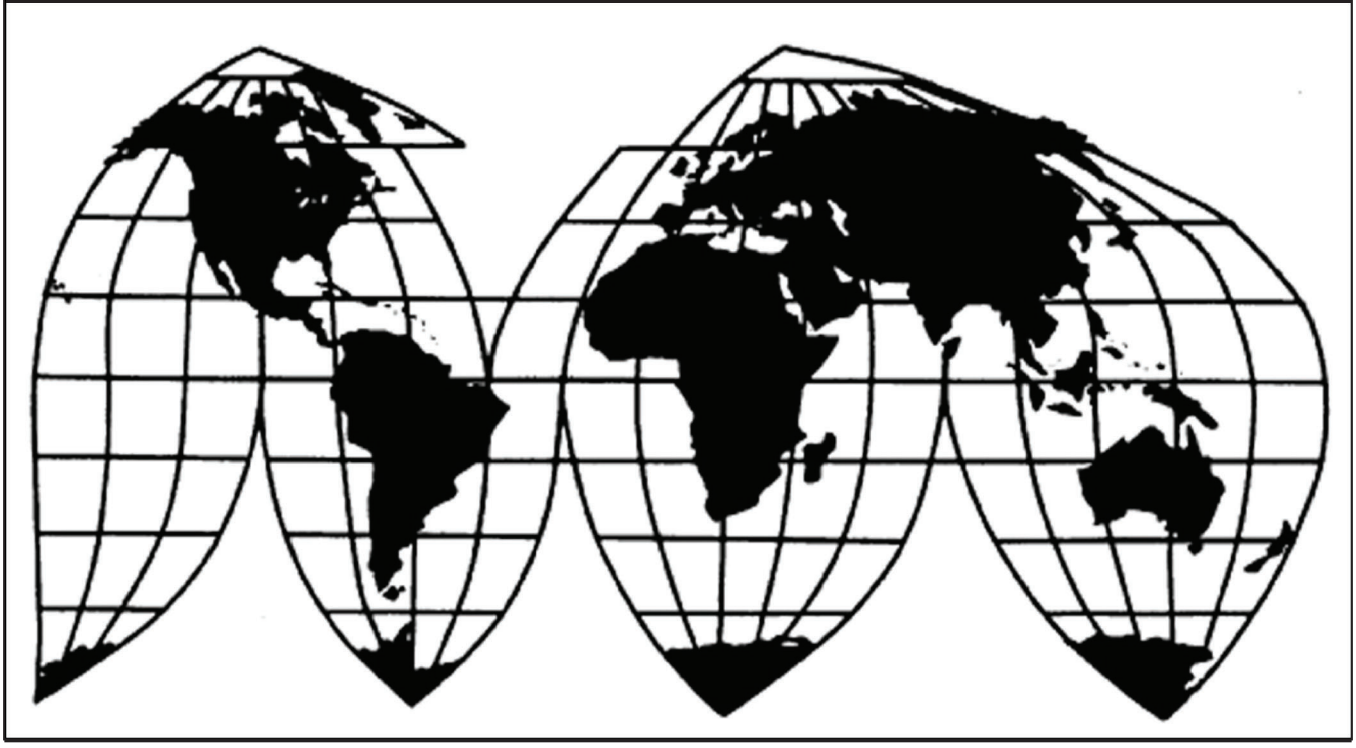
Magnesium from Israel

Investigation Nos. 701-TA-614 and 731-TA-1431 (Final)

Publication 5009 **January 2020**

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

COMMISSIONERS

David S. Johanson, Chairman
Rhonda K. Schmidtlein
Jason E. Kearns
Randolph J. Stayin
Amy A. Karpel

Catherine DeFilippo
Director of Operations

Staff assigned

Andres Andrade, Investigator
Gregory LaRocca, Industry Analyst
Natalia King, Economist
Emily Kim, Accountant
Cynthia Payne, Statistician
Ravi Soopramanien, Attorney
Nathanael Comly, Supervisory Investigator

Special assistance from

Julie Duffy

Address all communications to
Secretary to the Commission
United States International Trade Commission
Washington, DC 20436

U.S. International Trade Commission

Washington, DC 20436
www.usitc.gov

Magnesium from Israel

Investigation Nos. 701-TA-614 and 731-TA-1431 (Final)

Publication 5009

January 2020

CONTENTS

Page

CONTENTS

Page

CONTENTS

Page

CONTENTS

Page

Appendixes

Note.—Information that would reveal confidential operations of individual concerns may not be published.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

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-614 and 731-TA-1431 (Final)

Magnesium from Israel

DETERMINATIONS

On the basis of the record[1] developed in the subject investigations, the United States International Trade Commission ("Commission") determines, pursuant to the Tariff Act of 1930 ("the Act"), that an industry in the United States is not materially injured or threatened with material injury, and the establishment of an industry in the United States is not materially retarded, by reason of imports of magnesium from Israel, provided for in subheadings 8104.11.00, 8104.19.00, and 8104.30.00 of the Harmonized Tariff Schedule of the United States, that have been found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV"), and to be subsidized by the government of Israel.

BACKGROUND

The Commission, pursuant to sections 705(b) and 735(b) of the Act (19 U.S.C. 1671d(b) and 19 U.S.C. 1673d(b)), instituted these investigations effective October 24, 2018, following receipt of petitions filed with the Commission and Commerce by US Magnesium LLC, Salt Lake City, Utah. The final phase of the investigations was scheduled by the Commission following notification of preliminary determinations by Commerce that imports of magnesium from Israel were subsidized within the meaning of section 703(b) of the Act (19 U.S.C. 1671b(b)) and sold at LTFV within the meaning of 733(b) of the Act (19 U.S.C. 1673b(b)). Notice of the scheduling of the final phase of the Commission's investigations and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the *Federal Register* on August 5, 2019 (84 FR 38057). The hearing was held in Washington, DC, on

[1] The record is defined in sec. 207.2(f) of the Commission's Rules of Practice and Procedure (19 CFR 207.2(f)).

November 21, 2019, and all persons who requested the opportunity were permitted to appear in person or by counsel.

Views of the Commission

Based on the record in the final phase of these investigations, we determine that an industry in the United States is not materially injured or threatened with material injury by reason of imports of magnesium from Israel found by the U.S. Department of Commerce ("Commerce") to be sold in the United States at less than fair value ("LTFV") and to be subsidized by the government of Israel.

I. Background

US Magnesium LLC, a domestic producer of magnesium ("USM" or "Petitioner"), filed the petitions in these investigations on October 24, 2018. USM Representatives appeared at the hearing accompanied by counsel and submitted prehearing and posthearing briefs and final comments. Luxfer Magtech ("Luxfer"), a producer of ground magnesium ("grinder"), also appeared at the hearing in support of the petition.

Several respondent entities participated in these investigations. Dead Sea Magnesium Ltd. ("DSM"), the sole producer and exporter of magnesium in Israel and the sole U.S. importer of magnesium from Israel, appeared at the hearing accompanied by counsel and submitted prehearing and posthearing briefs and final comments. Spartan Light Metals Products ("Spartan"), a domestic producer of cast magnesium (or a "non-grinding producer"), filed comments in opposition to the imposition of duties. Allegheny Technologies Incorporated ("ATI"), Westinghouse Electric Company LLC ("Westinghouse"), Arconic Inc. ("Arconic"), and Alcoa Corp. ("Alcoa"), which are industrial users of magnesium, also participated in these investigations.[1] Additionally, the Minister for Economic & Trade Affairs for Israel appeared at the hearing.

U.S. industry data are based on the questionnaire responses of five firms that accounted for more than 80 percent of U.S. production of magnesium in 2017. U.S. import data are based on information submitted in response to Commission questionnaires provided by 14 firms accounting for over 80 percent of U.S. imports of magnesium in 2018, including all such imports from Israel.[2] The Commission received a response to its foreign producers' questionnaire from DSM, which accounted for all known production of magnesium in Israel and its exports accounted for all U.S. imports from Israel in 2018.[3]

[1] ATI submitted prehearing and posthearing briefs; Westinghouse appeared at the hearing and submitted a posthearing brief; and Arconic and Alcoa submitted prehearing briefs.

[2] Confidential Report, Memorandum INV-RR-130 (Dec. 10, 2019) ("CR")/Public Report, *Magnesium from Israel*, Inv. Nos. 701-TA-614 and 731-TA-1431 (Final), USITC Pub. 5009 ("PR") at I-4.

[3] CR/PR at VII-3.

II. Domestic Like Product

A. In General

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

The decision regarding the appropriate domestic like product in an investigation is a factual determination, and the Commission has applied the statutory standard of "like" or "most similar in characteristics and uses" on a case-by-case basis.[7] No single factor is dispositive, and the Commission may consider other factors it deems relevant based on the facts of a particular investigation.[8] The Commission looks for clear dividing lines among possible like products and disregards minor variations.[9] Although the Commission must accept Commerce's determination as to the scope of the imported merchandise that is subsidized or sold at less than fair value,[10] the Commission determines what domestic product is like the imported articles Commerce has identified.[11]

---

[4] 19 U.S.C. § 1677(4)(A).

[5] 19 U.S.C. § 1677(4)(A).

[6] 19 U.S.C. § 1677(10).

