. Jarrow. *Id.* at [75]. The named assignee is FMC Corporation. *Id.* at [73]. The '952 patent was filed on June 1, 2001, and issued on January 30, 2007. *Id.* at [22], [45]. The '952 patent claims priority to Provisional Patent Application No. 60/209,374, filed on June 5, 2000. *Id.* at [60]. The Abstract states the following:

A process for the preparation of a sulfonamide of formula (II), comprising reacting at elevated temperature an aniline of formula (I), with a sulfonating agent

¹ The Complaint and Notice of Investigation originally named "Beijing Nutrichem Science and Technology Stock Co., Ltd." as a respondent. Order No. 9 granted FMC's unopposed motion to correct the Complaint and Notice of Investigation to replace "Beijing Nutrichem Science and Technology Stock Co., Ltd." with "Nutrichem Co., Ltd." See Order No. 9.

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A of the formula R1—SO2-Z in the presence of a catalytic amount of either: (i) an amide B-1, other than N,N-dimethylformamide, or (ii) a high boiling tertiary amine B-2. Also provided in accordance with the present invention are processes for preparing sulfonamides of formula (II) by reacting an aniline of formula (I) with sulfanating agent A of the formula R1—SO2-Z in the presence of N,N-dimethylformamide, at a temperature in the range of about 120° C. to about 160° C. for about three to about seven hours. X, Y, Z, R and R1 are defined herein.

Id. at [57] (molecular structural formulas omitted).

D. Accused Products

FMC has identified Summit's sulfentrazone active ingredient and sulfentrazone brands, including Blanket 4F, as containing sulfentrazone active ingredient manufactured by Heyi according to a process that FMC believes infringes claims 25-28 of the '952 patent. Complaint at ¶¶ 1.6, 1.7; CIB at 6. Claims 25-28 depend from claim 18, and therefore claims 25-28 incorporate all limitations of claim 18.

II. STANDING

Respondents state that FMC lacks standing to assert the '952 Patent without [REDACTED] because [REDACTED] is a co-owner of the '952 Patent. [REDACTED]

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[REDACTED]

Respondents argue that because [REDACTED] has a vested legal ownership right to the '952 Patent [REDACTED] FMC does not have standing to sue without joining [REDACTED] as a co-Complainant. *Id.* at 25-26.

[REDACTED]

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the burden to rebut such a showing on one challenging the assignment.” *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1327-28 (Fed. Cir. 2010). Thus, Respondents bear the burden of proving that FMC is not the sole owner and assignee of the ‘952 Patent.

[REDACTED]

RX-0053C at ¶ 9. [REDACTED]

[REDACTED]

As explained in the TEO ID and affirmed by the Commission, [REDACTED]

[REDACTED]

[REDACTED] TEO ID at 6. Respondents fail to meet their burden of showing that [REDACTED] has an ownership interest in the ‘952 Patent.

There is insufficient evidence to conclude that [REDACTED]

[REDACTED]

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[REDACTED]

The remaining evidence cited by Respondents is controverted by conflicting evidence presented by FMC. [REDACTED]

[REDACTED]

Based upon all of the foregoing, I find that FMC has standing.²

² Because I have found that the inventions claimed in the '952 Patent were not made as a result of [REDACTED] I do not address Complainant's alternative argument that the [REDACTED]

III. JURISDICTION

A. Subject Matter Jurisdiction

The Complaint alleges that Respondents have violated Section 337 by the importation, sale for importation, and/or the sale after importation of the Accused Products. Complaint at ¶ 1.7; CIB at 6. I find that Respondents have imported into the United States, sold for importation into the United States, and/or sold within the United States after importation products accused of infringement. See Complaint at ¶ 1.6; Summit Answer to Complaint at ¶ 4.1 (“Summit denies that ‘the Accused Sulfentrazone is imported into the United States by Summit USA’ but admits that Summit USA is the importer of record for the imported sulfentrazone technical.”). Thus, I find that the Commission has subject matter jurisdiction over this investigation under Section 337 of the Tariff Act of 1930. See *Amgen, Inc. v. Int’l Trade Comm’n*, 902 F.2d 1532, 1536 (Fed. Cir. 1990).

B. Personal Jurisdiction

Respondents responded to the complaint and notice of investigation, responded to the motion for temporary relief, participated in discovery, and made appearances at both the TEO and final evidentiary hearings. Thus, I find that Respondents submitted to the personal jurisdiction of the Commission. See *Certain Miniature Hacksaws*, Inv. No. 337-TA-237, Initial Determination, 1986 WL 379287 (October 15, 1986).

C. In Rem Jurisdiction

The Commission has *in rem* jurisdiction over the accused products by virtue of the finding that accused products have been imported into the United States. See *Sealed Air Corp. v. Int’l Trade Comm’n*, 645 F.2d 976, 985 (C.C.P.A. 1981).

IV. CLAIM CONSTRUCTION

A. Applicable Law

“An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff’d*, 517 U.S. 370 (1996) (citation omitted). Claim construction “is a matter of law exclusively for the court.” *Id.* at 977. “[T]he construction of claims is simply a way of elaborating the normally terse claim language[] in order to understand and explain, but not to change, the scope of the claims.” *Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (alterations in original) (citations omitted). “[O]nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Claim construction focuses on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). The Federal Circuit in *Phillips* explained that, in construing terms, courts must analyze each of these components to determine the “ordinary and customary meaning of a claim term,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313.

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Id.* at 1312. “Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Id.* at 1314. For example, “the context in which a term is used in the asserted claim can be highly instructive,” and “[o]ther claims of the patent in

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question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.*

“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* “The longstanding difficulty is the contrasting nature of the axioms that (a) a claim must be read in view of the specification and (b) a court may not read a limitation into a claim from the specification.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004). The Federal Circuit has explained that there are certain instances when the specification may limit the meaning of the claim language. For example, “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316. The specification also “may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Id.* In such cases, “the inventor has dictated the correct claim scope, and the inventor’s intention, as expressed in the specification, is regarded as dispositive.” *Id.*

In addition to the claims and the specification, the prosecution history should be examined if in evidence. “The prosecution history . . . consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent.” *Id.* at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

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If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, including dictionaries, inventor testimony, expert testimony and learned treatises. *Id.* at 1317. Extrinsic evidence is generally viewed “as less reliable than the patent and its prosecution history in determining how to read claim terms” *Id.* at 1318. “The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is clearly at odds with the construction mandated by the intrinsic evidence.” *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999).

B. Person of Ordinary Skill in the Art

As explained in the TEO ID and affirmed by the Commission, a person of ordinary skill in the art would have either a bachelor’s or master’s degree in chemistry or chemical engineering with a few years of work experience in the industry relating to organic chemical synthesis, process development, or process engineering, or a Ph.D. focusing on organic chemical synthesis, process development, or process engineering. TEO ID at 13-14. None of the parties submitted new briefing on this issue. Accordingly, I find that a person of ordinary skill in the art would have either a bachelor’s or master’s degree in chemistry or chemical engineering with a few years of work experience in the industry relating to organic chemical synthesis, process development, or process engineering, or a Ph.D. focusing on organic chemical synthesis, process development, or process engineering.

C. “a temperature in the range of about 120° C to about 160° C”

The Commission affirmed the construction of “a temperature in the range of about 120° C. to about 160° C” as “a temperature in the range of 120° C (+/-2.5° C) to about 160° C (+/-2.5° C).” Comm’n Op. at 5. In rejecting FMC’s proposed construction, the Commission explained

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that the specification of the '952 Patent showed that a 5° C difference in temperature was meaningful in the context of the invention because 5° C was the difference between a basic embodiment of the invention and a preferred embodiment of the invention. *Id.* (citing JTX-0001 at 4:51-53). The Commission also explained that the extrinsic evidence showed that a person of ordinary skill in the art would understand that a change in temperature of 5° C would significantly impact chemical reaction rates. *Id.* at 6 (citing RTX-0086C at Q/A 59-60, 62-68). The Commission also noted that Respondents' experts provided testimony that "about" should not permit a deviation of more than 2.5° C. *Id.* at 7 (RTX-0086C at Q/A 70, 73).

At the evidentiary hearing, Respondents also presented additional testimony from their expert Mr. McConville that one of ordinary skill in the art would have understood that the claimed lower limit of the temperature range "about 120° C" was an important feature of the invention because the specification touts reduced reaction times (which results from higher temperatures) as an advantage of the invention. RX-0352C at Q/A 87-88. Respondents also presented evidence that reducing the reaction temperature by 5° C below 120° C would result in a reaction time that was two hours longer and that this was unacceptable. Tr. at 200:2-202:3; RX-0341C at Q/A 71-72.

Respondents also presented expert testimony that one of ordinary skill in the art would understand the term "about" imparts a 2.5° C variability to account for experimental deviation from running at a target temperature. RX-0341C at Q/A 74; RX-0370C at Q/A 17; Tr. at 350:17-351:3, 395:9-25. In other words, one of ordinary skill in the art would understand that running a reaction at 120° C could result in recorded temperatures between 117.5° C and 122.5° C. Even FMC's expert, Dr. Gokel, agrees that one of ordinary skill in the art would have understood measurement variation to be 2-3° C. CX-0679C at Q/A 77-78, 81.

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Complainant has not put forth any new arguments or evidence to convince me otherwise. First, FMC's argument that the temperature limitation should be construed as a forty-degree range rather than two individual temperature measurements is attorney argument unsupported by any evidence and contrary to the plain language of the claim. The claim reads "a temperature in the range of about 120° C to about 160° C." The term "about" is used twice to modify both endpoints of the claimed range. Had the patentee intended to modify the entire forty-degree range, the claim should have read "a temperature in the range of about 120° C to 160° C."

Second, although the specification does not specifically recite a 2.5° C deviation, it does support a narrow reading of the claim limitation, as explained by the Commission. Comm'n Op. at 5-7. Furthermore, Respondents provided more than ample evidence that one of ordinary skill in the art would have understood the term "about" to mean a 2.5° C variation to account for experimental deviation. *See, e.g.*, RTX-0086C at Q/A 70, 73; RX-0341C at Q/A 74; RX-0370C at Q/A 17; Tr. at 350:17-351:3, 395:9-25.

Third, FMC's arguments that one of ordinary skill in the art would have understood the temperature limitation to include temperatures sufficient to vent HCl is unsupported by intrinsic or extrinsic evidence. Even assuming, as FMC argues, that the technological context of the reaction temperature informs one of ordinary skill in the art that temperatures as low as 106° C are sufficient to vent HCl, there is no indication in the specification or the claims that the claimed temperature ranges should include all temperatures sufficient to vent HCl. Moreover, FMC's experts do not testify that the temperature limitation should be interpreted to cover a temperature sufficient to vent HCl. *See* CX-0679C; CX-0764C.

Fourth, the evidence FMC cites in support of its new proposed construction of the term "about" to mean +/-10% is simply not credible. Dr. Gokel testifies that one of ordinary skill in

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the art would understand a specific temperature to inherently include a 2-3° C variation so the use of the term “about” would imply a variation even greater than 2-3° C. CX-0679C at Q/A 81. Dr. Gokel cites the United States Pharmacopeia 34 (“USP 34”) to support his opinion that “about” means +/-10%. *Id.* As an initial matter, Dr. Gokel’s opinion is inconsistent with the law of claim construction. Absent the term “about,” the temperature range would be limited to the strict numerical boundary specified in the limitation, *i.e.* 120°-160° C, and a 2-3° C variation would not be implied based on the understanding of one of ordinary skill in the art. *See, e.g., Braintree Labs., Inc. v. Novel Labs, Inc.*, 749 F.3d 1349, 1360 (Fed. Cir. 2014) (“Descriptive words . . . are commonly used in patent claims to ‘avoid[] a strict numerical boundary to the specified parameter’) (alteration in original) (citation omitted); *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litigation*, 676 F.3d 1063, 1072 (Fed. Cir. 2012); *Pall Corp. v. Micron Separations, Inc.* 66 F.3d 1211, 1217 (Fed. Cir. 1995). The term “about” is what allows for **any** variation to the specifically identified temperatures. *See id.*

Furthermore, Dr. Gokel’s opinion is not supported by any reliable evidence. The USP 34 post-dates the filing of the application of the ‘952 Patent by almost 10 years and is therefore not evidence of what one of ordinary skill in the art would have understood at the time of the filing of the patent application. *See* CX-0677 at 1. The USP 34 also discusses the term “about” in the context of volume and weight measurements, not temperature or time. *Id.* at 9.

Moreover, Dr. Gokel’s reliance on the temperature variance in the accused process as noted in Heyi’s batch records, whether as a discussion of the technological context of the invention or as extrinsic evidence of claim construction, is misplaced. Heyi’s process is simply irrelevant to how one of ordinary skill in the art would understand the term “about.” *See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1330-31 (Fed. Cir. 2006) (“a

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court may not use the accused product or process as a form of extrinsic evidence to supply limitations for patent claim language”).

Accordingly, I find that “a temperature in the range of about 120° C to about 160° C” means “a temperature in the range of 120° C (+/-2.5° C) to about 160° C (+/-2.5° C).”

D. “reacting . . . for about three to about seven hours”

The Commission affirmed the construction of “reacting . . . for about three to about seven hours” as “reacting . . . for three (+/-30 minutes) to seven (+/-30 minutes) hours.” Comm’n Op. at 9. In rejecting FMC’s proposed construction, the Commission explained that the specification of the ‘952 Patent showed that a one hour difference in time was meaningful in the context of the invention because one hour was the difference between a basic embodiment of the invention and a preferred embodiment of the invention. *Id.* (citing JTX-0001 at 4:50-51). The Commission also noted that Respondents’ experts provided testimony that “about” should not permit a deviation of more than 30 minutes and that such a construction is necessary to maintain the one hour difference between claims 18 and 29. *Id.* (RTX-0086C at Q/A 85). The Commission also affirmed the finding in the TEO that the plain language of the claim indicates that the reaction time period begins when a reaction mixture containing any amount of aniline, MSC, and DMF reaches a temperature within the claimed range. *Id.* at 13.

FMC presents a new argument that one of ordinary skill in the art would understand “about” in the context of the time limitation to mean a 10% variance, but that the top-end of the time limitation should be further extended to include the 8 hour reaction time disclosed in example 8. CIB at 31-32. FMC’s argument is illogical and unsupported by credible evidence and is a clear example of litigation driven claim construction. First, as discussed above in the context of the temperature limitation, Dr. Gokel’s reliance on the USP 34 for the 10% variance is inappropriate. *See supra* Part. IV.C.

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Second, Dr. Gokel testified that a 10% variance would result in an 18 minute variance at the bottom-end of the time limitation and a 42 minute variance at the top-end of the time limitation. CX-0679C at Q/A 97. Dr. Gokel admitted that it is no more difficult to measure time at 3 hours than at 7 hours. Tr. at 359:22-25. Dr. Gokel's explanation that variance is greater at the top-end of the range because the effects of time on conversion are smaller at the top-end is not relevant because conversion is not a requirement of the claims. *See infra* Part IV.D. Respondents' expert, Mr. McConville, also provided credible testimony that one of ordinary skill in the art estimates time to the nearest hour, half hour, or quarter hour, rather than in terms of percentages. RX-0352C at Q/A 241.