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

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

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

[10] *See*, *e.g., USEC, Inc. v. United States*, 34 Fed. Appx. 725, 730 (Fed. Cir. 2002) ("The ITC may not modify the class or kind of imported merchandise examined by Commerce."); *Algoma Steel Corp. v.*

B. Product Description

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

primary and secondary pure and alloy magnesium metal, regardless of chemistry, raw material source, form, shape, or size (including, without limitation, magnesium cast into ingots, slabs, t-bars, rounds, sows, billets, and other shapes, and magnesium ground, chipped, crushed, or machined into raspings, granules, turnings, chips, powder, briquettes, and any other shapes). Magnesium is a metal or alloy containing at least 50 percent by actual weight the element magnesium. Primary magnesium is produced by decomposing raw materials into magnesium metal. Secondary magnesium is produced by recycling magnesium-based scrap into magnesium metal. The magnesium covered by this investigation also includes blends of primary magnesium, scrap, and secondary magnesium.

The subject merchandise includes the following pure and alloy magnesium metal products made from primary and/or secondary magnesium: (1) Products that contain at least 99.95 percent magnesium, by actual weight (generally referred to as "ultra-pure" or "high purity" magnesium); (2) products that contain less than 99.95 percent but not less than 99.8 percent magnesium, by actual weight (generally referred to as "pure" magnesium); and (3) chemical combinations of magnesium and other material(s) in which the magnesium content is 50 percent or greater, but less than 99.8 percent, by actual weight, whether or not conforming to an "ASTM Specification for Magnesium Alloy."

The scope of this investigation excludes mixtures containing 90 percent or less magnesium in granular or powder form by actual weight and one or more of certain non-magnesium granular materials to make magnesium-based reagent mixtures, including lime, calcium metal, calcium silicon, calcium carbide, calcium carbonate, carbon, slag coagulants, fluorspar, nepheline syenite, feldspar, alumina (A1203), calcium aluminate, soda ash, hydrocarbons, graphite, coke, silicon, rare earth metals/mischmetal, cryolite, silica/fly ash, magnesium oxide, periclase, ferroalloys, dolomite lime, and colemanite.

The merchandise subject to this investigation is classifiable under items 8104.11.0000, 8104.19.0000, and 8104.30.0000 of the Harmonized Tariff Schedule of the United States (HTSUS). Although the HTSUS items are provided for convenience and customs purposes, the written description of the merchandise under investigation is dispositive.[12]

(…Continued)
United States, 688 F. Supp. 639, 644 (Ct. Int'l Trade 1988), *aff'd*, 865 F.3d 240 (Fed. Cir.), *cert. denied*, 492 U.S. 919 (1989).

[11] *Hosiden Corp. v. Advanced Display Mfrs.*, 85 F.3d 1561, 1568 (Fed. Cir. 1996) (the Commission may find a single like product corresponding to several different classes or kinds defined by Commerce); *Cleo*, 501 F.3d at 1298 n.1 ("Commerce's {scope} finding does not control the Commission's {like product} determination."); *Torrington*, 747 F. Supp. at 748-52 (affirming the Commission's determination defining six like products in investigations in which Commerce found five classes or kinds).

[12] *Magnesium From Israel: Final Affirmative Determination of Sales at Less Than Fair Value*, 84 Fed. Reg. 65781, 65782-65783 (Nov. 29, 2019); and *Magnesium From Israel: Final Affirmative*

Magnesium, a silver-white metallic element, is the lightest of all structural metals with a density approximately 63 percent of that of aluminum, the principal metal with which it competes in the U.S. market. Magnesium's light weight and high vibrational-dampening properties have led to development of magnesium-based alloys with improved physical and mechanical properties for use as a structural metal in applications where minimizing weight is an important design consideration.[13]

Magnesium is available in two principal forms: pure and alloy. Pure magnesium in unwrought form contains at least 99.8 percent magnesium by weight and includes both ultra-pure/ultra-high purity ("UHP") and commodity-grade magnesium.[14] Pure magnesium is widely used in commercial and industrial applications because it is easily machined and lightweight, has a high strength-to-weight ratio, has special electrical properties, and has special metallurgical and chemical properties that allow it to alloy well with metals, such as aluminum. Due to its low tensile and yield strengths, pure magnesium is not used in structural applications. Alloy magnesium (or magnesium alloy) consists of chemical combinations of magnesium and other metals (typically aluminum and zinc) and contains less than 99.8 percent magnesium by weight but more than 50 percent magnesium by weight, with magnesium the largest metallic element in the alloy by weight. Alloy magnesium has certain properties that improve its strength, ductility, workability, corrosion resistance, density, and castability compared to pure magnesium; it is principally used in structural applications, primarily in castings (die, permanent mold, and sand) and extrusions for the automotive industry.[15]

Pure and alloy magnesium are produced as either primary or secondary magnesium. Primary magnesium is produced by decomposing virgin raw materials into magnesium metal. Secondary magnesium is produced by recycling (or melting) magnesium-based scrap.[16]

(…Continued)
Countervailing Duty Determination, 84 Fed. Reg. 65785, 65786-65787 (Nov. 29, 2019). The scope is the same in both the antidumping duty and countervailing duty final determinations.

[13] CR/PR at I-11 – I-12.

[14] Unwrought magnesium is pure magnesium that has not been worked in any way. Wrought magnesium is magnesium that has been worked into a desired shape. UHP magnesium contains at least 99.95 percent magnesium by weight and is used principally as a reagent in the pharmaceutical and chemical industries. Commodity-grade pure magnesium is magnesium containing at least 99.8 percent magnesium but less than 99.95 percent magnesium by weight, and is typically used in the production of aluminum alloys; as a reducing agent for various other nonferrous metals; in magnesium anodes for the protection of various marine installations; and in the production of titanium sponge, a precursor metal product in the production of titanium metal products. CR/PR at I-12 – I-13.

[15] CR/PR at I-12 – I-13.

[16] CR/PR at I-14 – I-15.

C. Arguments of the Parties

Petitioner and DSM agree that the Commission should define a single domestic like product coextensive with the scope, as it did in the preliminary phase of these investigations and in prior investigations and reviews of magnesium.[17]

D. Domestic Like Product Analysis

In the preliminary phase of these investigations, the Commission defined a single domestic like product consisting of all magnesium coextensive with the scope.[18] The Commission found that the scope of the investigations was substantially similar to that of prior investigations and reviews of magnesium from China and Russia, in which the Commission defined a single domestic like product that was coextensive with the scope.[19] It further found that no party objected to defining a single domestic like product and that there was no information in the record indicating that a different definition was warranted.[20]

In the final phase of these investigations, Petitioner and DSM agree that the Commission should define a domestic like product to encompass all magnesium corresponding to the scope of the investigations. There is no new information on the record to suggest that a different definition is warranted.[21] Consequently, we define a single domestic like product consisting of all magnesium coextensive with the scope of these investigations.

III. Domestic Industry

The domestic industry is defined as the domestic "producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product."[22] In defining the domestic industry, the Commission's general practice has been to include in the industry producers of all domestic production of the like product, whether toll-produced, captively consumed, or sold in the domestic merchant market.

---

[17] Petitioner's Prehearing Brief, EDIS Docs. 694188 (Nov. 13, 2019), 694446 (Nov. 14, 2019), and 694447 (Nov. 14, 2019) at 3-5; DSM's Prehearing Brief, EDIS Docs. 694173 (Nov. 13, 2019), 694439 (Nov. 14, 2019), and 694442 (Nov. 14, 2019) at 7.

[18] *Magnesium from Israel*, Inv. Nos. 701-TA-614 and 731-TA-1431 (Preliminary), USITC Pub. 4860 (Dec. 2018) ("*Preliminary Determinations*") at 8.

[19] *See Magnesium from China and Russia*, Inv. Nos. 731-TA-1071-72 (Review), USITC Pub. 4214 (Feb. 2011) at 4-6; *Magnesium from China and Russia*, Inv. Nos. 731-TA-1071-72 (Final), USITC Pub. 3763 (Apr. 2005) at 4-6.

[20] *Preliminary Determinations*, USITC Pub. 4860 at 8.

[21] *See* CR at I-11 – I-19. Moreover, no party requested data or other information necessary for the analysis of a variation in the definition of the domestic like product. CR/PR at I-19.

[22] 19 U.S.C. § 1677(4)(A).

These investigations raise the issue of whether certain processing activities are sufficient to constitute domestic production. There are no other domestic industry issues in these investigations.[23]

In deciding whether a firm qualifies as a domestic producer of the domestic like product, the Commission generally analyzes the overall nature of a firm's U.S. production-related activities, although production-related activity at minimum levels could be insufficient to constitute domestic production.[24]

In the preliminary phase of these investigations, Petitioner argued that the Commission should define the domestic industry to include grinders to the extent that they engage in sufficient production-related activities. The Commission recognized that, in prior investigations and reviews of magnesium from China and Russia, it found that grinders engaged in sufficient production-related activities in the United States to be included in the domestic industry. However, as no grinder completed a domestic producers' questionnaire response, the Commission indicated that it would seek information on grinders in any final phase of the investigations to determine whether they engage in sufficient production-related activities to be included in the domestic industry.[25]

A. Arguments of the Parties

Petitioner and DSM agree that the Commission should find that the domestic industry consists of all producers of pure and alloy magnesium in all forms, including producers that grind magnesium ingot into granular form.[26] Specifically, Petitioner argues that Luxfer ***; substantial expertise is required to produce magnesium particles through the

[23] Domestic producer *** purchased subject merchandise during the period of investigation ("POI"), but we find that it did not control sufficient volumes of subject imports to be considered a related party (*see* 19 U.S.C. § 1677(4)(B)). The Commission has concluded that a domestic producer that does not itself import subject merchandise, or does not share a corporate affiliation with an importer, may nonetheless be deemed a related party if it controls large volumes of imports. The Commission has found such control to exist where the domestic producer was responsible for a predominant share of an importer's imports and those imports were substantial. *See, e.g., Iron Construction Castings from Brazil, Canada, and China*, Inv. Nos. 701-TA-249, 731-TA-262-263 and 265 (Fourth Review), USITC Pub. 4655 (Dec. 2016) at 11. The record indicates that ***, which accounted for *** domestic grinding production during 2018, purchased subject merchandise from DSM in 2016 and 2017. *** purchases represented no more than *** percent of DSM's imports in 2016 and 2017. Derived from CR/PR at Tables III-5 and IV-2. Consequently, we do not find that *** controlled large volumes of subject imports during the POI.

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

[25] *Preliminary Determinations*, USITC Pub. 4860 at 11 n.35.

[26] Petitioner's Prehearing Brief at 5-6; DSM's Prehearing Brief at 7-8.

grinding/atomization processes performed by Luxfer in the United States, which adds significant value; Luxfer employed *** employees at its *** facilities during the period of investigation ("POI"); and Luxfer sourced *** quantities of pure magnesium *** during the POI, such that its production-related activities in the United States are at least as significant as those of the grinders examined by the Commission in 2001.[27]

1. Analysis

We analyze whether to include grinders in the domestic industry by examining the six factors that the Commission traditionally considers in determining whether a firm's production-related activities are sufficient to constitute domestic production.

Source and Extent of the Firm's Capital Investment. The capital investment necessary to produce granular magnesium is substantial. Luxfer submits that it makes ***.[28] Based on net assets, it made capital investments of *** each year from 2016 to 2018, whereas capital investments for non-grinding producers ranged from ***.[29]

Technical Expertise Involved in U.S. Production Activities. The record indicates that granular magnesium is more volatile than cast magnesium, necessitating special handling requirements.[30] Moreover, Petitioner posits that "substantial technical expertise" is required to grind magnesium particles to customer-required specifications, including U.S. military specifications; Luxfer states that ***.[31] It reported annual technical expertise-related expenditures of *** between 2016 and 2018, based on research and development expenses.[32]

Value Added to the Product in the United States. The value added by grinding magnesium ranged from *** percent between 2016 and 2018, whereas non-grinding operations added between *** percent of value.[33]

Employment Levels. Luxfer reported that it employed between *** production-related workers ("PRWs") over the POI, whereas non-grinding producers reported employing between *** PRWs.[34]

---

[27] Petitioner's Posthearing Brief, EDIS Docs. 695977 (Dec. 2, 2019), 696163 (Dec. 3, 2019), and 696166 (Dec. 3, 2019), Exh. 1, Answers to Commission Questions, at 77-79.

[28] CR/PR at Table III-4.

[29] CR/PR at Table III-4.

[30] CR/PR at I-14 – I-15. In its prior investigation of magnesium from Israel, the Commission noted that special handling requirements were necessary for granular magnesium due to its high reactivity. *Pure Magnesium from China and Israel*, Inv. Nos. 701-TA-403 and 731-TA-895-896 (Final), USITC Pub. 3467 (Nov. 2001) at 11.

[31] CR/PR at Table III-4.

[32] CR/PR at Table III-4. Non-grinding producers did not report technical expertise-related expenditures. *Id*.

[33] CR/PR at VI-18 n.17. These percentages are based on total conversion costs (direct labor and other factory costs) as a share of total cost of goods sold ("COGS"). *Id*. Petitioner contends that the value added by Luxfer's grinding and atomization is significant: the average unit value ("AUV") of Luxfer's purchases of magnesium was *** per pound in 2018, and it shipped granular magnesium that year at an AUV of *** per pound. Petitioner's Posthearing Brief, Exh. 1, at 78.

Quantity and Type of Parts Sourced in the United States. Luxfer sourced magnesium from both domestic and subject sources. However, it purchased the bulk of its magnesium from domestic sources.[35] The value of domestically manufactured magnesium sourced by Luxfer ranged between *** annually from 2016 to 2018, whereas non-grinding producers sourced between *** of aggregate raw material.[36]

Conclusion. We find that grinders should be included in the domestic industry. The capital investment reported by Luxfer is substantial and comparable to that reported by some non-grinding producers. The atomization process employed by Luxfer to produce magnesium particles is sophisticated, requires technical expertise, and adds substantial value to the product. Additionally, the employment levels and domestically manufactured raw material values reported are not insignificant. Accordingly, we conclude, based on the record and in the absence of contrary argument, that grinders are engaged in sufficient production-related operations to be included as producers in the domestic industry definition.

IV. No Material Injury or Threat of Material Injury by Reason of Subject Imports[37]

Based on the record in the final phase of these investigations, we find that an industry in the United States is not materially injured or threatened with material injury by reason of imports of magnesium from Israel that Commerce has found to be sold in the United States at less than fair value and to be subsidized by the government of Israel.

A. Legal Standards

In the final phase of antidumping and countervailing duty investigations, the Commission determines whether an industry in the United States is materially injured or threatened with material injury by reason of the imports under investigation.[38] In making this determination, the Commission must consider the volume of subject imports, their effect on prices for the domestic like product, and their impact on domestic producers of the domestic

---

(…Continued)

[34] CR/PR at Table III-4.

[35] CR/PR at Table III-5.

[36] CR/PR at Table III-4.

[37] Pursuant to Section 771(24) of the Tariff Act, imports from a subject country of merchandise corresponding to a domestic like product that account for less than three percent of all such merchandise imported into the United States during the most recent 12 months for which data are available preceding the filing of the petition shall be deemed negligible. 19 U.S.C. §§ 1671b(a), 1673b(a), 1677(24)(A)(i), 1677(24)(B).

Negligibility is not an issue in these investigations. Subject imports from Israel during the most recent 12-month period preceding the filing of the petitions (October 2017 to September 2018) accounted for *** percent of total imports by quantity. CR/PR at Table IV-4.

[38] 19 U.S.C. §§ 1671d(b), 1673d(b).

like product, but only in the context of U.S. production operations.[39] The statute defines "material injury" as "harm which is not inconsequential, immaterial, or unimportant."[40] In assessing whether the domestic industry is materially injured by reason of subject imports, we consider all relevant economic factors that bear on the state of the industry in the United States.[41] No single factor is dispositive, and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[42]

Although the statute requires the Commission to determine whether the domestic industry is "materially injured or threatened with material injury by reason of" unfairly traded imports,[43] it does not define the phrase "by reason of," indicating that this aspect of the injury analysis is left to the Commission's reasonable exercise of its discretion.[44] In identifying a causal link, if any, between subject imports and material injury to the domestic industry, the Commission examines the facts of record that relate to the significance of the volume and price effects of the subject imports and any impact of those imports on the condition of the domestic industry. This evaluation under the "by reason of" standard must ensure that subject imports are more than a minimal or tangential cause of injury and that there is a sufficient causal, not merely a temporal, nexus between subject imports and material injury.[45]

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

---

[39] 19 U.S.C. § 1677(7)(B). The Commission "may consider such other economic factors as are relevant to the determination" but shall "identify each {such} factor ... and explain in full its relevance to the determination." 19 U.S.C. § 1677(7)(B).

[40] 19 U.S.C. § 1677(7)(A).

[41] 19 U.S.C. § 1677(7)(C)(iii).

[42] 19 U.S.C. § 1677(7)(C)(iii).

[43] 19 U.S.C. §§ 1671d(b), 1673d(b).

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

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

injury threshold.[46] In performing its examination, however, the Commission need not isolate the injury caused by other factors from injury caused by unfairly traded imports.[47] Nor does the "by reason of" standard require that unfairly traded imports be the "principal" cause of injury or contemplate that injury from unfairly traded imports be weighed against other factors, such as nonsubject imports, which may be contributing to overall injury to an industry.[48] It is clear that the existence of injury caused by other factors does not compel a negative determination.[49]

Assessment of whether material injury to the domestic industry is "by reason of" subject imports "does not require the Commission to address the causation issue in any particular way" as long as "the injury to the domestic industry can reasonably be attributed to the subject imports."[50] The Commission ensures that it has "evidence in the record" to "show that the

---

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

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

[48] S. Rep. 96-249 at 74-75; H.R. Rep. 96-317 at 47.

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

[50] *Mittal Steel*, 542 F.3d at 876 &78; *see also id.* at 873 ("While the Commission may not enter an affirmative determination unless it finds that a domestic industry is materially injured 'by reason of' subject imports, the Commission is not required to follow a single methodology for making that determination ... {and has} broad discretion with respect to its choice of methodology.") *citing United*

harm occurred 'by reason of' the LTFV imports," and that it is "not attributing injury from other sources to the subject imports." [51] The Federal Circuit has examined and affirmed various Commission methodologies and has disavowed "rigid adherence to a specific formula."[52]

The question of whether the material injury threshold for subject imports is satisfied notwithstanding any injury from other factors is factual, subject to review under the substantial evidence standard.[53] Congress has delegated this factual finding to the Commission because of the agency's institutional expertise in resolving injury issues.[54]

B. Conditions of Competition and the Business Cycle

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

(…Continued)
States Steel Group v. United States, 96 F.3d 1352, 1362 (Fed. Cir. 1996) and S. Rep. 96-249 at 75. In its decision in *Swiff-Train v. United States*, 793 F.3d 1355 (Fed. Cir. 2015), the Federal Circuit affirmed the Commission's causation analysis as comporting with the Court's guidance in *Mittal*.