Third, Dr. Gokel's testimony that the top-end of the range should be further extended from 7.7 hours to 8 hours to account for Example 8 of the specification contradicts his testimony that one of ordinary skill in the art would understand the term "about" to mean +/-10%. *See* CX-0679C at Q/A 97. Moreover, the Commission has already explained that Example 8 does not relate to the claimed invention. Comm'n Op. at 11-12. Thus, Dr. Gokel's reliance on Example 8 is a clear attempt to read limitations from the specification into the claims and is inappropriate.

Fourth, FMC's argument that the transitional phrase "which comprises" somehow enlarges the scope of the time limitation "reacting . . . for about three to about seven hours" has already been rejected. TEO ID at 32-33; Comm'n Op. at 13. Whereas FMC argued that "which comprises" allows for an open-ended time limitation at the TEO stage, TEO ID at 28-29, FMC now argues that the term "which comprises" indicates the time limitation should be construed to include times that are required for the reaction to achieve [REDACTED] conversion of aniline. CIB at 36-37. This variation on the same argument does not change the analysis for my finding in the TEO

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ID that the term “which comprises” allows for additional unrecited limitations, but does not enlarge the scope of the recited limitations. TEO ID at 33-34 (citing *Dippin’ Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007)). In fact, FMC’s modified argument is even more misguided than before as it now seeks to improperly import a conversion limitation that is nowhere to be found in the plain language of the claims. See *Innova/Pure Water*, 381 F.3d at 1117. Had the patentee viewed conversion as a crucial feature of the invention, the patentee could have patented “reacting . . . until the [redacted] of the aniline is converted,” yet the patentee specifically chose to limit the invention to a specific time range. Furthermore, Dr. Gokel even admitted at trial that the ‘952 Patent does not correlate conversion with the end of the reaction. Tr. at 425:9-11. I decline to rewrite the plain language of the claim to include a conversion requirement. See *Chef Am., Inc. v. Lamb-Watson, Inc.*, 358 F.3d 1371, 1375 (Fed. Cir. 2004).

FMC argues that in all the examples of the specification, reaction time is measured from complete addition of all reagents. CIB at 27 (citing JX-0001). FMC also states that it is industry standard to measure reaction time after complete addition of reagents. *Id.* at 27, 29-30 (citing JX-0008; CX-0679C at Q/A 91, 93, 95; Tr. at 593:16-594:2; CX-0683C at Q/A 57). As explained in the TEO ID and affirmed by the Commission, the plain language of the claims indicates that the reaction time period begins when a reaction mixture containing any amount of aniline, MSC, and DMF reaches a temperature within the claimed range. TEO ID at 32; see Comm’n Op. at 13. To the extent FMC argues that the examples dictate otherwise, FMC is improperly attempting to import limitations from the specification into the claims. See *Innova/Pure Water*, 381 F.3d at 1117. Furthermore, Respondents provided testimony that one of ordinary skill in the art would have understood the Examples to teach measuring the reaction time from when the operating temperature is reached, not after complete addition of reagents.

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See JX-0017C at 289:18-290:24, 321:19-322:17, 323:17-22; RX-0370C at Q/A 46, 48).

Moreover, extrinsic evidence of the industry standard does not controvert the plain language of the claims. See *Elkay Mfg.*, 192 F.3d at 977.

Based on the foregoing, “reacting . . . for about three to about seven hours” means “reacting . . . for three (+/- 30 minutes) to seven (+/- 30 minutes) hours” and the time period for the reacting step begins once the reaction mixture containing any amount of aniline, MSC, and DMF reaches a temperature in the specified range.

E. “in the presence of [DMF]”

As explained in the TEO ID and affirmed by the Commission, the plain and ordinary language of the claim term “in the presence of [DMF]” does not require DMF to act as a catalyst or be present in a catalytic amount. TEO ID at 16-19; see Comm’n Op. at 13. Whereas FMC previously argued that this limitation requires DMF to be present in a catalytic amount, TEO ID at 15, FMC now simply argues that the limitation requires that DMF must act as a catalyst. CIB at 39. This does not change the analysis set forth in the TEO ID. The plain and ordinary language of claim 18 only requires DMF to be present, not to act as a catalyst. TEO ID at 16; JX-0001 at 10:67-11:12. Departure from the plain language is permissible only when the patentee has acted as his own lexicographer or disavowed claim scope in the specification or during the prosecution history. *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1348 (Fed. Cir. 2014). Although the specification describes the use of DMF as a catalyst and in catalytic amounts, the patentee did not explicitly define “in the presence of [DMF]” to require DMF to act as a catalyst, nor did the patentee clearly disavow the non-catalytic use of DMF. See TEO ID at 18-19.

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Accordingly, I construe “in the presence of [DMF]” to have its plain and ordinary meaning, which is that any amount of DMF must be present in the reaction mixture.

V. INVALIDITY

A. Applicable Law

It is a respondent’s burden to prove invalidity, and the burden of proof never shifts to the patentee to prove validity. *Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V.*, 528 F.3d 1365, 1380 (Fed. Cir. 2008). “Under the patent statutes, a patent enjoys a presumption of validity, *see* 35 U.S.C. § 282, which can be overcome only through facts supported by clear and convincing evidence” *SRAM Corp. v. AD-II Eng’g, Inc.*, 465 F.3d 1351, 1357 (Fed. Cir. 2006). The clear and convincing standard was reaffirmed by the Supreme Court in *Microsoft Corp. v. i4i Ltd. P’ship*, 131 S. Ct. 2238 (2011) (upholding the Federal Circuit’s interpretation of 35 U.S.C. § 282).

The clear and convincing evidence standard requires a level of proof beyond the preponderance of the evidence. Although not susceptible to precise definition, “clear and convincing” evidence has been described as evidence that produces in the mind of the trier of fact “an abiding conviction that the truth of a factual contention is ‘highly probable.’” *Price v. Symsek*, 988 F.2d 1187, 1191 (Fed. Cir. 1993) (citing *Buildex, Inc. v. Kason Indus., Inc.*, 849 F.2d 1461, 1463 (Fed.Cir.1988)).

1. Anticipation

A patent claim is invalid as anticipated if “before such person’s invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it.” 35 U.S.C. § 102(g) (2010). “A patent is invalid for anticipation if a single prior art reference discloses each and every limitation of the claimed invention. Moreover, a prior art

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reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citations omitted).

2. Obviousness

Section 103 of the Pre-AIA Patent Act stated:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103(a) (2010).

“Obviousness is a question of law based on underlying questions of fact.” *Scanner Techs.*, 528 F.3d at 1379. The underlying factual determinations include: “(1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of non-obviousness.” *Id.* (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)). These factual determinations are often referred to as the “*Graham* factors.”

The critical inquiry in determining the differences between the claimed invention and the prior art is whether there is a reason to combine the prior art references. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417-418 (2007). In *KSR*, the Supreme Court rejected the Federal Circuit’s rigid application of the teaching-suggestion-motivation test. The Court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Id.* at 418. The Court described a more flexible analysis:

Often, it will be necessary for a court to look to interrelated teachings of multiple

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patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue...As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

Id.

Since *KSR* was decided, the Federal Circuit has announced that where a patent challenger contends that a patent is invalid for obviousness based on a combination of prior art references, “the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device . . . and would have had a reasonable expectation of success in doing so.”

PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007).

In addition to demonstrating that a reason exists to combine prior art references, the challenger must demonstrate that the combination of prior art references discloses all of the limitations of the claims. *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1373-1374 (Fed. Cir. 2010) (upholding finding of non-obviousness based on the fact that there was substantial evidence that the asserted combination of references failed to disclose a claim limitation), *abrogated on other grounds by Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014); *Velandar v. Garner*, 348 F.3d 1359, 1363 (Fed. Cir. 2003) (explaining that a requirement for a finding of obviousness is that “all the elements of an invention are found in a combination of prior art references”).

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B. Analysis

1. Dr. Dumas' April 13, 1998 Experiment Under § 102(g)

Respondents argue that the asserted claims are invalid under § 102(g) based on the prior work of [REDACTED] RIB at 74. Respondents state that FMC alleges an invention date of [REDACTED] and that [REDACTED] previously reduced the invention to practice on [REDACTED] RIB at 75 (citing JX-0029C; JX-0026C at 20:13-27:18; RX-0341C at Q/A 144-156; TEO Tr. at 330:5-33:24). Respondents contend that although [REDACTED] [REDACTED] [REDACTED] *Id.* at 75-76 (citing TEO ID at 63-64; RX-0341C at Q/A 16, 204, 237, 246; JX-0012C at 108:11-16; CX-0679C at Q/A 65; Tr. at 244:22-245:12).

Respondents also argue that [REDACTED] appreciated that his experiment worked for its intended purpose. *Id.* at 76 (citing TEO ID at 57). Respondents state that there is no dispute that [REDACTED] [REDACTED] *Id.* at 77 (citing JX-0029C at [REDACTED] RX-0341C at Q/A 144-156; TEO Tr. at 331:25-332:21). Respondents state that [REDACTED] [REDACTED] *Id.* (citing TEO ID at 59; JX-0029C at [REDACTED] JX-0026C at 26:8-13; JX-0032C; RX-0341C at Q/A 154-155, 161; Tr. at 520:16-522:6). According to Respondents, [REDACTED] [REDACTED] *Id.* at 77-78 (citing JX-0026C at 26:8-27, 29:4-34:1, 38:2-18, 41:20-42, 128:2-20; JX-0029C at [REDACTED]). Respondents also state that [REDACTED] [REDACTED]

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[REDACTED] *Id.* at 77-78 (citing TEO ID at 59; JX-0032C at [REDACTED]).

Respondents argue that whether [REDACTED] [REDACTED] *Id.* at 78 (citing *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731 F.2d 831, 838 (Fed. Cir. 1984)). Respondents also argue that such a consideration is irrelevant because the claims do not require any specific amount of sulfentrazone or impurity to be formed. *Id.* at 78-79 (citing TEO Tr. at 352:1-16; CX-0679C at Q/A 98; Tr. at 360:14-361:1).

Respondents also argue that [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] *Id.* at 79-80 (citing TEO Tr. at 452:23-453:12; JX-0026C at 31:11-21, 33:14-34:1, 128:2-20; Tr. at 119:11-19, 893:9-894:6).

Respondents argue that [REDACTED] did not abandon, suppress, or conceal his work with DMF. RIB at 80. Respondents state that the evidence of abandonment, suppression, or concealment has not changed since the TEO hearing. *Id.* at 80 (citing TEO ID at 59).

Respondents state that [REDACTED] [REDACTED] *Id.* at 80-82 (citing JX-0032C; JX-0026C at 38:22-40:12, 79:11-24, 94:14-23, 95:6-18, 152:20-153:7, RX-0341C at Q/A 160-164; RX-0041C; RX-0053C at ¶¶ 2, 9; Tr. at 86:11-15, 146:10-148:9, 158:1-159:1, 192:11-18, 498:17-499:2, 499:11-23, 500:4-20, 502:17-503:3). Respondents state that [REDACTED]

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[REDACTED] *Id.* at 80-81
(citing JX-0008; RX-0341C at Q/A 126, 131, 196-198; Tr. at 885:3-8, 885:11-886:6).

FMC argues that [REDACTED] did not reduce the invention to practice because it did not work for its intended purpose. FMC states that the goal of the [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] CIB at 78 (citing JX-0026C at 85:11-13, 86:1-17, 87:9-12; Tr. at 108:14-20, 116:19-20, 119:23-120:23, 126:8-127:1, 127:9-18; JX-0029C at 39, [REDACTED] CRB at 44-46 (citing Tr. at 103:23-104:8; CX-0875C at Q/A 15; JX-0029C; JX-0030C; JX-0031C; JX-0026C at 42:9-18, 81:12-82:4, 97:11-22, 150:3-12; CX-0681C at Q/A 46, 49-56; CX-0682C at Q/A 58-60). FMC argues that [REDACTED]

[REDACTED] CIB at 79 (citing JX-0001 at 1:40-50; Tr. at 255:2-13).

FMC argues that [REDACTED] abandoned his experiments [REDACTED]
[REDACTED] *Id.* at 80 (citing Tr. at 126:8-127:1, 127:9-18, 625:12-17; JX-0029C at 45, [REDACTED] JX-0032C at [REDACTED] JX-0026C at 85:14-24, 87:9-20, 132:19-133:9, 134:8-24). FMC states that [REDACTED]

[REDACTED] *Id.* (citing JX-0026C at 85:11-86:17; Tr. at 581:21-582:2). FMC argues that in contrast, FMC's scientists [REDACTED]
[REDACTED] CRB at 46-47 (citing JX-0003C at 95, 98, 102, 103, 141, 145; JX-0004C at 53, 55, 60; RX-0046C; RX-0047C; CX-0642C; CX-0692C; CX-0696C; CX-0698C; CX-0703C; CX-0716C).

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FMC also argues that an inference of suppression or concealment is appropriate because

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CIB at 82-83 (citing JX-0029C at

52, [REDACTED] JX-0030C; JX-0026C at 34:5-16, 34:22-36:3, 71:8-72:20, 75:21-23, 96:18-97:10;

JX-0007). FMC also argues that [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 84 (citing JX-0026C at 31:11-21; CX-0883C at Q/A 48). FMC

argues that [REDACTED] *Id.* (citing CX-0883C

at Q/A 48).

FMC argues in the alternative that even if [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *Id.* at 85

(citing RX-0040C; CX-0681C at Q/A 43; CX-0682C at Q/A 28). FMC also states that the

evidence indicates [REDACTED] *Id.* at 85-86

(citing RX-0040C; RX-0065C; RX-0066C; RX-0045C). FMC argues that [REDACTED]

[REDACTED] *Id.* at 86 (citing

JX-0037C at 124, [REDACTED] JX-0026C at 55:14-20, 135:23-136:1). FMC argues that there is no

direct evidence that [REDACTED] *Id.* at 87 (citing JX-

0026C at 42:9-18, 94:14-95:5; CX-0681C at Q/A 54-57; CX-0682C at Q/A 57-63). FMC further

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states that [REDACTED]
[REDACTED] *Id.* at 88 (citing JX-0037C at 63, 64,
[REDACTED] CX-0112C at 6; JX-0003C at G0440-90). FMC argues, without citation to
evidence, that [REDACTED]
[REDACTED] *Id.* at 88. FMC argues that such actions amount to abandonment,
suppression, or concealment. *Id.* at 89.

FMC also argues that even assuming [REDACTED]
[REDACTED]
[REDACTED] CRB at 49 (citing *Fox Grp., Inc. v. Cree, Inc.*, 700 F.3d
1300, 1306 (Fed. Cir. 2012)).

FMC also argues that [REDACTED] experiments do not anticipate or render the claims
obvious. CRB at 52-53. [REDACTED]
[REDACTED]
[REDACTED] *Id.* (citing CX-0681C at Q/A 73-74).

FMC argues that [REDACTED]

Respondents reply that [REDACTED]
[REDACTED] RRB at 40 (citing TEO Tr. at
335:6-10). [REDACTED]
[REDACTED]
[REDACTED] *Id.* at 42 (citing JX-
0026C at 86:1-87:2). Respondents state that [REDACTED]
[REDACTED] RRB at 42

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(citing Tr. at 111:24-112:2; 625:18-25). Respondents also state that [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 42 (citing JX-0003C at 95; Tr. at 283:17-284:4).

Respondents also reply that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Respondents also reply that FMC's contention that [REDACTED]

[REDACTED] is speculative and unsupported

by evidence. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing JX-0003C at 95; Tr. at 258:3-16; RX-0318C at 11).