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

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

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

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

1. Demand Considerations[55]

Demand for magnesium is derived from demand for downstream products containing magnesium, including die cast magnesium products and aluminum alloys.[56] Demand for downstream products tracks general economic conditions.[57]

There are a few major purchasers in the U.S. magnesium market.[58] Magnesium purchasers include end users operating in the aluminum, automotive, and aerospace industries.[59] Market participants had mixed perspectives on demand trends during the POI: most purchasers and two domestic producers reported that U.S. demand for magnesium increased, whereas most importers and two domestic producers reported that demand fluctuated.[60]

During the POI, apparent U.S. consumption of magnesium declined from *** metric tons ("MT") in 2016 to *** MT in 2017, and increased to *** MT in 2018, a level *** percent

[55] While DSM does not argue that the captive production provision of the statute, 19 U.S.C. § 1677(7)(C)(iv), applies in these investigations, it requests the Commission to consider the merchant market as a significant condition of competition in the industry. DSM argues that head-to-head competition between suppliers occurs only in the merchant market and that "captive sales" USM lost to ATI under an exclusive tolling agreement that terminated in December 2016 were unrelated to subject imports. DSM's Prehearing Brief at 12-13.

The captive production provision can be applied only if, as a threshold matter, significant production of the domestic like product is internally transferred and significant production is sold in the merchant market. The record in these investigations indicates that the non-grinding magnesium producers internally transferred (internal consumption and transfers to related firms) between *** percent of their U.S. shipments during 2016-2018. CR/PR at Table III-7. Even when toll producers' shipments to tollees are added to the internally transferred shipments (as DSM has proposed), such shipments accounted for a low of *** percent of non-grinding magnesium producers' total U.S. shipments in 2018 and a high of *** percent in 2016. Commercial shipments accounted for between *** and *** percent of their U.S. shipments in this period. *Id*. Consequently, we find that the internal transfer segment does not constitute a significant portion of the market.

We nonetheless consider, when appropriate, apparent U.S. consumption excluding USM's tolled sales to ATI as a condition of competition in our analysis, as well as data for the total U.S. market.

[56] CR/PR at II-11 and II-13.

[57] Petitioner's Prehearing Brief at 6-7.

[58] Petitioner's Prehearing Brief at 11-12. The top seven purchasers accounted for 64.8 percent of purchasers' total reported purchases and imports of magnesium from January 2016 to June 2019, and the two largest purchasers accounted for 36.1 percent of purchasers' total reported purchases and imports during the same period. *See* Purchasers' Questionnaires, responses to question II-1a.

[59] CR/PR at II-2.

[60] CR/PR at II-14. Reasons cited for the increase in demand included increased aluminum production for reducing the weight of vehicles and airplanes and general economic conditions. Reasons cited for fluctuating demand included the effect of global magnesium prices on U.S. prices. Purchasers also indicated that demand for end-use products increased during the POI. *Id*. *See also* CR/PR at Table II-4.

lower than in 2016.[61] Apparent U.S. consumption was marginally higher in January-June ("interim") 2019, at *** MT, compared to interim 2018, at *** MT.[62] In December 2016, ATI closed its titanium sponge plant located adjacent to Petitioner's plant, which eliminated *** MT of annual demand for pure magnesium metal that had been supplied exclusively by Petitioner pursuant to a toll agreement.[63]

2. Supply Considerations

In 2018, domestic producers accounted for *** percent of the quantity of apparent U.S. consumption, subject imports accounted for *** percent of apparent U.S. consumption, and nonsubject imports accounted for *** percent of apparent U.S. consumption.[64]

The domestic industry is dominated by Petitioner, which accounted for *** percent of reported non-grinding domestic industry production in 2018.[65] Petitioner produces primary pure and alloy magnesium by extracting magnesium from brines of the Great Salt Lake in Utah, reducing the magnesium in electrolytic cells, then casting the magnesium into ingots or slabs.[66] Non-grinding producers' production capacity, which exceeded apparent U.S. consumption

---

[61] CR/PR at Table IV-5. Excluding USM's tolled sales to ATI, apparent U.S. consumption in 2016 was *** MT, *** percent higher than total apparent U.S. consumption in 2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Table IV-5.

[62] CR/PR at Table IV-5.

[63] CR/PR at II-12 – II-13. According to Petitioner, it would receive magnesium chloride generated as a byproduct of ATI's titanium production, process the magnesium chloride into molten pure magnesium, and ship all the resulting pure magnesium back to ATI for use in the latter's titanium reduction operations. Petitioner's Prehearing Brief at 24-25. Petitioner shipped *** MT of pure magnesium to ATI in 2016. Petitioner's Producer Questionnaire, EDIS Doc. 689647 (Sept. 30, 2019), response to question V-1. ATI stated in the preliminary phase of these investigations that it ***. ATI's Postconference Brief, EDIS Docs. 662116 (Nov. 19, 2018), 662182 (Nov. 20, 2018) at 2, Att. 1. In 2015, ATI reported its titanium sponge facility purchased ***. Petitioner's Postconference Brief, Exh 9.

[64] CR/PR at Table IV-6.

[65] CR/PR at Table III-1. There were at least five domestic producers of magnesium during the POI, including four non-grinding producers and a grinder. *Id*. In the final phase of these investigations, the Commission issued U.S. producer questionnaires to nine firms, five of which produced usable data on their magnesium operations. Two firms, Opta Minerals and its subsidiary, ESM, certified that they did not produce magnesium during the POI, and the remaining two firms, Meridian Lightweight Technologies and MagReTech, LLC ("MagReTech") did not provide a response. CR/PR at III-1. Purchasers identified MagReTech as a new supplier of magnesium in their questionnaire responses. CR/PR at II-8.

[66] CR/PR at I-15 – I-19. Petitioner, as an electrolytic producer of primary magnesium, is subject to distinctive economies of production that require it to operate its magnesium production facilities at high rates of capacity utilization. Electrolytic cells must be utilized in continuous production as they deteriorate once shut down and are expensive to bring back online; each cell costs between $650,000 to $700,000 to rebuild or replace; and they must be rebuilt every five years or so, or they become less energy efficient. USM has extended its rebuilding campaign for existing cells, so that many of them have been in operation for ***. Petitioner's Prehearing Brief at 7-9.

throughout the POI, declined by *** percent between 2016 and 2017, driven by ***, and remained stable for the remainder of the POI.[67] The domestic industry's share of the market based on quantity declined by *** percentage points during 2016-2018, and was *** percentage points lower in interim 2019 compared to interim 2018.[68]

DSM, the only known producer and exporter of magnesium in Israel, produces pure and alloy magnesium utilizing an electrolytic production process similar to that used by Petitioner.[69] DSM's production capacity declined irregularly between 2016 and 2018.[70] DSM claims that its capacity to produce magnesium is limited both by the number of electrolytic cells in active production and by its need to safely dispose of the chlorine byproduct generated by its magnesium production.[71] Subject imports' share of the market based on quantity declined by *** percentage points from 2016 to 2018, and was *** percentage points lower in interim 2019 compared to interim 2018.[72]

---

[67] CR/PR at III-5 – III-6. Non-grinding production capacity was *** MT in 2016, *** MT in 2017 and 2018, and *** MT in the interim periods; grinding production capacity was *** MT in 2016 and 2017, *** MT in 2018, and *** MT in the interim periods. *Id*. at Table III-6. Non-grinders' capacity decrease between 2016 and 2017 was largely driven by ***. *** Producer Questionnaire, response to question II-2. While Petitioner reduced capacity during the POI, Advanced Magnesium Alloys Corp. ("AMACOR"), a domestic producer of secondary magnesium, doubled its production capacity from *** MT to *** MT in 2016. Derived from CR/PR at Table III-6 and AMACOR's Producer Questionnaire, EDIS Doc. 689068 (Sept. 24, 2019), response to question II-2 (***). Spartan reports that MagReTech, another secondary magnesium producer, invested in new production capacity in 2019. Spartan's Prehearing Comments, EDIS Doc. 694150 (Nov. 13, 2019) at 2 n.1. Additionally, DSM reports that Spartan has announced plans to expand capacity. Tr. at 156 (Wanless).

[68] CR/PR at IV-10. The domestic industry's market share based on quantity was *** percent in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. CR/PR at Table IV-6. Excluding USM's tolled sales to ATI, the domestic industry's market share was *** percent in 2016, and it declined by *** percentage points during 2016-2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[69] Tr. at 13 (Jones). *See also* CR/PR at I-15 – I-19.

[70] DSM's capacity increased by *** percent between 2016 and 2017, from *** MT to *** MT, declined by *** percent between 2017 and 2018, to *** MT, and was *** percent lower in interim 2019, at *** MT, compared to interim 2018, at *** MT. CR/PR at VII-3 – VII-4 and Table VII-2.

[71] DSM's Prehearing Brief at 47-49. During the POI, DSM possessed *** active cells, and it states that relining and refurbishing an old cell costs up to $600,000 per cell and requires an additional investment of *** in ***. *Id*. at 49. DSM claims that its parent company, the Israel Chemicals Ltd. ("ICL") Group, is its main destination for chlorine, and that ICL requires no more than *** MT of chlorine per year, which translates into an annual magnesium production limit of approximately *** MT. *Id*.

[72] CR/PR at IV-10. Subject imports' share of the market based on quantity was *** percent in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. CR/PR at Table IV-6. Based on apparent U.S. consumption that excludes USM's tolled sales to ATI, subject imports' market share was *** percent in 2016, and it declined by *** percentage points during 2016-2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

Russia, Taiwan, and Turkey were the leading sources of nonsubject imports during the POI. Combined, these countries accounted for *** percent of nonsubject imports in 2018.[73] Nonsubject imports' market share based on quantity increased by *** percentage points from 2016 to 2018, and was *** percentage points higher during interim 2019 compared to interim 2018.[74] Currently, imports from China are subject to separate antidumping duty orders concerning pure, alloy, and granular magnesium.[75]

Magnesium is primarily sold from inventory.[76] Pure magnesium is typically cast into ingots or slabs, with some purchasers preferring cast shapes such as rounds, billets, or t-bars and other purchasers preferring smaller ingots or "chips", depending on the end-use for the magnesium.[77] Petitioner and DSM are reportedly the only suppliers of pure magnesium cast into t-bars in the U.S. market.[78] Four of 14 responding importers and 14 of 34 responding purchasers reported supply constraints for magnesium from all sources during the POI.[79]

---

[73] CR/PR at Table IV-3. From 2016 to 2018, the quantity of imports from Russia and Turkey increased by *** and *** percent, respectively, while imports from Taiwan decreased by *** percent. CR/PR at IV-7. Turkish producer ESAN reportedly shut down operations in 2018. In July 2019, Kar Madencilik ("Kar") entered into an agreement with ESAN to rent its smelter to produce magnesium. CR/PR at VII-15. Purchasers identified ESAN and Kar as new suppliers of magnesium from Turkey in their questionnaire responses. CR/PR at II-8 and II-20.

[74] CR/PR at IV-10. Nonsubject imports' share of the market based on quantity was *** percent in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. CR/PR at Table IV-6. Based on apparent U.S. consumption that excludes USM's tolled sales to ATI, nonsubject imports' share of the market was *** percent in 2016, and it increased by *** percentage points during 2016-2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[75] CR/PR at I-5 and Table I-1.

[76] CR/PR at II-15 – II-16.

[77] CR/PR at I-18.

[78] Tr. at 60 (Slade), 194 (Wanless). *See also* CR/PR at II-9. DSM states, however, that there is nothing proprietary or unique to t-bars and that different forms of pure magnesium, including t-bars and ingots, compete with one another. DSM's Posthearing Brief, EDIS Docs. 695940 (Dec. 2, 2019), 696174 (Dec. 3, 2019), and 696176 (Dec. 3, 2019) at II-22 – II-23, *citing* Tr. at 118 (Slade) and *** Purchaser Questionnaire, EDIS Doc. 689028 (Sept. 23, 2019), response to question III-14 (firm reporting that magnesium cast into sows, while preferred, is nevertheless interchangeable with t-bars and ingots in its production process).

[79] CR/PR at II-7 – II-8. Among the purchasers, *** referred to supply constraints related to ***; an additional *** referred to supply constraints related to nonsubject sources; and the remaining *** referred to supply constraints encountered with Petitioner. CR/PR at II-7 and Purchasers' Questionnaires, EDIS Docs. 687609 (Sept. 9, 2019), 688979 (Sept. 23, 2019), 688983 (Sept. 23, 2019), 688996 (Sept. 23, 2019), 689012 (Sept. 23, 2019), 689032 (Sept. 23, 2019), 689034 (Sept. 23, 2019), 689035 (Sept. 23, 2019), 689036 (Sept. 23, 2019), 689047 (Sept. 24, 2019), 689049 (Sept. 24, 2019), 689261 (Sept. 25, 2019), 690261 (Oct. 3, 2019), and 692045 (Oct. 23, 2019), responses to question III-13. *See also* EDIS Doc. 689030 (Sept. 30, 2019), response to question III-13 (firm reporting no supply constraints, but indicating in its narrative response that domestic producers refused to supply it with magnesium).

3. Substitutability and Other Conditions

We find that there is a moderate-to-high degree of substitutability between subject imports and domestically produced magnesium for product of similar specification.[80] Three domestic producers reported that subject imports and domestically produced magnesium from qualified suppliers are always or frequently interchangeable, whereas five of nine responding importers and 15 of 22 responding purchasers reported that they are always interchangeable.[81] Further, most firms reported that magnesium from nonsubject sources was always or frequently interchangeable with subject and domestically produced magnesium.[82] [83]

We further find that price is an important factor in purchasing decisions, although quality, diversity of suppliers, and security of supply are also important.[84] Three domestic producers reported that factors other than price were sometimes important in comparing domestically produced and subject magnesium; six of nine responding importers reported that

---

[80] CR/PR at II-15. Substitutability between subject and domestically produced magnesium is affected by availability/reliability of supply, quality differences, the use of exclusivity agreements, and the limited substitutability between primary and secondary magnesium. *Id*. DSM states that for sales of alloy magnesium, material produced through primary or secondary production processes are typically viewed as fungible, and that there is an increasing substitution away from pure magnesium towards alloy magnesium or scrap. DSM's Prehearing Brief at 41, *citing* US Magnesium's written comments filed in the matter of Commerce's Section 232 National Security Investigation of Imports of Aluminum ("*Section 232 Comments*"), *Id*. at Att. B, 14-16; DSM's Posthearing Brief at II-22 – II-23. Some purchasers reported improvements in their ability to absorb magnesium scrap as a substitute for pure magnesium in certain applications. *See* *** Purchaser Questionnaire, EDIS Doc. 689047 (Sept. 24, 2019), responses to questions II-2, III-12; Arconic's Prehearing Brief, EDIS Docs. 694197 (Nov. 13, 2019) and 694270 (Nov. 14, 2019) at 4; Alcoa's Prehearing Brief, EDIS Docs. 694232 (Nov. 13, 2019) and 694269 (Nov. 14, 2019) at 3-4; and Tr. at 203 (Wanless).

[81] CR/PR at Table II-10.

[82] CR/PR at II-22 – II-23 at Table II-10 (nonsubject sources included Canada, Russia, Taiwan, and Turkey). Most importers responded that nonsubject magnesium from Taiwan and Turkey were sometimes interchangeable with subject and domestically produced magnesium. *Id*. at Table II-10.

[83] Thirty of 34 responding purchasers require their suppliers to become certified or qualified to meet ASTM, ISO, or firm-specific standards. Four firms responded that domestic producers and DSM have either failed to qualify or lost qualification status. CR/PR at II-18 – II-19.

[84] CR/PR at II-16. Purchasers listed price, followed by quality and availability/supply, as one of their top three purchasing factors. CR/PR at Table II-6. However, 17 purchasers reported quality as their top purchasing factor compared to six doing so for price. *Id*. Most (20 of 35) purchasers reported that they usually purchase the lowest-priced magnesium available. CR/PR at II-17. Responding purchasers ranked availability (35 firms), product consistency (34 firms), reliability of supply (33 firms), delivery time (30 firms), quality meets industry standards (30 firms), price (29 firms), delivery terms (19 firms), and supplier diversity/dual-sourcing (18 firms) as very important factors in their purchasing decisions. CR/PR at Table II-7. We also note that other information in purchaser questionnaire responses indicate the importance of non-price factors, including supplier diversity/dual sourcing. *See, e.g.,* Purchaser Questionnaires filed by ***, EDIS Doc. 688983 (Sept. 23, 2019), ***, EDIS Doc. 689049 (Sept. 24, 2019), ***, EDIS Doc. 689047 (Sept. 24, 2019), and ***, EDIS Doc. 688979 (Sept. 23, 2019), responses to question III-23.

non-price factors were frequently significant; and eight of 21 responding purchasers reported that non-price factors were always significant.[85] Further, most purchasers reported that domestically produced magnesium was comparable with subject and nonsubject magnesium across 15 purchasing factors.[86]

Most domestically produced and subject magnesium sold in the U.S. market is sold pursuant to annual contracts that are negotiated in the fourth quarter for the following year.[87] In 2018, annual contracts accounted for *** percent of the domestic industry's U.S. shipments and *** percent of DSM's U.S. shipments of subject imports.[88] Petitioner and DSM state that there is a lack of transparency in the U.S. magnesium market, and that customers use the lack of transparency to their advantage to leverage down prices in annual contract negotiations.[89]

The primary raw materials used by non-grinding producers of primary magnesium are magnesium chloride derived from brine and magnesium oxide derived from mineral deposits.[90] Raw materials, which accounted for a relatively small share of total COGS for non-grinding producers, increased over the POI from *** percent of COGS in 2016 to *** percent in 2018.[91] However, most purchasers reported that they were not familiar with raw material prices and that these prices did not influence supply negotiations.[92]

---

[85] CR/PR at Table II-12. The most frequently reported non-price factors were quality, delivery terms/lead times, and availability/reliability of supply. Purchasers also cited technical support and alloy development, and the availability of different sizes. CR/PR at II-24.

[86] CR/PR at Table II-9. Most responding purchasers indicated that subject magnesium was superior to nonsubject magnesium regarding availability. *Id*.

[87] CR/PR at V-4 and Table V-2. Domestic producers using annual contracts reported that prices could not be renegotiated and were not indexed to raw material costs; these annual contracts for the most part contained fixed price and quantity provisions. DSM reported that its ***. CR/PR at V-4 – V-5.

[88] CR/PR at Table V-2. *** accounted for over *** percent of DSM's U.S. commercial shipments. *Id*. Petitioner claims that there are few spot market sales, such that there is no liquidity in the U.S. market. Petitioner's Prehearing Brief at 11-14. *See also* CR/PR at V-4 (producer/purchaser Luxfer states that there is effectively no spot market for magnesium).

[89] Tr. at 23-26, 57-58 (Tissington), 205 (Wanless). DSM adds that, in the absence of third-party price indices or other objective pricing sources, suppliers in the U.S. market must rely on other sources of market intelligence, including U.S. Census import data, Platt's Daily Survey (which is not based on transactions), and information provided by customers. DSM's Posthearing Brief at II-9 – II-10. *See also* Tr. at 195 (Wanless).