Staff argues that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Staff also

argues that under Respondents' proposed claim construction, although [REDACTED] experiment

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does not anticipate the asserted claims, [REDACTED] experiment does render the asserted claims obvious. *Id.* at 51-52.

Section 102(g) provides that “[a] person shall be entitled to a patent unless . . . before such person’s invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it.” 35 U.S.C. § 102(g). Accordingly, a patentee’s invention will be invalidated if its invention was discovered by a prior inventor, who did not abandon, suppress, or conceal the invention. *See Apotex U.S.A., Inc. v. Merck & Co., Inc.*, 254 F.3d 1031, 1035 (Fed. Cir. 2001) (citing *New Idea Farm Equip. Corp. v. Sperry Corp.*, 916 F.2d 1561, 1566 (Fed. Cir. 1990)). Courts have consistently held

“[T]hat an invention, though completed, is deemed abandoned, suppressed, or concealed if, within a reasonable time after completion, no steps are taken to make the invention publicly known. . . . Failure to file a patent application; to describe the invention in a publicly disseminated document or to use the invention publicly, have been held to constitute abandonment, suppression or concealment.” Moreover, when there is an unreasonable delay between the actual reduction to practice and the filing of a patent application, there is a basis for inferring abandonment, suppression, or concealment.

Lutzker v. Plet, 843 F.2d 1364, 1366 (Fed. Cir. 1988) (citing *Correge v. Murphy*, 705 F.2d 1326, 1330 (Fed. Cir. 1983)).

a. Reduction to Practice

To establish a reduction to practice, a prior inventor must have (1) constructed an embodiment or performed a process that met all the claim limitations and (2) determined that the invention would work for its intended purpose. *Teva Pharm. Indus. v. AstraZeneca Pharms. LP*, 661 F.3d 1378, 1383 (Fed. Cir. 2011). However, the “prior inventor does not need to know everything about how or why [her] invention worked. Nor must it conceive of its invention using the same words as the patentee would later use to claim it.” *Teva*, 661 F.3d at 1384. There

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must be an indication however, that the inventor “determined that the invention would work for its intended purpose.” *Cooper v. Goldfarb*, 154 F.3d 1321, 1327 (Fed. Cir. 1998).

Once a “challenger of a patent has proven by clear and convincing evidence that the invention was made in this country by another inventor, the burden of production shifts to the patentee to produce evidence sufficient to create a genuine issue of material fact as to whether the prior inventor has suppressed or concealed the invention. However . . . the ultimate burden of persuasion remains with the party challenging the validity of the patent.” *Apotex*, 254 F.3d at 1037-38 (quoting *Innovative Scuba Concepts, Inc. v. Feder Indus., Inc.*, 26 F.3d 1112, 1115 (Fed. Cir. 1994) (“While a patentee may have the burden of going forward with rebuttal evidence once a challenger presented a *prima facie* case of invalidity, the presumption of validity remains intact and the ultimate burden of providing invalidity remains with the challenger throughout the litigation”)). Once a patentee has satisfied its burden of production, the party alleging invalidity under § 102(g) must rebut any alleged suppression or concealment with clear and convincing evidence. *See Apotex*, 254 F.3d at 1038.

The record establishes that on [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] JX-0029C at [REDACTED] JX-0026C at 20:13-27:18; RX-0341C at Q/A 144-156; *see also* TEO ID at 56; TEO Tr. at 330:5-333:24. The parties do not appear to dispute that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

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[REDACTED]
[REDACTED]
RX-0341C at Q/A 16, 204, 237-246. [REDACTED]
[REDACTED]

See JX-0012C at 108:10-16; CX-0679C at Q/A 65; Tr. at 244:22-245:12.
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

CX-0681C at Q/A 73-74. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] CX-0681C at Q/A 73, 75. [REDACTED]
[REDACTED]

[REDACTED] Accordingly, I find that [REDACTED] experiment either met all the limitations of the asserted claims or would have rendered them obvious.

The record also establishes that [REDACTED] understood that his experiment worked for its intended purpose. See TEO ID at 57-59. As explained in the TEO ID, and affirmed by the Commission, the '952 Patent suggests that [REDACTED]
[REDACTED]

[REDACTED] JX-0001 at 1:11-12, 1:40-44, 1:50-55, 10:51-52); see also TEO ID at 58. [REDACTED]

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[REDACTED]

[REDACTED] JTX-0026C at 6:4-10, 8:2-10, 9:2-9, 40:5-41:19.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] See JX-0001.³ [REDACTED]

[REDACTED] “there is no requirement for a reduction to practice that the invention, when tested, be in a commercially satisfactory stage of development.” *Barmag Barmer*, 731 F. 2d at 838 (citation omitted).

The remaining question is whether [REDACTED]

[REDACTED]

[REDACTED] As explained in the TEO ID, and affirmed by the

Commission, I find that [REDACTED]

[REDACTED]

TEO ID at 58. [REDACTED]

[REDACTED] JX-0029C at [REDACTED] JX-0026C at 26:8-13. [REDACTED]

[REDACTED] CX-0341C at Q/A 154-155. [REDACTED]

[REDACTED]

[REDACTED] JX-0032C at 1; see also JX-0026C at 38:22-39:18. [REDACTED]

³ FMC’s reliance on *Monsanto Co., v. Mycogen Plant Sci., Inc.*, for the proposition that the court should look to the [REDACTED] for the purpose of the invention claimed in the ‘952 Patent is also without merit. 61 F. Supp. 2d 133, 182 (D. Del. 1999). In *Monsanto*, the court held that the analysis of the purpose of the invention is not limited to the claims, but also determined that the patent’s “Statement of the Invention” was the best place to look for the purpose of the invention. *Id.* *Monsanto* says nothing about relying on unrelated patents. See *id.* There is no indication in the ‘952 Patent’s “Summary of the Invention” (or anywhere else in the ‘952 Patent’s specification) that the purpose of the invention is to prepare commercially saleable quantities of sulfentrazone. See JX-0001 at 1:60-2:36.

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[REDACTED]
[REDACTED]
[REDACTED] JX-0032C at 3. [REDACTED]
[REDACTED]

[REDACTED] JX-0026C at 41:20-42:18; Tr. at 494:4-13, 495:13-496:6, 497:16-25, 502:1-16.

FMC's focus [REDACTED] is misguided. Those considerations, which relate to the commercial considerations, are irrelevant to whether [REDACTED]
[REDACTED]

Accordingly, I find that [REDACTED] experiment reduced the invention claimed in the '952 Patent to practice.

b. Abandonment

Abandonment means that the original inventor has voluntarily terminated any effort to exploit the invention. *See Oak Indus. Inc., v. Zenith Elec. Corp.*, 726 F. Supp. 1525, 1533 (N.D. Ill. 1989). An inventor "may seek to avoid a determination of abandonment by showing that he or she marketed or sold a commercial embodiment of the invention or described the invention in a publically disseminated document." *See Checkpoint Sys., Inc., v. Int'l Trade Comm'n*, 54 F.3d 756, 762 (Fed. Cir. 1995). Other possible steps to avoid a determination of abandonment include filing a patent application without unreasonable delay, or using the invention publicly. *Levi Strauss & Co. v. Golden Trade, S.r.L.*, 1995 WL 710822, at *18 (S.D.N.Y. Dec. 1, 1995) (quoting *Int'l Glass Co. v. U.S.*, 187 Ct. Cl. 376, 392 (Ct. Cl. 1969)).

As explained in the TEO ID, and affirmed by the Commission, the record does not support a finding that [REDACTED] voluntarily terminated any effort to exploit the invention. [REDACTED]

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[REDACTED] JX-0026C at 42:9-18. [REDACTED]

[REDACTED]

[REDACTED] JX-0032C; JX-0026C at 38:22-40:12, 42:9-18; Tr. at 499:11-23, 502:17-503:3; *see also* Tr. at 158:1-159:1. [REDACTED]

[REDACTED] Tr. at 498:17-499:2. [REDACTED]

[REDACTED]

[REDACTED] JX-0026C at 34:5-35:18; 36:11-37:17. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] JX-0026C at 38:2-12, 66:6-67:8, 67:11-68:4.

[REDACTED]

[REDACTED]

[REDACTED] JX-0026C at 62:11-63:10, 63:16-66:5; JX-0008 at [22], [60]. Based on this record, I find no indication that [REDACTED] voluntarily terminated any effort to exploit his invention.

c. Suppression or Concealment

The Federal Circuit distinguishes between two types of suppression or concealment: (1) active suppression or concealment, and (2) inferred suppression or concealment based upon an unreasonable delay in filing a patent application. *See Apotex*, 254 F.3d at 1038. Actions or events pertinent to each category will result in a determination of suppression or concealment under 35 U.S.C. § 102(g). Whether an inventor has suppressed or concealed an invention is determined on the facts of each individual case. *Paulik v. Razkalla*, 760 F.2d 1270, 1280 (Fed. Cir. 1985) (Rich, J., concurring). Delay in filing a patent application can give rise to an

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inference of suppression or concealment. *Id.* at 1273. Where no patent is filed within a reasonable period, an inventor must rely on other actions to defeat an inference of suppression or concealment. *See Oak Indus. Inc.* at 726 F. Supp. at 1536. The Federal Circuit has not set strict time limits regarding the minimum or maximum periods between a prior inventor's first making of the invention and the subsequent disclosure of the invention necessary to establish or infer suppression or concealment. *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1568 (Fed. Cir. 1996); *Checkpoint Sys.*, 54 F.3d at 761. An unreasonable delay in bringing knowledge of the invention to the public may raise an inference of suppression or concealment, *Apotex*, 254 F.3d at 1038; however, “[m]ere delay, without more, is not sufficient to establish suppression or concealment.” *Young v. Dworkin*, 489 F.2d 1277, 1281 (C.C.P.A. 1974). Rather, “each case involving the issue of suppression or concealment must be considered on its own particular set of facts.” *Paulik*, 760 F.2d at 1275 (quoting *Shindelar v. Holdeman*, 628 F.2d 1337, 1343 (C.C.P.A. 1980), *cert. denied*, 451 U.S. 984 (1981)).

There is no allegation that [REDACTED] actively suppressed or concealed his invention. Even if there were, such an allegation is clearly rebutted by the fact that [REDACTED]

[REDACTED]

[REDACTED] *See JX-0026C* at 62:11-63:10, 63:16-66:5; *JX-0008* at [22], [60].

Thus, the only question remaining is whether [REDACTED] unreasonably delayed in filing a patent application such that an inference of suppression or concealment is proper. [REDACTED]

[REDACTED]

[REDACTED] *JX-0007*; *JX-0026C* at 34:5-35:18, 36:11-37:17, 66:23-67:8. [REDACTED]

[REDACTED]

[REDACTED] JX-

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0008; JX-0026C at 62:11-63:10, 63:16-66:5. [REDACTED]

[REDACTED] Although the analysis of whether a delay is unreasonable is highly factual, relevant Federal Circuit cases have generally required a much longer period of delay to find the delay unreasonable. *See, e.g., Lutzker*, 843 F.2d at 1366-67 (holding 51 month delay unreasonable); *Paulik*, 760 F.2d at 1273-75 (holding four year delay unreasonable); *Shindelar*, 628 F.2d at 1342 (holding 29 month delay unreasonable).

FMC contends that [REDACTED]

[REDACTED] The Federal Circuit has recognized that when a first inventor is “spurred” into filing an application based on disclosures of a second inventor made during a period in which the first inventor was “inactive,” an inference of suppression or concealment can be proper. *Paulik*, 760 F.2d at 1273-74; *see also Fujikawa*, 93 F.3d at 1567-68. In this case, I find that there is no evidence of spurring. FMC does not cite to any evidence that shows [REDACTED]

[REDACTED] *See supra* Part V.B.1.b. Thus, [REDACTED]

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[REDACTED]

[REDACTED]

FMC contends that [REDACTED] experiment does not qualify as prior art under § 102(g)

[REDACTED] CIB at 81. As

discussed above, [REDACTED]

[REDACTED] *See supra* Part V.B.1.b. [REDACTED]

[REDACTED] FMC cites no authority for

this proposition in its briefs. [REDACTED]

[REDACTED]

[REDACTED] 700 F.3d at 1306.

There are numerous ways to support an inference of abandonment, suppression, or concealment, such as “[t]he failure to file a patent application, to describe the invention in a published document, or to use the invention publicly, within a reasonable time after first making the invention”

Id. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CIB at 81.

Accordingly, I find that an inference of suppression or concealment is not appropriate in this case.

Based on all of the foregoing, I find that [REDACTED] experiment is prior art under § 102(g).

⁴ The evidence actually indicates that, if anything, [REDACTED]

[REDACTED] JX-0001; JX-0008.

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d. *Obviousness*

As explained in the TEO ID, and affirmed by the Commission, and as discussed above,

[REDACTED]

[REDACTED]

[REDACTED] *See supra* Part V. B.1.a; *see also*

TEO ID at 63-64. Accordingly, I find that Respondents have demonstrated by clear and

convincing evidence that claims 25-28 of the '952 Patent are rendered obvious by [REDACTED]

[REDACTED] experiment.

2. **Derivation Under § 102(f)**

Respondents argue that claims 25-28 are invalid because FMC derived the claimed invention in whole or in part from [REDACTED] RIB at 83.

Respondents state that there is no dispute that [REDACTED]

[REDACTED] *Id.* (citing JX-0029C; TEO Tr. at 331:25-332:21). Respondents also state that [REDACTED]

[REDACTED] *Id.* (citing JX-

0032C; RX-0041C; Tr. at 86:11-15, 146:10-148:9, 158:1-159:1, 192:11-18, 500:4-20; RX-

0053C at ¶¶ 2, 9). [REDACTED]

[REDACTED] *Id.* at 84 (citing Tr. at 499:11-23). [REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing Tr. at 159:2-160:16).

[REDACTED]

[REDACTED] *Id.* (citing RX-0040C; Tr. at 149:18-153:22, 181:1-6; RX-0341C at Q/A 165-173).

Respondents state that FMC has not rebutted its clear and convincing evidence of derivation. [REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED] *Id.* at 86 (citing Tr. at 84:17-85:1, 85:9-14, 87:21-24, 133:3-5, 158:1-159:1, 159:2-160:16). [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 87 (citing Tr. at 156:16-25, 190:2-6, 190:23-25, 196:11-197:2, 198:4-20, 200:11-201:25, 202:15-25, 203:1-14, 205:13-206:5).

FMC states that [REDACTED]

CIB at 75. [REDACTED]

[REDACTED] CIB at 75 (citing CX-0682C at Q/A 36, 37). [REDACTED]

[REDACTED] *Id.* (citing CX-0682C at Q/A 37; JX-0003C at 95). [REDACTED]

[REDACTED] *Id.* (citing CX-0682C at Q/A 38; JX-0003C at 95; CX-0354C at 2). [REDACTED]

[REDACTED] CRB at 53.

FMC argues that Respondents have not put forth clear and convincing evidence that [REDACTED]

[REDACTED]

[REDACTED]

CIB at 76 (citing CX-0681C at Q/A 55; CX-0682C at Q/A 58). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing Tr. at 195:17-19; CX-0682C at Q/A 27; JX-0004 at 37). FMC

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[REDACTED]
[REDACTED] *Id.* (citing JX-0026C at 39:9-11, 42:9-18, 94:14-95:5, 151:3-9). [REDACTED]

[REDACTED] *Id.* at 76-77 (citing Tr. at 176:4-13). [REDACTED]

[REDACTED] *Id.* at 77 (citing Tr. at 180:13-16; CX-0681C at Q/A 56).