[90] CR/PR at V-1. Petitioner's primary raw material is lake brine. Other raw materials sourced by Petitioner included ***. Petitioner's raw material costs were *** than those of other producers. Tr. at 22 (Tissington).

[91] CR/PR at Table VI-1. The grinder's primary raw material costs accounted for between *** and *** percent of total COGS during the POI. CR/PR at Table VI-3.

[92] *See* Purchasers' Questionnaires, responses to question III-16. Nine reporting purchasers indicated familiarity with raw material prices, and five of these purchasers indicated that these prices affected their supply negotiations. CR/PR at V-1 – V-2.

C. Volume of Subject Imports

Section 771(7)(C)(i) of the Tariff Act provides that the "Commission shall consider whether the volume of imports of the merchandise, or any increase in that volume, either in absolute terms or relative to production or consumption in the United States, is significant."[93]

Subject import volume declined irregularly by *** percent between 2016 and 2018; it increased from *** MT to *** MT from 2016 to 2017 and declined to *** MT in 2018. Subject import volume was *** percent higher in interim 2019, at *** MT, compared to interim 2018, at *** MT.[94] Although the total volume of subject imports increased from 2016 to 2017, U.S. shipments of subject imports declined each full year of the POI and between interim periods.[95] As a share of apparent U.S. consumption by volume, subject imports increased from *** percent in 2016 to *** percent in 2017, then declined to *** percent in 2018, a level *** percentage points lower than in 2016.[96] [97]

The increase in subject import market share in 2017 was due in part to the domestic industry's reduced shipments in the wake of ATI's closure at the end of 2016 of its titanium sponge plant, which had been served exclusively by Petitioner. Petitioner produced and shipped *** MT of magnesium to ATI in 2015, and was contracted to produce and ship *** MT of magnesium to ATI in 2016 but this volume dropped to zero in 2017 and 2018 following the plant closure.[98] Based on the declining volume and market share of subject imports, we conclude that subject imports did not displace domestic industry shipments from the U.S. market.

We conclude that the volume of subject imports was significant both in absolute terms and relative to consumption and production in the United States. However, for the reasons we discuss below, we find that subject imports did not cause any significant adverse price effects

---

[93] 19 U.S.C. § 1677(7)(C)(i).

[94] CR/PR at Table IV-2.

[95] U.S. shipments of subject imports were *** MT in 2016, *** MT in 2017, *** MT in 2018, *** MT in interim 2018, and *** MT in interim 2019. CR/PR at Table IV-5.

[96] CR/PR at Table IV-6. Subject imports' share of apparent U.S. consumption by quantity was *** percent in interim 2018 and *** percent in interim 2019. *Id*. As previously stated, excluding USM's tolled sales to ATI, subject imports' share of apparent U.S. consumption was *** percent in 2016 and subject imports' share of apparent U.S. consumption declined by *** percentage points from 2016 to 2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

Subject imports' share of apparent U.S. consumption by value was *** percent in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. CR/PR at Table IV-6. Excluding USM's tolled sales to ATI, subject imports' share of apparent U.S. consumption was *** percent in 2016. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[97] The ratio of subject imports to the domestic industry's production increased from *** percent in 2016 to *** percent in 2017, and declined to *** percent in 2018, a level *** percentage points higher than in 2016. CR/PR at Table IV-2. The ratio was *** percent in interim 2018 and *** percent in interim 2019. *Id*.

[98] Petitioner's Postconference Brief, Exh. 9; and ATI's Postconference Brief at 2, Att. 1.

on the domestic industry and did not have a significant adverse impact on the domestic industry.

D. Price Effects of the Subject Imports

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

> (I) there has been significant price underselling by the imported merchandise as compared with the price of domestic like products of the United States, and
>
> (II) the effect of imports of such merchandise otherwise depresses prices to a significant degree or prevents price increases, which otherwise would have occurred, to a significant degree.[99]

As addressed in section IV.B.3, the record indicates that there is a moderate-to-high degree of substitutability between subject imports and the domestic like product of similar specifications, and that price is an important consideration in purchasing decisions, although other factors are also important.

Two domestic producers and five importers provided usable quarterly net sales f.o.b. selling price data for three magnesium products, although not all firms reported data for all products for all quarters.[100] Reported pricing data accounted for approximately *** percent of domestic producers' U.S. shipments of magnesium, *** percent of U.S. shipments of subject imports from Israel, *** percent of U.S. shipments of nonsubject imports from Russia, *** percent of U.S. shipments of nonsubject imports from Taiwan, and *** percent of U.S. shipments of nonsubject imports from Turkey.[101]

Subject imports oversold the domestic like product in *** of *** quarterly comparisons (*** percent of comparisons) at an average margin of *** percent; the volume of subject imports reported in quarters of overselling accounted for *** percent of the total volume reported for the pricing products. Subject imports undersold the domestic like product in *** of *** quarterly comparisons (*** percent of comparisons) at an average margin of *** percent; the volume of subject imports reported in quarters of underselling accounted for *** percent of the total volume reported for the pricing products.[102] Most instances of subject

[99] 19 U.S.C. § 1677(7)(C)(ii).

[100] Product 1 was defined as "Pure magnesium ingots containing at least 99.95 percent magnesium ('high purity magnesium')." *Id*. at V-6. Product 2 was defined as "Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ('pure magnesium')." *Id*. Product 3 was defined as "Alloy magnesium ingots containing less than 99.8 percent magnesium meeting ASTM specifications for alloy magnesium." *Id*.

[101] CR/PR at V-6, F-3. No importer reported pricing data for imports from Canada. *Id*. at F-3.

[102] CR/PR at Table V-7.

import underselling occurred in interim 2019 for product 2, and in the second and third quarters of 2018 for product 3.[103]

The predominance of subject import overselling is further corroborated by purchasers' AUV data, which show that delivered unit prices for subject imports exceeded those for the domestic like product on an annual basis during 2016-2018, and in interim 2019.[104]

Petitioner raised concerns with the product-specific pricing data.[105] First, Petitioner argues that these data are distorted by product mix issues, as pricing comparison data for *** include high-value specialty magnesium purchased by *** from DSM. Second, Petitioner contends that DSM *** pricing for sales of product 1 (UHP magnesium) in the final phase of these investigations (DSM reported sales in only one quarter at a price that oversold domestic producers), as the record in the preliminary phase of these investigations showed that DSM *** for this product, and *** of DSM's customers, namely ***, sought to purchase UHP magnesium (*i.e.*, product 1) during the POI. Third, Petitioner avers that there are customer mix issues that distort the pricing data. In particular, Petitioner argues that the data are distorted because large purchasers *** purchased ***.[106] Accordingly, Petitioner urges the Commission to give more weight to: the lost sales and lost revenues reported by purchasers in the preliminary and final phases of these investigations; a number of contemporaneous USM call reports, ***, which USM claims show price competition with DSM and resultant lost sales or revenue;[107] and the rise in domestic prices in the post-petition period.[108]

We find Petitioner's arguments regarding the pricing product data unpersuasive. First, DSM confirmed that the subject merchandise sold to *** fell within the definition for *** proffered by Petitioner and adopted by the Commission.[109] Second, the record does not

---

[103] CR/PR at Tables V-4 – V-5. In addition, in the ***, subject imports undersold the domestic like product in the *** for product 1. CR/PR at Table V-3. By volume, most underselling occurred in interim 2019 and concerned product 2. *Id*. at Tables V-4 – V-5.

[104] CR/PR at Table G-1.

[105] Petitioner's Posthearing Brief, Exh. 1, 25-29; and Petitioner's Final Comments, EDIS Docs. 697356 (Dec. 16, 2019), 697453 (Dec. 17, 2019), and 697454 (Dec. 17, 2019) at 8.

[106] Petitioner's Posthearing Brief, Exh. 1, at 25-29.

[107] In addition to call reports memorializing discussions with *** customers that Petitioner submitted in the preliminary phase of these investigations, Petitioner provided documentation in the final phase of these investigations that it alleges shows *** additional instances in which it lost sales to DSM at accounts for *** during 2016-2017 that it regained in 2018 after lowering its prices. Petitioner's Prehearing Brief at 31-34, and Exhs. 1, 3, 4; Petitioner's Posthearing brief, Exhs. 1, at 43, and 4.

[108] Petitioner's Final Comments at 6-7. Petitioner further argues that the instances of underselling, when measured on a volume basis, increased from *** percent in 2016 to *** percent in 2017, *** percent in 2018, and *** percent in interim 2019, and that subject imports tried to increase their market share in the post-petition period. Petitioner's Posthearing Brief, Exh. 1, at 29-32, 66. The record, however, demonstrates that subject import market share was at its lowest point in the post-petition period and that domestic prices generally increased from the last quarter of 2018 to the end of the POI. CR/PR at Tables V-6 and C-1.

[109] DSM's Posthearing Brief at II-31 – II-32. The only amendment Petitioner requested to the pricing product definitions in the final phase of these investigations clarified the magnesium content thresholds for "pure magnesium" (the Commission adopted these changes); it raised no concerns

support Petitioner's allegation that DSM *** sales of product 1 to its customers during the POI.[110] Third, the fact that various purchasers may have purchased magnesium at different prices (*e.g.*, large purchasers may have obtained lower prices in some instances) does not speak to the reliability of the pricing data. In any event, the record indicates that *** and *** sourced domestic magnesium at or above average U.S. prices in all but one year of the POI.[111]

Accordingly, we find that the pricing product data are reliable evidence of pricing in the market and that these data do not show significant underselling of the subject imports. Additionally, as discussed below, we have considered other relevant information on the record, including responses to lost sales/lost revenue allegations and individual purchasers' questionnaire responses and data,[112] in assessing whether there was significant underselling by subject imports (as well as whether subject imports had significant adverse price depressing or suppressing effects).