FMC also states that [REDACTED]

[REDACTED] CRB at 54 (citing Tr. at 499:11-500:20).
[REDACTED]

[REDACTED] (RX-0040C; Tr. at 176:1-23). FMC states that Respondents' evidence is all circumstantial. *Id.* at 54-55.

Staff states that [REDACTED]

[REDACTED] SIB at 53. [REDACTED]
[REDACTED]

[REDACTED] *Id.* (citing JX-0029C; Tr. at 496:7-497:1, 498:1-8, 499:11-500:20; JX-0032C; RX-0041C; RX-0039C at ¶ 11; JX-0017C at 187:3-7). [REDACTED]
[REDACTED]

[REDACTED] *Id.* at 54 (citing RX-0341C at Q/A 165-173; RX-0040C).

To show derivation under § 102(f), the party asserting invalidity must prove by clear and convincing evidence, both prior conception of the invention by another and communication of that conception to the patentee. *Price*, 988 F.2d at 1190. Here, there is no dispute that [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED] *See id.*

Based on all the foregoing, I find that the asserted claims of the '952 Patent are not invalid as derived from [REDACTED] under § 102(f).

3. '315 Patent Under §§ 102(a) and 102(e)

Respondents argue that the '315 Patent anticipates the asserted claims. Respondents state that the '315 Patent is prior art under §§ 102(a) and 102(e). RRB at 48-49. Respondents state the application to the '315 Patent was filed on April 30, 1999 and issued on November 23, 1999, before FMC filed its application for the '952 Patent. *Id.* at 48 (citing JX-0008). Respondents argue that under *In re Clarke*, FMC cannot antedate the '315 Patent. *Id.* at 49 (citing *Clarke*, 356 F.2d 987, 992 (C.C.P.A. 1966)). Respondents explain that the '315 Patent discloses a reaction between 80° C and 140° C and preferably 100° C to 120° C. *Id.* at 48 (citing JX-0008 at 3:30-33). [REDACTED]

[REDACTED] *Id.* [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 49. [REDACTED]

[REDACTED] *Id.* (citing RX-0341C

at Q/A 186-190; CX-0882C at Q/A 15-21).

[REDACTED]

[REDACTED]

[REDACTED]

Respondents argue that for an earlier reduction to practice to antedate a prior art reference, the earlier reduction to practice must be commensurate in scope with the invention disclosed in the

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prior art reference. *Id.* at 50 (citing *Clarke*, 356 F.2d at 992). Respondents state that *Purdue Pharma L.P. v. Boehringer Ingelheim GmbH*, cited by FMC, does not support FMC’s argument because the court actually found that the antedating prior invention was commensurate in scope with the invention disclosed in the prior art reference. *Id.* (citing *Purdue Pharma*, 98 F. Supp. 2d 362, 386 (S.D.N.Y. 2000), *aff’d and remanded*, 237 F.3d 1359 (Fed. Cir. 2001)). Respondents also argue that *Clarke* is not limited to cases involving “genus-species” claims. *Id.* Respondents state that *Purdue Pharma*, cited by FMC, involved a patent with ranges, but followed *Clarke*. *Id.*

FMC states that *Purdue Pharma* is the most illustrative case for establishing a reduction to practice of an invention with range limitations. CIB at 91. FMC states that in *Purdue Pharma*, the Federal Circuit found that the inventors had demonstrated reduction to practice by relying on an embodiment that disclosed one point in each of the claimed ranges. *Id.* at 91-92 (citing 237 F.3d at 1365). FMC states that the portions of *Clarke* on which Respondents rely are dicta and distinguishes *Clarke* by arguing it is limited to cases involving “genus-species” claims. *Id.* at 92 (citing *Clarke*, 53 C.C.P.A. at 961-62). FMC also states that [REDACTED]

[REDACTED]

[REDACTED]

Id. at 94-96 (citing RX-0045C at 2; JX-0003C at G0440-93, G0440-097; JX-0004C at G0544-45, GS0544-47, GS0544-52; CX-0703C at 2; CX-0696C at 4; CX-0692C at 1; CX-0698C at 2; CX-0716C at 3; RX-0047C at 1; CX-0642C at 2-3); CRB at 58.

Staff states that [REDACTED]

[REDACTED] SIB at 43; SRB at 29.

[REDACTED]

[REDACTED] SIB at 43 (citing JX-0003C at 95; Tr. at

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257:9-258:2). [REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing Tr. at 237:12-238:1, 255:14-256:9, 264:10-24). [REDACTED]

[REDACTED]

[REDACTED] SIB at 44-45

(citing JX-0003C at 3; Tr. at 269:18-273:11). [REDACTED]

[REDACTED]

[REDACTED] SRB at 29-30.

[REDACTED]

[REDACTED] *Id.* at 30 (citing RX-0045C

at 1).

[REDACTED]

[REDACTED]

[REDACTED] SIB at

45.

Respondents argue that the '315 Patent anticipates the asserted claims of the '952 Patent. Respondents state that the '315 Patent discloses reacting aniline and MSC to make sulfentrazone using tertiary amides, including DMF. *Id.* at 87 (citing RX-0341C at Q/A 126, 196-198; Tr. at 885:3-886:6; JX-0008 at 4:20-21). Respondents also state that the '315 Patent discloses using toluene as a solvent and a reaction temperature between 80° C and 140° C, preferably between 100° C and 120° C. *Id.* at 88 (citing JX-0008 at 4:27-38; Tr. at 885:15-17; RX-0341C at Q/A 131). Respondents also state the examples in the '315 Patent disclose that reactions had reaction

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times of about 3 to about 7 hours. *Id.* (citing RX-0341C at Q/A 200; JX-0008 a 5:31-37, 6:28-36).

FMC argues that the '315 Patent does not anticipate the asserted claims of the '952 Patent for three reasons. FMC argues that the '315 Patent discloses that DMF salt, not DMF, is a catalyst for the sulfentrazone reaction. CIB at 98; CRB at 59-60. FMC argues that the '315 Patent does not disclose a temperature range of 120° C to 160° C. CIB at 98; CRB at 60. FMC states that the lower end of the temperature range of 80° C to 140° C disclosed in the '315 Patent is not sufficient to vent HCl. CIB at 98; CRB at 60. FMC also states that the '315 Patent does not state how long the reaction takes to reach █████ conversion and therefore does not meet the time limitation. CIB at 98 (citing JX-0008 at 3:24-31).

Staff agrees with Respondents that the '315 Patent meets all the limitations of the asserted claims. SIB at 45-46. With respect to the temperature limitation, Staff notes that the '315 Patent teaches that the higher temperatures of the disclosed 80° C to 140° C overlap with the claimed ranges and are sufficient to vent HCl from the reaction. SIB at 45-46 (citing JX-0008 at 4:29-33; RX-0341C at Q/A 131). Staff also states that at least one example in the '315 Patent discloses reaction times within about 3 to about 7 hours. *Id.* at 46 (citing RX-0341C at Q/A 200-201; JX-0008 at 5:31-37). Staff also argues that the asserted claims only require the presence of DMF, rather than for DMF to act as a catalyst and therefore the '315 Patent meets the limitation of the asserted claims. *Id.* (citing CX-0883C at Q/A 13; CX-0355C at Q/A 111; Tr. at 891:7-25, 893:9-15).

Under § 102(a), a person shall be entitled to a patent unless “the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.” 35 U.S.C. § 102(a).

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Under § 102(e), a person shall be entitled to a patent unless “the invention was described in (1) an application for patent . . . by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent.” 35 U.S.C. § 102(e). Filing of a patent application is a constructive reduction to practice. *Frazer v. Schlegal*, 498 F.3d 1283, 1288 (Fed. Cir. 2007); *see also Manhurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1578 (Fed. Cir. 1996). A patentee may antedate a prior art reference under §§ 102(a) or 102(e) by showing the invention was reduced to practice at an earlier date. *Manhurkar*, 79 F.3d at 1577.

The application for the ‘315 Patent was filed on April 30, 1999 and the ‘315 Patent issued on November 23, 1999. *See* JX-0008 at [22], [45]. The ‘952 Patent was filed on June 1, 2001. JX-0001 at [22]. The ‘315 Patent is, on its face, prior art to the ‘952 Patent because the ‘315 Patent was both issued and filed before the constructive invention date of the ‘952 Patent. However, I find that FMC has demonstrated that it reduced its own invention to practice at least as of [REDACTED] and that therefore the ‘315 Patent is not prior art under §§ 102(a) or 102(e).

[REDACTED]

[REDACTED] JX-0003C at 95; Tr. at 258:10-12, 551:8-16, 552:19-554:11, 629:18-20. [REDACTED]

[REDACTED] JX-0003C at 95. [REDACTED]

[REDACTED] JX-0003C at 98, 102; JX-0004C at 53, 55. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0698C at 2. [REDACTED]

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[REDACTED] CX-0716C at 3; RX-0047C at 1. [REDACTED]

[REDACTED] CX-0642C at 1. This evidence demonstrates that at least as of [REDACTED] FMC had reduced its invention to practice, [REDACTED]

[REDACTED] Because FMC actually reduced the invention to practice before the filing of the application of the '315 Patent, I find that the '315 Patent is not prior art under §§ 102(a) or 102(e).

Based on the foregoing, I find that claims 25-28 of the '952 Patent are not invalid as anticipated by the '315 Patent.

4. Pyridine Process Under § 103

Respondents assert that the asserted claims of the '952 Patent are invalid as obvious over the pyridine process and the known use of DMF in sulfonamide reactions. Respondents argue that the commercial pyridine process is prior art under § 102(b) because it was commercialized more than one year before the filing date of the '952 Patent. RIB at 90 (citing CX-0681C at Q/A 29). Respondents state that the only differences between the commercial pyridine process and the asserted claims are [REDACTED]

[REDACTED] *Id.* (citing RX-0341C at Q/A 249; Tr. at 141:2-5; CX-0682C at Q/A 12). [REDACTED]

[REDACTED] *Id.* (citing RX-0052C at ¶ 14; JX-0017C at 52:14-53:9; RX-0341C at Q/A 144-156; JX-0029C at [REDACTED] [REDACTED])

[REDACTED] *Id.* at 90, 94 (citing Tr. at 662:16-663:8; RX-0052C at ¶ 12; CX-0681C at Q/A 30-31; CX-0682C at Q/A 33).

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[REDACTED]
[REDACTED]
[REDACTED] *Id.* at 91 (citing RX-0341C at Q/A 252-254; Tr. at 654:3-13; RX-0002 at 414). [REDACTED]

[REDACTED] *Id.* at 92 (citing Tr. at 654:14-657:9; RX-0341C at Q/A 117-121, 252-253; RX-0092; RX-0052C at ¶ 9). [REDACTED]

[REDACTED] *Id.* (citing Tr. at 500:21-501:25). Respondents also state the FMC has previously admitted that the use of DMF as a catalyst was well known. *Id.* at 93 (citing FMC's Opposition to Respondents' Motion to Terminate (Mot. Docket. No. 914-009) at 6 n.3).

Respondents state that although Albright does not teach the use of DMF in a reaction involving sulfentrazone specifically, it teaches a reaction involving the same active portions of the molecules involved in the sulfonylation reaction. *Id.* (citing RX-0341C at Q/A 222-226). Respondents also state that whether Albright teaches DMF is a catalyst is irrelevant because the claims do not require that DMF act as a catalyst. *Id.* at 93-94. Respondents also state that it would have been obvious to replace pyridine with DMF because they both perform a catalytic function. *Id.* (citing Tr. at 433:5-434:3, 651:18-653:25; RX-0091).

Respondents argue that [REDACTED] *Id.* at 95 (citing Tr. at 244:22-245:15; RX-0341C at Q/A 258-259). [REDACTED]

[REDACTED] *Id.* at 96 (citing FMC's Opposition to Respondents' Motion to Terminate (Mot. Docket. No. 914-009) at 15 n.8). [REDACTED]

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Albright only discloses two or three compounds that fit within the class of sulfonamides and does not disclose a reaction temperature or reaction time. *Id.* (citing Tr. at 620:21-621:1). FMC also states that Albright does not teach DMF as a catalyst. *Id.* (citing Tr. at 644:17-21).

FMC states that Respondents have not shown that FMC's commercial pyridine process was in public use more than one year prior to the filing of the application of the '952 Patent or shown the features of FMC's commercial pyridine process. CRB at 62-63. FMC also states that Respondents have not considered the first *Graham* factor in their analysis. *Id.* at 63.

FMC also states that it would not have been obvious to substitute DMF in the pyridine process because the pyridine process [REDACTED]

Id. at 63-64. [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 64

(citing JX-0026C at 161:13-162:12). [REDACTED]

[REDACTED]

Id. at 65. FMC states that Albright does not disclose the use of DMF as a catalyst. *Id.* FMC states that Albright actually teaches away from using DMF as a catalyst because Albright shows that the major product in the disclosed reaction is the impurity amidine. *Id.* at 65 (citing CX-0883C at Q/A 90-96). FMC argues that with respect to secondary considerations of non-obviousness, [REDACTED] *Id.* at 67 (citing JX-

0029C at 3; JX-0037C at 3-9). [REDACTED]

Id. (citing TEO Tr. at 487:14-16).

[REDACTED]

[REDACTED] RRB at 53 (citing Tr. at 433:5-434:3; CX-0156C at 6; Tr. at 651:18-

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653:25; RX-0091). [REDACTED]

[REDACTED] *Id.* (citing Tr. at 244:22-245:15;

JX-0017C at 153:24-154:5). [REDACTED]

[REDACTED] *Id.* at 54. Respondents reply that one of ordinary skill in the art would have understood Albright to teach that DMF catalyzes the sulfonylation reaction. *Id.* at 55 (citing RX-0341C at Q/A 252-253; Tr. at 654:14-657:9; RX-0092). Respondents also reply that one of ordinary skill in the art would have chosen DMF as a catalyst because it was the only compound known to work for sulfonylation reactions at the time of the invention. *Id.* at 56 (citing RX-0341C at Q/A 229).

Staff argues that there are substantial nonobvious differences between the pyridine process and the claims of the '952 Patent. Staff states that pyridine is an acid scavenger whereas DMF is a catalyst. SIB at 54-55 (citing SDX-0002C; Tr. at 100:8-13, 101:4-14; JX-0001 at Exs. 2, 4, 8). [REDACTED]

[REDACTED] *Id.* at 55 (citing SDX-0002C; CX-0641C). Staff also states that the Albright article pre-dates the discovery of sulfentrazone and does not teach or suggest a process for making sulfentrazone with DMF at the claimed temperatures and claimed reaction times. *Id.* at 56 (citing JX-0009).

I find that the asserted claims are not obvious over FMC's commercial pyridine process alone or in combination with Albright. [REDACTED]

[REDACTED] CX-0681C at Q/A 29; Tr. at 140:5-15.

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[REDACTED] RX-0341C at Q/A 248; Tr. at 140:16-141:5. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] RX-0341C at Q/A 249; *see also* CX-0682C at Q/A 12.

Respondents argue that it would have been obvious to one of ordinary skill in the art to substitute DMF for pyridine for two reasons. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] JX-0026C at 161:13-162:12.

Second, Respondents argue that it would have been obvious to substitute DMF for pyridine because DMF was a well-known catalyst of sulfonylation reactions based on the disclosure in Albright. However, I find that Respondents have not demonstrated by clear and convincing evidence that one of ordinary skill in the art would have found it obvious to do so.