In the final phase of these investigations, the Commission obtained purchaser questionnaire responses from 35 firms that purchased and imported 193,972 MT of magnesium during the POI.[113] Seventeen firms reported that they purchased subject imports instead of

---

(…Continued)
regarding potential product mix issues in the pricing products. *See* Petitioner's Comments on Draft Questionnaires, EDIS Doc. 673212 (Apr. 16, 2018) at 2-3.

[110] DSM reported that, in the preliminary phase of these investigations, it had inadvertently included sales to ***, which it corrected in the final phase of these investigations. DSM's Posthearing Brief at II-11 and Att. G. The Commission's questionnaire specifically asks for sales values to unrelated U.S. customers and directs the values to be reported as f.o.b., U.S. point of shipment. Consequently, shipments to Canadian facilities should not be reported in these data. We do not find ***. Further, the magnesium specifications provided by *** specify a magnesium purity threshold below 99.95 percent and thus does not meet the definition of product 1. *** Prehearing Brief, EDIS Docs. 694187 (Nov. 13, 2019) and 694360 (Nov. 14, 2019) at Att. 1. Finally, although ***. *See* e-mail exchange between Staff Economist and ***, EDIS Doc. 696561 (Dec. 6, 2019). We decline to find that this sale was misclassified as a product *** sale on the basis of ***.

[111] *Compare* Petitioner's Posthearing Brief, Exh. 5 *with* CR/PR at Table G-1. According to these data, *** purchaser AUVs exceeded purchasers' average AUVs in 2016, 2017 and in interim 2019. *** purchaser AUVs exceeded purchasers' average AUVs in 2017 and interim 2019 and was within $***/MT of the average AUVs in 2016 and 2018.

[112] We have carefully examined individual purchasers' purchasing patterns in light of petitioner's argument that the overall pricing product data may mask underselling and price effects at individual purchasers.

[113] CR/PR at V-16 – V-17 and Table V-8. In the preliminary phase of these investigations, Petitioner identified *** firms at which it alleged it lost sales or revenue. The Commission obtained lost sales and lost revenue survey responses from *** firms that purchased and imported *** MT of magnesium from January 2015 to September 2018. Confidential Report, Memorandum INV-QQ-144, EDIS Doc. 663133 (Dec. 3, 2018) ("*Preliminary CR*") at V-14, *Preliminary Determinations* at V-7 – V-8. Two of the *** firms that purchased subject imports from January 2015 to September 2018, ***, reported that price was a primary reason for their decisions to purchase an aggregate total of *** MT of subject imports rather than the domestic like product. *Preliminary CR*/*Preliminary Determinations* at

domestically produced magnesium during the POI, six firms reported that the subject imports were lower priced, but only three firms (***), reported that price was a primary reason for their decisions to purchase an aggregate total of *** MT of subject imports.[114] Other firms reported reasons such as *** to explain their purchasing decisions, regardless of whether the subject imports were priced lower or higher than the domestic product.[115] Two of the 17 firms, ***, reported that domestic producers reduced prices by an average of *** percent in order to compete with lower-priced subject imports.[116]

We find that the lost sales and lost revenues reported by purchasers throughout these investigations do not demonstrate that subject imports had significant adverse price effects.[117]

In the final phase of these investigations, among the *** of 35 responding purchasers that reported that subject import prices were lower than prices for domestically produced magnesium, *** of these firms reported increased purchases from domestic producers.[118] While *** purchasers – *** – reported purchasing subject imports instead of domestically produced magnesium due primarily to price, the record shows that DSM's sales price to these purchasers usually exceeded those of domestic producers. Specifically, the record shows that DSM's sales to *** far exceeded the delivered prices quoted by Petitioner to *** in documents it provided to support its lost sales allegation in the preliminary phase of these investigations.[119] Moreover, these sales were priced above average purchaser AUVs for both subject imports and domestic product.[120] This is consistent with the information submitted by *** during the preliminary phase of these investigations, in which it reported that subject imports were not priced lower than domestically produced magnesium.[121] In addition, we note

---

(…Continued)
Table V-9. *** reported that domestic producers reduced prices by *** percent in order to compete with lower-priced subject imports. *Preliminary CR*/*Preliminary Determinations* at Table V-10.

[114] CR/PR at Table V-9.

[115] *See* CR/PR at Table V-9.

[116] CR/PR at Table V-10.

[117] As a proportion of the total volume of purchases and imports of magnesium reported by purchasers in these investigations, reported lost sales volumes amounted to *** percent during the POI and *** percent during the period examined in the preliminary investigations (January 2015 to September 2018). Derived from *Preliminary CR*/*Preliminary Determinations* at Tables V-8 – V-9; and CR/PR at Tables V-8 – V-9. For reasons stated below, we find that the record in the preliminary and final phase of these investigations does not support that this reported lost volume constituted significant sales lost by the domestic industry to subject imports.

[118] CR/PR at Tables V-8 – V-9.

[119] Petitioner's Postconference Brief at 27, Exh. 7G.

[120] *Compare* Purchaser Questionnaire, EDIS Doc. 689027 (Sept. 23, 2019), response to question II-1a – b *with* CR/PR at Table G-1.

[121] *** Lost Sales and Lost Revenue Survey, EDIS Doc. 661483 (Nov. 9, 2018), response to question 4b.

that *** purchased subject imports at delivered prices that exceeded those of domestic producers throughout the POI, except for *** in 2018, when prices were equal.[122]

Regarding the reported lost revenues, as noted above *** purchased subject imports at prices in excess of domestic magnesium during the POI. We further find that domestic producers did not lose revenue at *** account as the latter did not purchase any domestically produced magnesium during the POI. In addition, we note that DSM's sales to *** were priced above purchasers' reported AUVs for domestic product in all but one year of the POI.[123] Accordingly, we do not find the record with respect to these purchasers to be persuasive evidence of significant lost sales to subject imports primarily on the basis of price or that domestic producers reduced prices in order to compete with subject imports.[124]

We have also considered the call reports and other contemporaneous evidence submitted by Petitioner in the preliminary and final phases of these investigations, but do not find them to be persuasive evidence to conclude that subject imports had adverse price effects in light of information provided in purchaser questionnaire responses. Petitioner contends that the call reports constitute evidence of significant lost sales and revenues at the ***[125] customer accounts involved.[126] However, a review of the pricing data submitted by those customers that

---

[122] Purchaser Questionnaires, EDIS Docs. 688610 (Sept. 18, 2019) and 689028 (Sept. 23, 2019), responses to questions II-1a – b. We decline to amend Luxfer's purchase data on the basis of the revised purchase data submitted in Exh. 4 of Petitioner's Posthearing Brief, which was not properly filed onto the record as an amended purchaser questionnaire.

[123] *Compare* Purchaser Questionnaire, EDIS Doc. 689724 (Sept. 30, 2019), response to question II-1a – b *with* CR/PR at Table G-1. Timet's purchases from DSM were priced above the average U.S. purchase AUVs in 2016, 2017, and interim 2019, and were only $***/MT below the average U.S. purchase AUV in 2018. *Id*.

[124] Although *** of the *** responding purchasers in the preliminary phase of these investigations reported that subject import prices were lower than the prices of domestically produced magnesium, most responding purchasers reported stable or increasing purchases from domestic producers between 2015 and 2017. *Preliminary CR/Preliminary Determinations* at Tables V-8 – V-9. Additionally, *** responding purchasers that reported purchasing subject imports instead of domestically produced magnesium due primarily to price reported *** the share of their purchases from domestic producers between 2015 and 2017. *Id*. In the final phase of these investigations, moreover, *** reported purchasing subject imports at prices that exceeded those of domestic producers during the POI. Purchaser Questionnaires, EDIS Docs. 688610 (Sept. 18, 2019) and 689363 (Sept. 26, 2019), responses to questions II-1a – b. We accordingly give less weight to their indications to the contrary, in the preliminary phase of these investigations, that they sourced subject imports primarily on the basis of price. The *** responding *** that reported lost revenues, of an estimated *** percent, also stated that ***. *Preliminary CR/Preliminary Determinations* at Table V-10.

[125] While Petitioner identified *** accounts in its Postconference Brief, ***, and we analyze them as separate entities.

[126] With respect to the call reports generally, we reiterate that both parties agree that the U.S. market is not transparent with respect to prices and that purchasers rarely cite direct prices from competitors. Tr. at 23-26, 57-58 (Tissington), 205 (Wanless). Suppliers must instead rely on multiple sources to gain market intelligence and the call reports reflect such attempts. *See* Petitioner's Posthearing Brief, Exh. 2 at 1-5 (detailing multiple sources of market intelligence and discussing

responded to the Commission's surveys and questionnaires in these investigations do not support Petitioner's allegations of significant adverse price effects.[127] [128] Nor are we convinced

---

(…Continued)
assumptions made about competitors when analyzing the market). The record shows, however, that these efforts to gain market intelligence do not always result in accurate information. *Compare* Petitioner's Posthearing Brief, Exh. 2 at 5 (stating that USM's research showed that ***) *with* *** Purchaser Questionnaire Response at II-1 (showing that *** purchased only ***). The call reports show that in some instances USM inferred information about DSM that was not accurate and/or received inaccurate information from its customers, given other information on the record. *See, e.g.*, Petitioner Posthearing Brief, Exh. 3 at 5-6 (stating that *** informed USM that DSM would remain ***) and Exh. 5 (showing *** average purchase price from *** than the average purchase price of its purchases from the domestic industry during the POI); *see also* CR/PR at Table V-9 (noting that *** did not report that subject imports were lower priced than the domestic product); and *compare* Petitioner's Postconference Brief, Exh. 7 at 2-4 (stating ***) *with* Alcoa's Prehearing Brief at 5 (stating that ***). Consequently, as explained in more detail below, we find this documentation to be of limited probative value and place more weight on other evidence in the record, including the pricing product data and certified purchaser questionnaire responses.