[REDACTED]

[REDACTED] Tr. at 100:8-13; 648:21-649:3. DMF, as a catalyst, plays a different role in the reaction of the asserted claims. Tr. at 549:9-21, 648:21-649:3. There is no evidence that one of ordinary skill in the art simply looking to eliminate pyridine from the reaction would look to a catalyst, much less the specific catalyst DMF. Albright does not disclose that DMF is a catalyst, nor does it indicate that DMF could be used to prepare sulfonamides other than the few specifically described by Albright. *See* JX-0009. Indeed, Dr. Gokel testified that one of

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ordinary skill in the art would have understood Albright to disclose the use of DMF as a solvent rather than as a catalyst. CX-0883C at Q/A 91-94. Accordingly, I find that Respondents have not demonstrated by clear and convincing evidence that it would have been obvious for one of ordinary skill in the art to substitute DMF for pyridine.

Based on the foregoing, I find that claims 25-28 of the '952 Patent are not invalid as obvious over the pyridine process.

5. '315 Patent (As Carried Forward from the Dumas Provisional) in Combination with Albright Under § 102(e)

Respondents argue that the portions of the '315 Patent which claim priority to the Dumas Provisional application in combination with Albright render the asserted claims obvious. Respondents state that all limitations of the asserted claims except for the use of DMF was disclosed in the Dumas Provisional application and that those portions of the '315 Patent are therefore entitled to a patent-defeating date of May 29, 1998 (the filing date of the provisional application) under *In re Giacomini*. 612 F.3d 1380 (Fed. Cir. 2010). RIB at 99. Respondents state that one of ordinary skill in the art would have found it obvious to use DMF in a sulfonylation reaction as taught in Albright. RIB at 99.

FMC did not brief this issue.

Staff argues that the disclosures in the Dumas Provisional, alone or in combination with Albright, do not render the asserted claims obvious. SIB at 47. Staff states that Dr. Gribble conceded that the Albright article does not mention that DMF is a catalyst, or the use of DMF hydrochloride salt, or the preparation of sulfentrazone. *Id.* at 47-48. Staff also argues that there is no evidence the Vilsmeier intermediate of DMF-MSC disclosed in Albright is the mechanism by which the reaction occurs in the claims of the '952 Patent. *Id.* at 48.

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As discussed above in reference to the pyridine process, Albright does not disclose that DMF is a catalyst, nor does it indicate that DMF could be used to prepare sulfonamides other than the few specifically described by Albright. *See* JX-0009. Dr. Gokel testified that one of ordinary skill in the art would have understood Albright to disclose the use of DMF as a solvent rather than as a catalyst. CX-0883C at Q/A 91-94. Accordingly, I find that Respondents have not demonstrated by clear and convincing evidence that it would have been obvious for one of ordinary skill in the art to use DMF as a catalyst in the reaction disclosed in the Dumas Provisional.

6. Indefiniteness

Respondents argue that if the likely claim constructions from the TEO ID, as affirmed by the Commission, are not adopted, the asserted claims are invalid as indefinite for failure to define the scope of the invention with “reasonable certainty.” RIB at 100 (citing *Nautilus*, 134 S. Ct. at 2129). As discussed above, the adopted claim constructions are the same as the likely claim constructions from the TEO ID, as affirmed by the Commission. Accordingly, I need not reach the issue of indefiniteness.

VI. INFRINGEMENT

A. Applicable Law

A complainant must prove either literal infringement or infringement under the doctrine of equivalents. Infringement must be proven by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988). A preponderance of the evidence standard “requires proving that infringement was more likely than not to have occurred.” *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005).

Literal infringement is a question of fact. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d

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1323, 1332 (Fed. Cir. 2008). Literal infringement requires the patentee to prove that the accused device contains each and every limitation of the asserted claim(s). *Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Int'l, Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004).

The Federal Circuit has explained that:

Infringement under the doctrine of equivalents may be found when the accused device contains an “insubstantial” change from the claimed invention. Whether equivalency exists may be determined based on the “insubstantial differences” test or based on the “triple identity” test, namely, whether the element of the accused device “performs substantially the same function in substantially the same way to obtain the same result.” The essential inquiry is whether “the accused product or process contain elements identical or equivalent to each claimed element of the patented invention[.]”

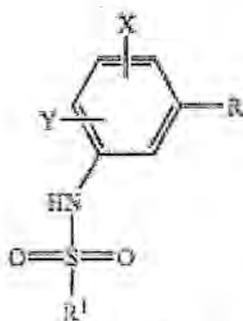
TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1376-77 (Fed. Cir. 2008)

(citations omitted).

B. Analysis

FMCs asserts claims 25-28 against Respondents. Claim 18, from which claims 25-28 depend, recites:

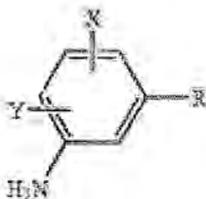
A process for the preparation of a sulfonamide of formula II:



comprises reacting (1) an aniline of formula I:

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(i)



with (2) sulfonating agent A of the formula R^1-SO_2-Z in the presence of (3) N,N-dimethylformamide, at a temperature in the range of about 120° C. to about 160 C. for about three to about seven hours;

wherein: X and Y in both formulae I and II and Z are each independently selected from hydrogen, halo, alkyl, haloalkyl, amino, nitro, alkoxy, hydroxy, anhydridyl, alkylthio, arylthio, aryloxy, alkylsulfonyl, arylsulfonyl, and substituted or unsubstituted aryl, the substituents of said substituted aryl comprising one or more members selected from the group consisting of halo, C₁₋₂₀ alkyl, C₁₋₂₀ alkoxy, nitro, amino, amido, alkylthio, aryl, arylthio, aryloxy, alkylsulfonyl, and arylsulfonyl;

R in both formulae I and II is selected from the group consisting of hydrogen, alkyl, haloalkyl, aryloxy, substituted or unsubstituted aryl and substituted or unsubstituted heterocyclyl, the substituents of said substituted aryl or heterocyclyl comprising one or more members selected from the group consisting of halo, C₁₋₂₀ alkyl, C₁₋₂₀ alkoxy, nitro, amino, amido, alkylthio, aryl, arylthio, aryloxy, alkylsulfonyl, and arylsulfonyl; and,

R¹ is selected from the group consisting of hydrogen alkyl, haloalkyl, and aryl.

(JX-0001 at 10:51-11:35.)

Claim 25 recites: “[t]he process of claim 18, wherein X is 2-chloro; Y is 4-chloro; R is 4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl; and R¹ is methyl.” (JX-0001 at 12:14-16.) Claim 26 recites: “[t]he process of claim 18, wherein the reaction is carried out in a solvent.” (JX-0001 at 12:17-18.) Claim 27 recites: “[t]he process of claim 26, wherein the solvent is an aromatic, alkane, or alkene solvent.” (JX-0001 at 12:19-20.) Claim 28 recites: “[t]he process of claim 27, wherein the solvent is selected from the group consisting of toluene, xylene, and diethylbenzene.” (JX-0001 at 12:21-23.)

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FMC alleges that the Heyi Process infringes dependent claims 25-28 of the '952 patent.

Claims 25-28 depend from independent claim 18. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *See Monsanto*

Co. v. Syngenta Seeds, Inc., 503 F.3d 1352, 1359 (Fed. Cir. 2007) (citing *Wahpeton Canvas Co.,*

Inc. v. Frontier, Inc., 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989)). Based on the proper claim

constructions and the evidence of record, I find that FMC has not shown that the Heyi Process

infringes claims 25-28 of the '952 Patent, literally or under the doctrine of equivalents.

1. Literal Infringement

As discussed in the TEO ID and affirmed by the Commission, under the proper construction of the terms “about 120° C to about 160° C” and “about three to about seven hours,” the Heyi Process does not literally meet [REDACTED]

[REDACTED] TEO ID at 78-80; Comm'n Op. at 13. FMC has not produced any new evidence or arguments to convince me otherwise.

[REDACTED]

[REDACTED] CX-0679C at Q/A 64;

RX-0352C at Q/A 179-181; *see also* CX-747C. [REDACTED]

[REDACTED] RX-352C at Q/A 255; Tr. at 382:2-8.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CIB at 44. [REDACTED]

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[REDACTED]

[REDACTED] CIB at 45 (citing CX-0747C [REDACTED]). [REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing CX-0679C at Q/A 66; CX-0747C). [REDACTED]

[REDACTED] *Id.* [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 46. [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 46 (citing CX-0679C at Q/A 45; CX-663C at NH-914-00030041). [REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing CX-0679C at Q/A 45; CX-0759C [REDACTED]; CX-0663C [REDACTED]). [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 47 (citing CX-0679C at Q/A 55). [REDACTED]

[REDACTED] *Id.* at 48 (citing CX-0764C at Q/A 14; CX-0679C at Q/A 44-49).

Respondents respond that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] RIB at 56 (citing RX-0352C at Q/A 60, 119-125, 259; RX-0370C at Q/A 88; RX-0040C; JX-0029C at DUP001). [REDACTED]

[REDACTED] *Id.* at 57 (citing

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RX-0352C at Q/A 260-264). [REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing RX-0352C at Q/A 119-125). [REDACTED]

[REDACTED] CRB at 20-21 (citing CX-0223C; CX-0279C).

[REDACTED]

[REDACTED] RIB at 57 (citing Tr. at 716:10-721:1; RX-0352C at Q/A 142-147). [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 57-58 (citing Tr. at 720:11-721:1, 719:7-10, 719:19-22). [REDACTED]

[REDACTED] *Id.* at 58 (citing RX-0352C at Q/A 146-147). [REDACTED]

[REDACTED]

[REDACTED] CIB at 53 (citing Tr. at 722:4-8).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0764C at Q/A 14; RX-0352C at Q/A 124; CTX-0332C at Q/A 30, 43; TEO Tr. at 657:13-15; Tr. at 813:25-814:9.

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[REDACTED]

[REDACTED]

[REDACTED] See CX-0747C. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0679C at Q/A 44-48. [REDACTED]

[REDACTED] See *id.* at Q/A 49. FMC's speculation simply does not meet its burden of showing infringement by a preponderance of the evidence.

[REDACTED]

[REDACTED] Tr. at 383:2-5; RX-0352C at Q/A 303; CX-0878C. FMC did not present any evidence at trial to dispute this fact. [REDACTED]

[REDACTED] The argument has already been addressed and rejected. TEO ID at 33-34, 79. [REDACTED]

[REDACTED]

[REDACTED] See *supra* Part IV.D..

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] FMC has not shown literal infringement of claims 25-28.

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2. Doctrine of Equivalents

a. Arguments of the Parties

FMC argues that [REDACTED]
[REDACTED] CIB at 54. FMC argues that the function of the claimed temperature is

[REDACTED] *Id.* at 55 (citing CX-0682C at Q/A 67, 69; Tr. at 608:24-609:1).

[REDACTED]

[REDACTED]

[REDACTED] *Id.* (citing Tr. at 551:9-14, 552:9-18; RX-0081C). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *Id.* at 56-57 (citing CX-0747C).

[REDACTED]

[REDACTED] *Id.* at 58 (citing Tr. at 551:9-18, 687:23-688:1). [REDACTED]

[REDACTED]

[REDACTED]

Id. (citing RX-0352C at Q/A 277; Tr. at 815:11-21).

With respect to the time limitation, FMC argues [REDACTED]

[REDACTED] CIB at 68. [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 68-69 (citing CX-747C; CX-0748C; Tr. at 676:10-21; CX-0679C at Q/A 103). [REDACTED]

[REDACTED] *Id.* at 69 (citing CX-747C).

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FMC argues that the purpose of time in the reaction is not critical. FMC states that the purpose of the invention was to produce sulfentrazone without pyridine and that reaction time was not a concern. *Id.* at 70-71 (citing CX-0681C at Q/A 32, 35; CX-0683C at Q/A 29, 30, 54-56; CX-0682C at Q/A 24, 25; Tr. at 141:2-12, 544:20-545:2). FMC disputes that reduced reaction time is a benefit of the '952 Patent, stating that the patent does not analyze reaction rates and describes reaction times as long as 12 hours. *Id.* at 71 (citing JX-0001 at 1:20-2:36, 4:21-25, 5:7-10). FMC also states that there was no drive by the scientists to produce a reaction that ran faster than the pyridine process, other than the general interest of all chemists in producing faster reactions. *Id.* at 71-72 (citing Tr. at 117:17-118:6, 141:2-5, 142:1-7, 163:25-164:14, 189:12-17, 279:17-280:3; CX-0642C at FMC-SFZ-00469204).

Respondents argue that FMC is prohibited from applying the doctrine of equivalents to the term "about" under *Cohesive Tech., Inc. v. Waters Corp.*, 543 F.3d 1351 (Fed. Cir. 2008). RIB at 59. Respondents argue that because the term "about" already expands the literal scope of the claims, the term already encompasses any equivalents. *Id.* at 59-60.

Respondents also argue that application of the doctrine of equivalents is improper in this case because doing so would violate the public notice function of the claims. *Id.* at 61-62. Respondents argue that the '952 Patent indicates that temperature differences of 5° C and time differences of one hour are substantial. *Id.* at 62 (citing JX-0001 at 4:50-53, claims 18, 29; Comm'n Op. at 5). Respondents also state that the '952 Patent specifically discloses non-DMF reactions that may be run at lower temperatures for longer periods of time, but does not disclose the same for DMF reactions. *Id.* (citing JX-0001 at 4:25-27; Comm'n Op. at 11). Respondents thus conclude that one of ordinary skill in the art would understand that 115° C is not the equivalent of 120° C and that eight hours is not the equivalent of seven hours and expanding the

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scope of the claims in such a manner under the doctrine of equivalents would violate the public notice function of the claims. *Id.*

[REDACTED]

[REDACTED]

[REDACTED] *Id.* at 62-63 (citing RX-0352C at Q/A 160; Comm'n Op. at 6).

Respondents state the reduced reaction times are an advantage of the invention and that running a reaction below 120° C results in slower, longer reactions. *Id.* at 63 (citing JX-0001 at 5:10).

Respondents argue therefore that the lower limit of 120° C is a critical feature of the invention that ensures reduced reaction times as claimed. *Id.* (citing RX-0161; RX-0352C at Q/A 175,

346). Respondents state that Dr. Winkler's experiments show that there are substantial

differences in the reaction times of reactions run at [REDACTED] and reactions run at 120° C. *Id.*

(citing Comm'n Op. at 6; RX-0161; JTX-0010C; TEO Tr. at 427:17-428:15; RX-0341C at Q/A 65-73; RX-0370C at Q/A 7-16). [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 64 (citing JX-0012C at 111:5-112:10, 120:15-22, 212:2-7; JX-0017C at 96:2-20; Tr. at 144:24-145:2, 146:1-8, 200:2-202:11).

Respondents also argue that Dr. Gokel's doctrine of equivalents analysis of the temperature limitation is flawed because he only considers the function of temperature generally and fails to explain the function of the claimed temperature range of "about 120° C to about 160° C." *Id.* at 66 (citing CX-0679C at Q/A 65; RX-0352C at Q/A 349). Respondents contend that the function of the claimed temperature range is to provide sufficient heat to allow the reaction to run at a time range of "about three to about seven hours." *Id.* (citing RX-0352C at Q/A 349; JX-0001 at 5:10).

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Respondents also argue that FMC's new argument that the function of temperature is to vent HCl is attorney argument unsupported by any expert testimony. RIB at 66; RRB at 30-31. Respondents state that Dr. Gokel's doctrine of equivalents analysis contains no discussion of venting HCl. RIB at 66 (citing CX-0679C at Q/A 61-71). Respondents also state that the asserted claims tie the function of temperature to reaction times and not to the venting of HCl. *Id.* (citing JX-0001); RRB at 30.

Respondents also state that the way [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] RIB at 67 (citing RX-0352C at Q/A 60, 125, 259; RX-370C at Q/A 88).

[REDACTED]

[REDACTED] RRB at 30 (citing CX-0679C at Q/A 28; RX-0370C at Q/A 148-149).

[REDACTED]

[REDACTED] *Id.* (citing RX-0352C at Q/A 260-264; Tr. at 327:20-328:12; 384:10-17).

Respondents also contend that FMC's focus on conversion for its analysis of the results is error. [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 68 (citing RX-0352C at Q/A 351). [REDACTED]

[REDACTED]

[REDACTED] *Id.* at 68-69 (citing RDX-0128C; RX-0352C at Q/A 276-277; Tr. at 812:14-25, 815:18-21). [REDACTED]

[REDACTED] *Id.* at 69

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(citing CX-0679C at Q/A 66; RX-0352C at Q/A 183, 357). [REDACTED]

[REDACTED]
[REDACTED] RIB at 70 (citing RX-0352C at Q/A 350, 358); RRB at 32.

With respect to the time limitation, Respondents argue that FMC's focus on conversion percentage rather than time is erroneous. Respondents argue that conversion is not a limitation of the claim and is therefore irrelevant to an analysis of whether the time used in the Heyi Process is equivalent to the time claimed. RIB at 70 (citing Tr. at 360:14-361:1, 420:6-21).

[REDACTED]
[REDACTED] *Id.* at 71 (citing RX-0352C at Q/A 279-282, 284-300).

[REDACTED]
[REDACTED] *Id.* (citing RX-0352C at Q/A 288; RX-0132C).

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] *Id.* (citing JX-0001 at 5:10-14; Tr. at 377:18-22, 625:5-11, 690:18-22; RX-0352C at Q/A 321; RX-0370C at Q/A 106-113). [REDACTED]

[REDACTED]
[REDACTED] *Id.* at 72 (citing RX-0352C at Q/A 326-327; RX-0370C at Q/A 118-131; Tr. at 380:1-10).⁵

FMC replies that *Cohesive* is inapposite because in *Cohesive*, the Federal Circuit found that the district court had collapsed the doctrine of equivalents analysis into the claim

⁵ Respondents argue again that the disclosure-dedication rule should apply, but this argument has been considered and rejected by the Commission. See RIB at 73; Comm'n Op. at 11.

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construction analysis by explicitly construing “particle diameters” to encompass “particle diameters that perform the same function, in the same way, with the same result.” CRB at 26 (citing *Cohesive*, 543 F.3d at 1372). FMC says that in this case, the term “about” was not construed to include equivalents. *Id.* at 28. FMC also argues that the doctrine of vitiation does not apply and cited recent Federal Circuit decisions narrowing the vitiation doctrine to a “legal determination that the evidence is such that no reasonable jury could determine two elements to be equivalent.” *Id.* at 29 (quoting *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356-57 (Fed. Cir. 2012)).

FMC also states that Dr. Gokel referred to the venting of HCl as a function of temperature in his testimony. CRB at 37 (citing CX-0883C at Q/A 105, 108). FMC also states that a function does not need to be explicitly stated in the claims to be considered in a doctrine of equivalents analysis. *Id.* (citing *Voda v. Cordis Corp.*, 536 F.3d 1311, 1327 (Fed. Cir. 2008)).

Staff argues that by using the broadening term “about,” FMC has already captured all equivalents within the literal scope of the claim. SIB at 37 (citing *Cohesive*, 543 F.3d at 1372). Staff argues therefore that FMC should be precluded from asserting the doctrine of equivalents. *Id.* Staff also argues that the evidence shows even [REDACTED]

[REDACTED] *Id.* at 38 (citing RX-0352C at Q/A 204, 223, 346, 360-363); RDX-0138C; RDX-0139). Staff also argues that Dr. Gokel failed to analyze whether the way the reaction is run at [REDACTED] is insubstantially different than the way the reaction is run at 120° C. *Id.* [REDACTED]

[REDACTED] *Id.* (citing RX-0352C at Q/A 60, 125, 259-264; RX-0370C at Q/A 88; JX-0029C at DUP001; RX-0042C at G0440-97).

[REDACTED] *Id.* at 39 (citing Tr. at 200:2-202:3; JX-0012C at 111:5-112:10). Staff further argues that percentage conversion is irrelevant to the infringement analysis because the claims do not recite any degree of conversion and Dr. Gokel's analysis would replace the claim language with an unclaimed and arbitrary metric. *Id.* (citing JX-0001 at claim 18; RX-0370C at Q/A 104; Tr. at 914:7-14). Staff also states that Dr. Gokel's reliance on disappearance of aniline as a measure of conversion is erroneous because the '952 Patent describes conversion as conversion of aniline to sulfentrazone. *Id.* (citing JX-0001 at 5:11-14; RX-0352C at Q/A 321; RX-0370C at Q/A 106-113).

b. Analysis

For the reasons below, I find that FMC has failed to demonstrate by a preponderance of the evidence that the Heyi Process is equivalent to the claimed invention. As an initial matter, I reject Respondents argument that FMC is prohibited from applying the doctrine of equivalents to the term "about" under *Cohesive*. In *Cohesive*, the Federal Circuit noted that the doctrine of equivalents analysis had been collapsed into the claim construction analysis when the term "particles" with a diameter of about 30 μm was construed to include particles of all diameters that performed the same function, the same way, and with the same result. 543 F.3d at 1372. As discussed above, the construction of the term "about" in relation to the claimed time and temperature ranges in this Investigation does not explicitly encompass equivalents. *See supra* Parts IV.C-IV.D. Instead, the constructions of the "fuzzy" limitation "about" are based on the significance the intrinsic evidence attributes to certain differences in times and temperatures and expert testimony concerning experimental deviations tolerated by persons of ordinary skill in the art. *See id.*

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I also find that the doctrine of claim vitiation has no application in these circumstances, where there is a genuine issue of material fact as to whether the temperatures and times used in the Heyi Process are equivalent to claimed temperature and time ranges. As the Federal Circuit recently indicated, claim vitiation only applies if, as a legal matter, no reasonable jury could find equivalence. *See Charles Machine Works, Inc. v. Vermeer Mfg. Co.*, 723 F.3d 1376, 1380 (Fed. Cir. 2013); *Brilliant Instruments, Inc. v. GuideTech, LLC*, 707 F.3d 1342, 1347-48 (Fed. Cir. 2013); *Deere*, 703 F.3d at 1356-57. Accordingly, I find that the doctrine of claim vitiation is not applicable.

i. Temperature Limitation

Although FMC is not precluded from applying the doctrine of equivalents in this instance, as a factual matter, FMC has failed to demonstrate that the temperatures and times used in the Heyi Process are equivalent to the temperatures and times claimed in the asserted claims.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] There is no indication in the '952 Patent that the purpose of elevated temperature in the claims [REDACTED] *See* JX-0001. Dr. Gokel does not at all discuss the relationship between temperature [REDACTED] in his analysis of function in the context of the doctrine of equivalents. CX-0679C at Q/A 64-67. Indeed, Dr. Gokel only opines that the function of the temperature limitation is to provide “thermal energy.” *See id.* at Q/A 65. Although Dr. Gokel opines in the context of invalidity [REDACTED]

⁶ [REDACTED]
[REDACTED] CX-0747C; RX-0352 C at Q/A 179-181.

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Q/A 105). Respondents, on the other hand, have presented convincing evidence that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] RX-0352 C at Q/A 60, 124; CX-0679C at Q/A 28. [REDACTED]

[REDACTED]

[REDACTED] RX-0352C at Q/A 125, 259-264; RX-0370C at Q/A 148-149; *see also* Tr. at 327:20-328:12, 384:10-17. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0223C, CX-0279C, [REDACTED]

[REDACTED] *See* CRB at 21-22.

[REDACTED]

[REDACTED] Accordingly, FMC has not demonstrated by a preponderance of the evidence that the way the reactions are carried out at the temperatures in the Heyi Process and the claimed temperature range are the same.

Third, FMC has also failed to demonstrate that the results of the reactions at the temperatures in the Heyi Process and the claimed temperature range are the same. [REDACTED]

[REDACTED]

[REDACTED] CIB at 56-57 (citing CX-0747C); CX-0679C at Q/A 66. [REDACTED]

[REDACTED]

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[REDACTED] CIB at 57; CX-0679C at Q/A 67. FMC's argument is without merit. FMC has provided no direct evidence, expert or otherwise, that [REDACTED]

[REDACTED] Dr. Gokel's opinion is conclusory and does not provide any basis for the leap in logic required to conclude that

[REDACTED]

[REDACTED] CX-0679C at Q/A 67. Further, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0747C at 12; RX-0352C at Q/A 183-185, 357.

As explained in the TEO ID, Dr. Winkler's experiments comparing a simulation of the Heyi Process to the reactions in the asserted claims shows that the Heyi Process achieves substantially different results than the reactions in the asserted claims. TEO ID at 82-83. Dr. Gokel conducted no testing of his own comparing the Heyi Process to a reaction at 117.5° C. *See* CX-0679C; RX-0352C at Q/A 350, 358. Accordingly, FMC has not demonstrated by a preponderance of the evidence that the results of the reactions at the temperatures in the Heyi Process and the claimed temperature range are the same

ii. Time Limitation

FMC has also failed to demonstrate that the reaction times in the Heyi Process are insubstantially different from the claimed reaction times. [REDACTED]

[REDACTED] Tr. at 383:2-5; RX-0352C at Q/A 303; CX-0878C. [REDACTED]

[REDACTED]

[REDACTED] CIB at 69-70. [REDACTED]

[REDACTED]

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[REDACTED] CX-0679C at Q/A 51-54. [REDACTED]

[REDACTED] CX-0679C at Q/A 53-54. [REDACTED]

[REDACTED] RX-0352C at Q/A 280-283, 294. [REDACTED]

[REDACTED] RX-0352C at Q/A 293-301.

[REDACTED] RX-0352C at Q/A 288 [REDACTED]

[REDACTED] RX-0132C.

Moreover, Dr. Gokel's opinion is based solely on an analysis of disappearance of aniline, which is an arbitrary metric in conflict with the '952 Patent. The '952 Patent states "the processes of the present invention generally convert in excess of 90%, often in excess of 95%, of the starting aniline material to [sulfentrazone]." JX-0001 at 5:11-14. The literal language of the specification thus refers to the 90% conversion benchmark as conversion of 90% of the starting aniline to sulfentrazone. At trial, Dr. Gokel offered conflicting testimony on his understanding of this portion of the specification. Dr. Gokel testified without explanation or citation to evidence that this portion of the specification refers to the 90% disappearance of aniline on which he based his conversion analysis. CX-0679C at Q/A 20, 59. Yet, upon cross-examination, Dr. Gokel agreed that the literal language of this portion of the specification referred to 90% conversion of aniline to sulfentrazone. Tr. at 377:18-22.

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Mr. McConville testified that an advantage of the claimed invention was that it converted high levels of the starting material to desired product. Tr. at 690:18-22. Dr. Gribble similarly testified at trial that 90% disappearance of aniline is not always advantageous, explaining that if 40% of the aniline converted to sulfentrazone and 50% of the aniline converted to by-product, that would not be an advantageous reaction, even though 90% of the aniline disappeared. Tr. at 625:1-11.

FMC states that [REDACTED]

[REDACTED]

[REDACTED] CIB at 67 (citing Tr. at 689:17-690:2). However, this is irrelevant to how one of ordinary skill in the art would understand the plain language of the specification because the plain language of the specification clearly states that the 90% figure FMC uses as a benchmark relates to conversion to sulfentrazone—not disappearance of aniline. JX-0001 at 5:11-14; Tr. at 377:18-22.

[REDACTED]

[REDACTED]

CIB at 67 (citing Tr. 262:15-21). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Tr. at 259:13-24. [REDACTED]

[REDACTED]

[REDACTED] See Tr. at

260:18-262:21. [REDACTED]

[REDACTED]

[REDACTED] Tr. at 261:19-262:21.

Dr. Gokel admitted at trial that his analysis focused only on the disappearance of aniline and did not consider how much of the aniline was converted to sulfentrazone or aniline by-products. Tr. at 369:3-370:18, 372:9-373:4, 373:21-374:5, 375:18-23, 376:3-13. [REDACTED]

[REDACTED]

[REDACTED] Tr. at 380:1-10. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] RX-0352C at Q/A 326-331. [REDACTED]

[REDACTED] RX-0370C at Q/A 129-315. Mr. McConville's calculations also show that by not taking impurities into account, Dr. Gokel's disappearance of aniline calculations consistently result in higher conversion percentages. RX-0352C at Q/A 326; Tr. at 320:6-323:17. Accordingly, I find that FMC has not shown that the reaction times in the Heyi Process are insubstantially different from the claimed reaction times.

Based upon all of the foregoing, I find that FMC has not shown that the Heyi Process infringes claims 25-28 of the '952 Patent under the doctrine of equivalents.

VII. DOMESTIC INDUSTRY – ECONOMIC PRONG

A. Applicable Law

The "economic prong" of the domestic industry requirement is satisfied when it is determined that the economic activities set forth in subsections (A), (B), and/or (C) of subsection 337(a)(3) have taken place or are taking place. *Certain Variable Speed Wind Turbines and*

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Components Thereof, Inv. No. 337-TA-376, Comm'n Op. 1996 WL 1056330, at *13 (Nov. 1996). With respect to the "economic prong," 19 U.S.C. § 1337(a)(2) and (3) provide, in full:

(2) Subparagraphs (B), (C), (D), and (E) of paragraph (1) apply only if an industry in the United States, relating to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned-

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

Given that these criteria are listed in the disjunctive, satisfaction of any one of them will be sufficient to meet the domestic industry requirement. *Certain Integrated Circuit Chipsets and Products Containing Same*, Inv. No. 337-TA-428, Order No. 10, Initial Determination, 2000 WL 779850, at *2 (May 4, 2000) (unreviewed) (citing *Variable Speed Wind Turbines*).

Sections 337(a)(3)(A) and (B) both use the term "significant" to describe the amount that must be invested in (A) plant and equipment or (B) labor or capital to constitute a domestic industry. 19 U.S.C. § 1337(a)(3)(A)-(B). Subsection (a)(3)(C) of section 337 uses the term "substantial" to describe the amount that must be invested in patent "exploitation, including engineering, research and development, or licensing." 19 U.S.C. § 1337(a)(3)(C). The case law uses the terms "significant" and "substantial" interchangeably. *See Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm'n Op., 2011 WL 1303160, at *15-17 (Feb. 17, 2011) (Commission applying the contextual analysis of "significant" activities to the finding of "substantial" activities under subsection (C)). In

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Printing and Imaging, the Commission indicated that the same contextual analysis was applicable under either the “significant” or “substantial” standard. 2011 WL 1303160, at *17.

“Whether an investment is ‘substantial’ or ‘significant’ is context dependent.” *Printing and Imaging*, 2011 WL 1303160, at *17. The Commission has recognized that “the magnitude of the investment cannot be assessed without consideration of the nature and importance of the complainant’s activities to the patented products in the context of the marketplace or industry in question.” *Certain Kinesiotherapy Devices and Components Thereof*, Inv. No. 337-TA-823, Comm’n Op. at 31 (July 12, 2013) (citing *Printing and Imaging*, 2011 WL 1303160, at *17). There is, however, no threshold test for what is considered “significant.” *Id.* at 33 (citing *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm’n Op. at 39 (Aug. 1, 2007)). “Instead, the determination is made by ‘an examination of the facts in each investigation, the article of commerce, and the realities of the marketplace.’” *Id.* (quoting *Certain Double-Sided Floppy Disk Drives and Components Thereof (TEO)*, Inv. No. 337-TA-215, USITC Pub. No. 1860, Comm’n Op. at 17 (May 1986)).

Clearly, section 337 does not require manufacture of the patented article in the U.S. “[T]he reality of today’s marketplace is that many products are assembled overseas.” *Certain Kinesiotherapy Devices*, Comm’n Op. at 36. A complainant that manufactures overseas must demonstrate, however, that its domestic activities are significant in relation to the patent and to the company’s overall business operations. *Id.*

A domestic industry has been found in several investigations where chemical products imported from abroad are formulated and finished in the United States. *See, e.g., Certain Salinomycin Biomass and Preparations Containing Same*, Inv. No. 337-TA-370, Comm’n Op., 1996 WL 1056309 (July 1996); *Certain Diltiazem Hydrochloride and Diltiazem Preparations*,

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Inv. No. 337-TA-349, Comm'n Op., 1995 WL 945191 (June 1, 1995). These cases proceed on the theory that where imported goods are not saleable without additional processing, the activities necessary to permit their sale, if they take place in the United States, furnish the basis for finding a domestic industry. *See, e.g., Male Prophylactic Devices*, Comm'n Op. at 42 (unfinished condoms imported from China unsaleable until sealed in foil and tested according to FDA standards); *Salinomycin Biomass*, 1996 WL 1056309, at *63 (salinomycin biomass imported from Japan cannot be sold to end-users without further processing carried out in the U.S.); *Diltiazem Hydrochloride*, 1995 WL 945191, at *78 (bulk diltiazem HCl imported from Japan would be "worthless" without formulation into dosage forms for human consumption in the United States).

In such cases, it is required that the imported goods be protected by the asserted patents for a domestic industry to exist. *See, e.g., Certain Salinomycin Biomass*, 1996 WL 1056309, at *62 ("The record evidence demonstrates that Kaken [the Japanese product supplier] practices claim 2 of the '698 reissue patent in Japan to obtain salinomycin"). In contrast, where the record cannot support a finding that the product is covered by the patent, there is no domestic industry. *See Certain Diltiazem Hydrochloride*, 1995 WL 945191, at *77 (citing *Certain Doxorubicin and Preparations Containing Same*, Inv. No. 337-TA-300, Comm'n Op., 1991 WL 338244 (May 2, 1991)). "[T]he relevant domestic 'industry' extends only to articles which come within the claims of the patent relied on." *Diltiazem Hydrochloride*, 1995 WL 94519, at *77 (quoting *Schaper Mfg. Co. v. Int'l Trade Comm'n*, 717 F.2d 1368 (Fed. Cir. 1983)). If a product manufactured abroad does not practice a patented process alleged to be infringed, the complainant cannot base its claim of a domestic industry on the finishing work performed domestically on that product. *See Doxorubicin*, 1991 WL 338244, at *11 (affirming ALJ's

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finding of no domestic industry where the overseas supplier “was not practicing the claimed processes, either literally or under the doctrine of equivalents”).

B. Analysis

The construction of the ‘952 patent adopted herein, which is consistent with the TEO ID and the Commission’s opinion affirming the TEO ID in this respect, requires that the process for producing sulfentrazone described in the patent take place within certain time and temperature ranges. *See supra* Parts IV.C-IV.D. [REDACTED]

[REDACTED] *See infra* Part VIII.B. In particular, because FMC’s technical expert, Dr. Winkler, did not measure the entire processing time, there is no way to ascertain reliably how much covered sulfentrazone was produced in accordance with the ‘952 patent’s specifications. Dr. Winkler only measured time to sampling, not time to completion. *See* Tr. 299:11-300:05, 307:06-308:14, 317:1-9; RX-0352C at Q/A 382.

The Commission’s case law establishes that the economic prong is not satisfied merely by showing a significant or substantial level of economic activity in the United States, but by a further showing that such activity is related to the patented invention. Accordingly, the complainant bears the burden of identifying products covered by the asserted patent and expenses related to those products. *See, e.g., Certain Video Game Systems and Wireless Controllers and Components Thereof*, Inv. No. 337-TA-770, Initial Determination, 2012 WL 4480570, at *79-80 (Aug. 31, 2012) (requiring apportionment of economic evidence between expenditures on patented vs. non-patented articles). Products covered by the asserted patents are treated as the “domestic industry products” and only expenditures and investments properly related to those products are counted toward establishment of the economic prong.

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FMC thus is required to apportion its domestic industry expenditures to account for expenditures on sulfentrazone produced by the process covered by the '952 patent as opposed to any non-covered process. FMC has not attempted to allocate its expenditures and investments, maintaining instead that all of its domestic expenditures related to sulfentrazone count toward satisfying the domestic industry requirement. Failure to allocate expenditures properly as between products covered by the '952 patent and products not covered by the '952 patent, as properly construed, defeats FMC's claim to satisfy the economic prong.⁷

FMC's economic expert, Carla Mulhern, identifies "a number of activities related to the DI Products" that constitute FMC's domestic industry: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] CX-0765C at Q/A 65. [REDACTED]

[REDACTED] *Id.* at Q/A

66. [REDACTED]

[REDACTED]

[REDACTED] *Id.*

Ms. Mulhern admits, however, that her calculation of the size of FMC's domestic industry does not allocate expenditures and investments as between those made in relation to sulfentrazone protected by the patent and sulfentrazone that is not protected by the patent. *See id.* at Q/A 62-63. Ms. Mulhern testifies that in calculating the amounts spent by FMC on

⁷ FMC was alerted to this issue by the TEO ID, which noted that FMC should be prepared to calculate its domestic industry expenditures in a way that included the various claim constructions offered by the parties, so that FMC would "be able to support its argument concerning the economic prong at trial, regardless of which claim construction ultimately is adopted." TEO ID at 99-100 n.24.

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domestic processing of raw sulfentrazone, she assumed that every batch of imported sulfentrazone was made using the patented process set forth in the '952 patent. *See* Tr. at 440:3-7 (Q.: "So you counted all of FMC's imported sulfentrazone in the time period you considered regardless of the [REDACTED] is that right? A: I believe that's correct.").

Ms. Mulhern agrees that "in analyzing economic prong and the value added by the U.S. formulation activities, one should be looking at sulfentrazone products that are made using the patented process." Tr. at 474:2-5. Ms. Mulhern testifies that she did not allocate FMC's expenditures as between patented and non-patented sulfentrazone because she was unable to do so. *Id.* at 475:3-476:1, [REDACTED] *Id.* at 476:10-12.

As a result, Ms. Mulhern cannot know whether the sulfentrazone expenditures that she is counting are related to sulfentrazone that is produced in accordance with the '952 patent, as construed herein. Ms. Mulhern cannot tell how many qualifying and non-qualifying batches of sulfentrazone are included in her calculations.⁸ In essence, Ms. Mulhern cannot identify a discrete set of domestic industry products; she cannot separate domestic industry products from raw sulfentrazone produced by a process that is not patent-protected. On the record before me, there is no way around this problem, which precludes meaningful assessment of the amounts expended by FMC on the domestic industry product.

Because she has not properly allocated alleged domestic industry expenditures and investments, Ms. Mulhern's conclusions about these amounts are unreliable, as is her conclusion

⁸ Ms. Mulhern did extract from her calculations sulfentrazone produced by an earlier process using [REDACTED] not DMF, as specified in the '952 patent. *See* CX-0765C at Q/A 57-61.

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that “FMC has made significant investments in plant and equipment and labor and capital as well as substantial investments in engineering, research and development related to the DI Products.” CX-0765C at Q/A 191. Without reliable testimony concerning the amount of FMC’s expenditures and investments on the domestic industry products, FMC fails to satisfy the economic prong.

FMC seeks to overcome the allocation problem in two ways. First, FMC argues that its domestic contribution to sulfentrazone, both qualitative and quantitative, is sufficient to satisfy the economic prong. Second, FMC seeks to use the analysis presented by Respondent’s expert, Dr. Kaplan, to supply the evidence missing from Ms. Mulhern’s analysis.

1. Qualitative and Quantitative Contribution to the Domestic Industry Product

In support of its “qualitative” evaluation of FMC’s domestic industry expenditures, FMC initially presents a policy argument. FMC states that “the protections of section 337 are reserved for entities that make significant investments or engage in substantial operations in the United States related to articles protected by U.S. intellectual property rights.” CIB at 104. Since FMC spends so much money on its domestic operation, the argument runs, FMC is clearly not a mere importer and therefore must be deemed to satisfy the economic prong “regardless of the claim construction or allocation methodology that the Commission may adopt.” *Id.* Under FMC’s view, “all of the significant operational activities of FMC’s sulfentrazone business [that] occur in the United States” count toward satisfaction of the economic prong because all “are essential to FMC’s ability to sell approximately [REDACTED] in sulfentrazone products annually.” *Id.*

This argument basically says that FMC, as a large U.S. company, can count all its expenses related to the production of sulfentrazone as domestic industry expenditures, regardless of whether those expenditures correspond to expenditures on product actually protected by the patent. Since “all of FMC’s sulfentrazone technical was being produced using its patented DMF

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process *as construed by FMC*,” CIB at 105 (emphasis added), all FMC’s expenses related to sulfentrazone count toward satisfying the economic prong. *See id.* [REDACTED]

[REDACTED]

[REDACTED]

It is true that to satisfy the economic prong a complainant must be more than a mere importer. No authority, however, supports extending this doctrine to count toward satisfaction of the economic prong all expenditures of an entity that is not a mere importer. As stated above, the authority is to the contrary – domestic industry expenses must be based upon activities directed to products that actually practice the patent. That principle has been affirmed by the Commission on a number of occasions, including by the TEO decision in this Investigation. To the extent that FMC argues that domestic industry activities are “not limited to products made using sulfentrazone technical produced according to any particular process,” *see* CIB at 107, FMC misses the point: this entire Investigation concerns sulfentrazone produced according to the particular process described in the ‘952 patent. That FMC engages in activities necessary to sell sulfentrazone is unchallenged, but those activities cannot be ascribed to all sulfentrazone sold by FMC, where not all sulfentrazone is covered by the ‘952 patent. There must be some reliable evidence of an appropriate allocation.

FMC’s erroneous policy argument permeates its presentation of qualitative and quantitative domestic industry expenditures. Thus, FMC asserts that significant domestic production activities necessary to the sale of the finished sulfentrazone product establish a domestic industry. *See* CIB at 106; CX-0765C at Q/A 169. FMC’s “qualitative” evidence, however, based on FMC’s U.S. activities related to the formulation of sulfentrazone products, is

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relevant only if the raw sulfentrazone finished by FMC domestically was produced by the patented process.

FMC asserts that there is no dispute that “as of the time the Complaint was filed, a [REDACTED] [REDACTED] CIB at 107. First, this fact is not undisputed. *See* RRB at 62.⁹ Second, Dr. Winkler’s estimates of covered amounts of sulfentrazone is unreliable. *See infra* Part VII. B.2.; *see also* RIB at 105-108. Third, it is not true that, when any amount of qualifying sulfentrazone is used in domestic production, [REDACTED] [REDACTED] all domestic production expenditures may be included in the domestic industry calculation. FMC’s “qualitative analysis” is based on the same erroneous premise discussed above – that allocation is unnecessary. *See* CIB at 107-108.

FMC fares no better with its “quantitative” analysis. *See* CIB at 108-110; CX-0765C at Q/A 170-175. Ms. Mulhern analyzes the value added to sulfentrazone by FMC’s domestic activities based on the cost of goods sold but ignores the question of whether the goods to which value is added are protected by the ‘952 patent. Indeed, Ms. Mulhern concedes at hearing that if the Commission’s likely claim constructions set forth in the TEO are adopted by the Commission in the permanent phase of this Investigation, she can offer no opinion to support a finding that FMC meets the economic prong. Tr. at 463:24-464:4.

FMC argues that “[t]he domestic activities necessary for sale of sulfentrazone products are equally important for every pound of covered sulfentrazone technical irrespective of how

⁹ As Respondents explain, their expert, Dr. Kaplan, does not agree with FMC’s expert that any particular amount of sulfentrazone meets the patent’s specifications. In fact, he does not agree or disagree. As an economist—not a chemist—Dr. Kaplan uses the numbers calculated by FMC’s technical expert, Dr. Winkler, regarding the amount of raw sulfentrazone product covered by the asserted patents to evaluate the significance of FMC’s alleged domestic industry expenditures. *See* RRB at 62-63; RX-0373C at Q/A 35-36; Tr. at 858:24-859:1, 861:9-11, 874:24-875:24. Dr. Kaplan does not endorse Dr. Winkler’s calculations and would not be qualified in any event to render an opinion on the technical issue of which batches of sulfentrazone should be counted as domestic industry products.

many pounds are covered.” CIB at 110. FMC says that if significant value is added by FMC’s domestic activities [REDACTED] it is sufficient to satisfy the domestic industry prong. Again, while it is true that value added analysis focuses on the product unit, it is not true that value added to one unit is sufficient to establish a domestic industry where that unit may be the only one (or may not even be one) that is produced by the patented process. FMC’s arguments to the contrary are untenable.¹⁰

2. Respondents’ Expert Does Not Establish FMC’s Domestic Industry

FMC asserts that Dr. Kaplan’s analysis of the economic prong, which relies on Dr. Winkler’s estimates concerning the number of batches of qualifying sulfentrazone imported by FMC, demonstrates significant and substantial domestic industry investments. *See* CIB at 113-14 (citing RX-0378C at Q/A 14) [REDACTED]

[REDACTED]¹¹ Dr. Kaplan’s analysis constitutes a “fallback position” for Respondents; as noted above, Respondents’ principal contention is that zero dollars should be allocated to FMC’s domestic industry because it cannot be determined how much raw sulfentrazone is made using the patented process. *See* RIB at 103 [REDACTED]

[REDACTED] That should be the end of the analysis”); RRB 62-63 & n.18. I agree that Dr. Kaplan’s analysis does not overcome FMC’s failure to demonstrate a reliable basis for allocating covered and non-covered expenditures.

Dr. Winkler’s calculations are unreliable because he does not [REDACTED]

[REDACTED]

[REDACTED] *See* RIB at 105-108; SRB at 43; Tr. at 298:1-7, 299:18-

¹⁰ FMC lays out several “specific” in addition to the “general” domestic industry expenditures it alleges. CIB at 110-111. None of these activities is apportioned to identify expenditures associated with work on sulfentrazone produced by the patented process.

¹¹ FMC objects to some of the testimony in Dr. Kaplan’s supplemental report. *See* Tr. at 880:4-881:1. I sustain the objection and strike from RX-0378C the questions and answers numbered 8-11.

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302:5, 305:8-308:14, 315:10-317:13. Dr. Winkler's estimate does not reliably state the amount of covered sulfentrazone, and Dr. Kaplan's numbers reflect that deficiency. Under the construction of patent '952 adopted herein, Dr. Winkler's calculations, and hence Dr. Kaplan's calculations, cannot be relied upon to establish (or to refute) FMC's claim to have a domestic industry. *See* Tr. at 574:13-577:3. It simply cannot be determined on this record how much covered sulfentrazone was imported and how much was spent on domestic industry activities associated with covered product.

VIII. DOMESTIC INDUSTRY – TECHNICAL PRONG

A. Applicable Law

To meet the technical prong, the complainant must establish that it practices at least one claim of the asserted patent. *Certain Point of Sale Terminals and Components Thereof*, Inv. No. 337-TA-524, Order No. 40 (April 11, 2005). "The test for satisfying the 'technical prong' of the industry requirement is essentially same as that for infringement, i.e., a comparison of domestic products to the asserted claims." *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003) (citing *Corning Glass Works v. Int'l Trade Comm'n*, 799 F.2d 1559 (Fed. Cir. 1986)). The technical prong can be satisfied either literally or under the doctrine of equivalents. *Certain Excimer Laser Systems for Vision Correction Surgery and Components Thereof and Methods for Performing Such Surgery*, Inv. No. 337-TA-419, Order No. 43 (July 30, 1999). A showing that the complainant practices an invalid claim of the asserted patent is not sufficient to meet this requirement, however. *Certain Audiovisual Components and Products Containing the Same*, Inv. No. 337-TA-837, Comm'n Op. at 33 (March 10, 2014).

B. Analysis

FMC argues that it has used the DMF process to make sulfentrazone since [REDACTED] CIB at 102-103; CX-0215C.2; CX-0766C at Q/A 10. [REDACTED]

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[REDACTED]

[REDACTED] CX-0215C.1; CX-0766C at Q/A 11.

FMC relies on Dr. Winkler's analysis that its process practices claims 25-28 of the '952 patent. CX-0764C at Q/A 38. [REDACTED]

[REDACTED]

CX-0766C at Q/A 119, 121. [REDACTED]

[REDACTED] *Id.* at Q/A 28, 124. FMC dismisses Respondents' criticisms regarding the technical prong of domestic industry as identical to the issues on infringement. CRB at 39. FMC argues that its process would infringe the '952 patent if performed by an unauthorized party, and thus, it meets the technical prong for domestic industry. CIB at 102-103; CRB at 39.

Respondents argue that there is no evidence [REDACTED]

[REDACTED] RIB at 103-04; RRB at 57. Respondents cite Dr. Winkler's admission that he did [REDACTED]

[REDACTED] Tr. at 299:11-300:5, 307:6-308:8, 317:1-9.

Mr. McConville criticizes Dr. Winkler for relying on the sample time rather than the full reaction time. RX-0352C at Q/A 382.

Respondents further argue that Dr. Winkler's doctrine of equivalents analysis is inadequate. RIB at 105-06. In Mr. McConville's opinion, the use [REDACTED] conversion as a benchmark is not supported by the patent. RX-0352C at Q/A 388. Mr. McConville further testifies that the [REDACTED]

[REDACTED] *Id.* at Q/A 396; *see also* Tr. at 117:25-118:10 (McMullen).

Respondents also cite the Commission's statement that a [REDACTED]

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[REDACTED] would defeat a key advantage of the invention. Comm'n Op. at 6.

Mr. McConville further criticizes Dr. Winkler's analysis for relying on [REDACTED]

[REDACTED] RX-0352C at Q/A 389.

Respondents point to Dr. Winkler's inconsistent use of [REDACTED] for his analysis of FMC's process, while he used a different benchmark for analyzing Respondents' process and for the calculation he relied upon in the temporary relief phase. CX-0764C at Q/A 22-26.

Respondents argue that this reliance on [REDACTED] makes for an "apples-to-oranges" comparison with the '952 patent's disclosure. RIB at 106-07.

Respondents also point out errors and shortcomings with regard to the [REDACTED]

[REDACTED] RIB at 107-08; RRB at 58.

Staff argues that FMC failed to show that the domestic industry products satisfy the technical prong. SIB at 40-42; SRB at 27-28. Staff cites Dr. Winkler's testimony on cross-examination admitting that the [REDACTED]

[REDACTED] Tr. at 299:11-

302:5; CX-748C. Staff thus contends that Dr. Winkler's analysis is unreliable because he failed to apply the proper construction of [REDACTED] SIB at 41. Staff further argues that there is no legitimate basis for FMC's reliance on a [REDACTED] of the reaction. SRB at 28. Staff therefore concludes that FMC failed to prove that any of its processes satisfy the claimed time limitation. SRB at 27-28.

The parties do not dispute that FMC practices all the limitations of the asserted claims other than the [REDACTED]

[REDACTED] as

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correctly identified by Mr. McConville, RX-0352C at Q/A 393-395, the majority of batches literally [REDACTED] Dr. Winkler identified [REDACTED] prepared before March 5, 2014, that fall within the [REDACTED]

[REDACTED]

On the time limitation, Dr. Winkler identifies [REDACTED] that were sampled within [REDACTED] and [REDACTED] of these batches overlap with those meeting the [REDACTED] CX-0764C at Q/A 40-41. Dr. Winkler relies on the [REDACTED] rather than the [REDACTED] however, *see* Tr. at 299:11-300:5, and as discussed above in the context of infringement, this does not literally meet the [REDACTED] Dr. Winkler also performs an analysis under the doctrine of equivalents, finding that [REDACTED] [REDACTED] CX-0765C at Q/A 43. These [REDACTED] are based on the [REDACTED], however, and as discussed above in the context of infringement, this is inconsistent with the [REDACTED] [REDACTED] described in the '952 Patent. JX-0001 at 5:11-14 ("the processes of the present invention generally convert in excess of 90%, often in excess of 95%, of the starting aniline material to [sulfentrazone]."). The [REDACTED] is not a proper benchmark to establish equivalence, and I therefore find that FMC has failed to show that any of its batches practice the [REDACTED] under the doctrine of equivalents.

IX. REMEDY & BONDING

Pursuant to Commission Rule 210.42(a)(1)(ii) and the Notice of Investigation, my recommended determination on remedy and bonding are set forth below.

A. Remedy

FMC requests a permanent exclusion order and a cease-and-desist order in its complaint, Amended Complaint at ¶ 12.2(c)-(d), but FMC's post-trial brief does not elaborate on the scope

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of any remedial order, instead addressing the public interest. CIB at 115-119. Respondents argue that any exclusion order should be a limited exclusion order with a certification provision and a grace period for potential design-arounds. RIB at 117-118. Staff agrees with Respondents that a limited exclusion order with a certification provision is the appropriate remedy. SIB at 66-67, SRB at 46. Respondents and Staff also argue that a cease-and-desist order would be inappropriate because FMC has not demonstrated that Respondents maintain any commercially significant inventories of the accused products. RIB at 118; SIB at 67-68; SRB at 46.

Because FMC did not request a general exclusion order, I recommend that the Commission issue a limited exclusion order should a violation of section 337 be found. In addition, because it is undisputed that there are non-infringing methods to manufacture sulfentrazone (*e.g.* the prior art pyridine process), I recommend that any exclusion order contain a certification provision enabling importers to certify that their sulfentrazone was made by a process outside the scope of the '952 Patent. *See Hyundai Electronics Industries Co., Ltd, v. Int'l Trade Comm'n*, 899 F.2d 1204, 1210 (Fed. Cir. 1990) (“The Commission's decision in this case to enter a limited exclusion order containing a certification provision is both reasonable and well within its authority”).¹² Because FMC presented no evidence regarding Respondents' inventory, I do not recommend that the Commission issue a cease and desist order.

B. Bonding

Commission Rule 210.50(a)(3) specifies that the amount of a bond must be “sufficient to protect the complainant from any injury.” 19 C.F.R. § 210.50(a)(3) (*citing* 19 U.S.C.

§ 1337(j)(3)). FMC argues for a bond amount of at least 100% because a direct comparison

¹² Respondents further request a grace period before the enforcement of any exclusion order, but their argument for this delay relies on the potential effects of an exclusion order on United States consumers, which is a public interest factor that has not been delegated to the Administrative Law Judge in this Investigation. *See* Notice of Investigation; 19 C.F.R. § 210.50(b)(1). *See also Certain Personal Data and Mobile Communication Devices and Related Software*, Inv. No. 337-TA-710, Comm'n Op. at 81 (Dec. 29, 2011) (setting a four-month transition period based on public interest concerns in the market for smartphones).

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between products is difficult. CIB at 119-123, CRB at 75. [REDACTED]

[REDACTED] CIB

at 119-20. Moreover, [REDACTED]

[REDACTED] *Id.* at 119-21, [REDACTED]

[REDACTED] *Id.* at 121-23. Respondents argue that the bond should be zero because FMC failed to present any expert testimony on the proper bond amount. RIB at 119; RRB at 66-67. In addition, Respondents argue that [REDACTED]

[REDACTED] *Id.* at 119-120. Respondents also argue that no bond should be imposed on Nutrichem or Heyi, who do not import any sulfentrazone. *Id.* at 119 n.36. Staff agrees with Respondents that FMC's failure to support its proposed bond amount warrants a finding of no bond. SIB at 68-70; SRB at 47-48. In rebuttal, FMC argues that there is no requirement for expert testimony on bond amount and that its evidence on the pricing for certain sulfentrazone mixtures is sufficient. CRB at 74-75.

It is my recommended determination that no bond be imposed on Respondents if the Commission finds a violation of section 337 in this Investigation. In *Certain Rubber Antidegradants, Components Thereof, and Products Containing Same*, the Commission followed the ALJ's recommendation that no bond be required where the complainant presented no evidence to support any bond. Inv. No. 337-TA-533, Comm'n Op. at 39-40 (July 21, 2006) ("the complainant has the burden of supporting any proposition it advances, including the amount of the bond."). I find that FMC has failed to present evidence sufficient to carry its burden on

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bonding. Although expert testimony is not necessary on every issue, FMC's contention that a price comparison is complex and difficult cannot be based solely on attorney argument. A price comparison that is difficult for FMC's attorneys may not be so difficult for an economic expert, and Respondents' expert, Dr. Kaplan, was able to make such a comparison without difficulty. Dr. Kaplan's straightforward price comparison shows that [REDACTED]

[REDACTED] RX-0373C at Q/A 129. This unchallenged expert testimony outweighs FMC's attorney arguments, and accordingly, I recommend that no bond should be imposed during the Presidential Review period if a violation is found.

X. MATTERS NOT DISCUSSED

This Initial Determination's failure to discuss any matter raised by the parties, or any portion of the record, does not indicate that it has not been considered. Rather, any such matter(s) or portion(s) of the record has/have been determined to be irrelevant, immaterial or meritless. Arguments made on brief which were otherwise unsupported by record evidence or legal precedent have been accorded no weight.

XI. CONCLUSIONS OF LAW

1. The Commission has subject matter jurisdiction, *in rem* jurisdiction, and *in personam* jurisdiction.
2. There has been an importation into the United States, sale for importation, or sale within the United States after importation of certain sulfentrazone, and sulfentrazone compositions by Respondents Nutrichem, Summit Agro USA, Summit Agro North America, and Jiangxi Heyi Chemicals.
3. FMC has standing to assert the '952 Patent.

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4. No domestic industry exists in the United States pursuant to Section 337(a)(2) with respect to the '952 Patent.
5. Claims 25-28 of the '952 Patent are invalid pursuant to § 102(g).
6. Claims 25-28 of the '952 Patent have not been shown to be invalid pursuant to § 102(a).
7. Claims 25-28 of the '952 Patent have not been shown to be invalid pursuant to § 102(e).
8. Claims 25-28 of the '952 Patent have not been shown to be invalid pursuant to § 102(f).
9. Claims 25-28 of the '952 Patent have not been shown to be invalid pursuant to § 103.
10. Heyi's accused sulfentrazone active ingredient is made by a process that does not infringe claims 25-28 of the '952 Patent.
11. There is no violation of Section 337 with respect to the '952 Patent.

XII. INITIAL DETERMINATION AND RECOMMENDATION

Based on the foregoing, and the record as a whole, it is my Final Initial Determination that there is no violation of Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain sulfentrazone, sulfentrazone compositions, and processes for making sulfentrazone in connection with U.S. Patent No. 7,169,952.

I hereby **CERTIFY** to the Commission my Final Initial and Recommended Determinations together with the record consisting of the exhibits admitted into evidence. The pleadings of the parties filed with the Secretary, and the transcript of the pre-hearing conference and the hearing, as well as other exhibits, are not certified, since they are already in the

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Commission's possession in accordance with Commission rules.

It is further **ORDERED** that:

In accordance with Commission Rule 210.39, all material heretofore marked *in camera* because of business, financial and marketing data found by the administrative law judge to be cognizable as confidential business information under Commission Rule 201.6(a), is to be given *in camera* treatment continuing after the date this Investigation is terminated.

The initial determination portion of the Final Initial and Recommended Determination, issued pursuant to Commission Rule 210.42(a)(1)(i), shall become the determination of the Commission sixty (60) days after the service thereof, unless the Commission, within that period, shall have ordered its review of certain issues therein, or by order, has changed the effective date of the initial determination portion. If the Commission determines that there is a violation of 19 U.S.C. § 1337(a)(1), the recommended determination portion, issued pursuant to Commission Rule 210.42(a)(1)(ii), will be considered by the Commission in reaching a determination on remedy and bonding pursuant to Commission Rule 210.50(a).

Within ten (10) days of the date of this Initial Determination, Complainant and Respondents shall each submit to the Office of Administrative Law Judges a statement as to whether or not they seek to have any portion of this document deleted from the public version. Respondents shall submit *a joint statement* regarding confidential business information. Complainant and Respondents shall attach to their submissions a copy of this document with red brackets indicating any portion asserted to contain confidential business information, and the submissions shall include an index identifying the pages of this document where proposed redactions are located. The parties' submissions concerning the public version of this document need not be filed with the Commission Secretary but shall be submitted by both e-mail and paper

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copy to the Administrative Law Judge pursuant to Ground Rule 1.3.

SO ORDERED.

Issued: April 10, 2015
DATE

Dee Lord
Dee Lord
Administrative Law Judge

**CERTAIN SULFENTRAZONE,
SULFENTRAZONE, COMPOSITIONS,
AND PROCESSES FOR MAKING SAME**

Inv. No. 337-914

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been served by hand upon the Commission Investigative Attorney, **John Shin, Esq.**, and the following parties as indicated, on

MAY 26 2015



Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street SW, Room 112A
Washington, D.C. 20436

FOR COMPLAINANT FMC CORPORATION:

Lisa A. Chiarini, Esq.
HUGHES HUBBARD & REED LLP
One Battery Park Plaza
New York, NY 10004

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

FOR RESPONDENTS BEIJING NUTRICHEM SCIENCE AND TECHNOLOGY STOCK CO., LTD. and JIANGXI HEYI CHEMICALS CO., LTD.:

Elizabeth A. Niemeyer, Esq.
**FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP**
901 New York Avenue NW
Washington, DC 20001

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____

FOR RESPONDENTS SUMMIT AGRO USA, LLC and SUMMIT AGRO NORTH AMERICA HOLDING CORPORATION:

Michael R. Franzinger, Esq.
SIDLEY AUSTIN LLP
1501 K Street NW
Washington, DC 20005

Via Hand Delivery
 Via Express Delivery
 Via First Class Mail
 Other: _____