[127] Petitioner's call reports related to ***. Petitioner's Postconference Brief at 18-35, Exhs. 7, 7A-7Q. Purchasers *** did not provide a response to the Commission in these investigations. Further, DSM only sold subject merchandise to *** in 2016 and to *** in 2018 and interim 2019. Subject imports oversold the domestic like product at the *** account in 2016 and the *** account in 2018. Petitioner's Posthearing Brief, Exh. 5. Moreover, *** reports that it historically has purchased only *de minimis* quantities of magnesium from DSM. *** Prehearing Brief at 2. We also found, above, that the record does not support Petitioner's allegations that it lost sales to ***. Among the remaining *** purchasers listed in Petitioner's call reports, the purchaser questionnaire responses show, in general, that (1) subject imports rarely were lower priced than domestic product and were at times substantially higher priced, contrary to the pattern that would be expected if petitioner's allegations of price competition were correct (*see, e.g.,*- *** Purchaser Questionnaire, EDIS Doc. 689633 (Sept. 30, 2019), response to questions II-1a – b; *** Purchaser Questionnaire, EDIS Doc. 689054 (Sept. 24, 2019), response to questions II-1a – b; *** Purchaser Questionnaire, EDIS Doc. 689480 (Sept. 27, 2019), response to questions II-1a – b; *** Purchaser Questionnaire, EDIS Doc. 689047 (Sep. 24, 2019), response to questions II-1a – b; and *** Purchaser Questionnaire, EDIS Doc. 689021 (Sept. 23, 2019), response to questions II-1a – b (we acknowledge that subject imports undersold the domestic like product in interim 2019 at the *** account), and/or (2) purchasers sourced subject imports for non-price reasons during the period (*see, e.g.,* *** Lost Sales and Lost Revenue Survey, EDIS Doc. 661826 (Nov. 14, 2018), response to question 4c; *** Purchaser Questionnaire, EDIS Doc. 688979 (Sep. 23, 2019), responses to questions II-1a – b, III-29; and *** Purchaser Questionnaire, EDIS Doc. 689049 (Sep. 24, 2019), response to question III-29 (moreover, subject imports undersold the domestic like product at this account in only one year of the POI, 2017, and Kaiser purchased substantial volumes of nonsubject imports at AUVs substantially below those for subject imports in 2017 and 2018; *id*. at responses to questions II-1a – b)). We acknowledge that subject imports undersold the domestic like product at the *** account. However, *** purchase data also indicate that it purchased substantial volumes of nonsubject imports in 2017 and 2018 at AUVs substantially lower than those for domestic product, and below that for subject imports in -2017 and similar to that for subject imports in 2018. *See* *** Purchaser Questionnaire, EDIS Doc. 689717 (Sept. 30, 2019), response to questions II-1a – b. We discuss

by documentation provided by Petitioner in the final phase of these investigations that purports to show three additional instances where Petitioner lost sales and revenue to DSM during the POI.[129]

While Petitioner alleges that its call reports and other contemporaneous documents show that subject imports had significant adverse price effects, the weight of the record evidence indicates otherwise. As discussed above, the pricing product data, which cover the *** of U.S. shipments of subject imports and domestically produced magnesium, do not show significant underselling by subject imports.[130] Instead, the pricing product data show that subject imports predominantly oversold the domestic like product during the POI.[131] Moreover, if Petitioner were correct about price competition from subject imports, we would expect to see a significant shift in market share, particularly when excluding sales to ATI, from

---

(…Continued)
below the significance of nonsubject imports on prices in the U.S. market during the POI. *** did not provide a response to the Commission in the final phase of these investigations. Petitioner argues that the Commission could nevertheless conclude that the domestic industry lost sales and revenues at these customer accounts, based on the record evidence it alleges shows that the industry lost significant sales and revenues at other purchasers. Petitioner's Posthearing Brief, Exh. 1, 44. Given that the record does not support Petitioner's allegations that it lost significant sales and revenues at other accounts, we decline to infer that Petitioner lost sales and revenues to DSM at these non-responding purchaser accounts.

[128] Petitioner further argues that a review of the purchase data filed by DSM's top ten customers during the POI, *** and ***, a major purchaser of subject imports in the preliminary phase of these investigations, shows that DSM was competing with domestic producers primarily on the basis of price. Petitioner's Posthearing Brief, Exh. 1, 8-20. We have found above that the record does not support Petitioner's allegations with respect to ***. The record also indicates that subject imports oversold the domestic like product at the ***, whereas *** sourced magnesium exclusively from DSM during the POI for non-price reasons. *See* *** Purchaser Questionnaire, EDIS Doc. 690261 (Oct. 3, 2019), response to questions II-1a – b (we acknowledge that subject imports undersold the domestic like product in interim 2019 at this account); and *** Purchaser Questionnaire, EDIS Doc. 689032 (Sept. 23, 2019), responses to questions II-1a – b, III-29.

[129] As previously discussed, *** indicated that its purchases of subject imports, which undersold the domestic like product in one year of the POI, were motivated by the need to diversify its sources of supply. *** Purchaser Questionnaire, response to question III-29. Similarly, *** purchases of subject imports, which undersold the domestic like product in one year of the POI, were motivated by the need to "ensure supply by having secondary supplier." *** Purchaser Questionnaire, EDIS Doc. 689035 (Sept. 23, 2019), responses to questions II-1a – b, III-29. Additionally, both of these purchasers sourced magnesium from nonsubject suppliers and domestic producers other than Petitioner. The record, accordingly, does not indicate that subject imports drove the price declines at these accounts during 2016-2017. *See* Purchaser Questionnaires, *Id*. at responses to questions II-1-a –b. Finally, in the absence of a survey or questionnaire response by *** in these proceedings to support ***, we afford less weight to this evidence. We do not find that this *** constitutes substantial evidence that rebuts the strong record evidence that subject imports generally oversold the domestic like product throughout the POI, or the price effects of factors other than subject imports in the U.S. market.

[130] CR/PR at I-4, V-6.

[131] CR/PR at Table V-7.

the domestic industry to subject imports, given the moderate-to-high degree of substitutability between subject imports and the domestic like product and the importance of price in purchasing decisions. Instead, subject import volume declined over the POI, and subject import market share fluctuated within a small range and fell overall.[132] Subject import market share was also lower in interim 2019 compared to interim 2018, even as subject imports undersold the domestic like product in *** quarterly comparisons for product 2 in interim 2019.[133] [134]

In sum, the record evidence shows that pricing in the U.S. magnesium market is opaque (that is, that sellers have little concrete knowledge of competitors' pricing),[135] that customers infrequently quote DSM's prices during negotiations,[136] and that customers use the lack of transparency in the market to their advantage to extract the lowest possible prices.[137] We therefore find the call reports, which contain Petitioner's sales personnel's perceptions from sales negotiations, to be of limited probative value, and we rely primarily on the more objective pricing product data and purchaser responses to the Commission's questionnaires and surveys to assess subject imports' price effects. The pricing product data and purchaser responses show that subject imports did not undersell the domestic like product to a significant degree, nor do they establish substantial evidence showing that subject imports depressed prices or prevented price increases that would otherwise have occurred to a significant degree.

With respect to possible price depression or suppression by the subject imports, we have also considered price movements during the POI. Prices for the pricing products fluctuated but generally decreased before increasing from the last quarter of 2018 to the end of the POI.[138] Domestic prices for product 1, which fluctuated during the POI, were priced ***

---

[132] Subject import market share was lower in 2018, at *** percent, than in 2016, at *** percent. CR/PR at Table IV-6. Excluding USM's tolled sales to ATI, subject import market share fell from *** percent in 2016 to *** percent in 2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[133] CR/PR at Table IV-6.

[134] Domestic producers' substantially increased prices in interim 2019 were in large part pursuant to contracts negotiated in late 2018. During that contract negotiation period, demand was strong and there were concerns about supply in the market due to the filing of the petitions in October 2018 and the exit of Turkish supplier ESAN in 2018. However, comparing interim 2019 to interim 2018, subject import volume was higher and shipments of subject imports declined by only 2.9 percent, CR/PR at Tables IV-2 and IV-5; thus, the petitions did not appear to have a restraining effect on subject import volume.

[135] See Petitioner's Posthearing Brief, *citing* Tr. at 204-05 & 214-17 (Wanless).

[136] In many of the call reports, we note that ***. *See, e.g.*, Petitioner's Postconference Brief at Exhibits 7A ("***."), 7B ("*** to believe that Dead Sea made an offer in the $1.75-$1.74 per pound range. ***."), 7D ("***"), 7E ("***"), 7F ("***."), 7H ("***").

[137] *See* Section IV.B.3; Tr. at 23-26, 58, 130-31 (Tissington), 205, 235 (Wanless). We do not find that the limited instances in the call reports showing that DSM may have been referenced specifically in price negotiations outweigh the other evidence on the record showing that subject imports did not depress or suppress the domestic industry's prices to a significant degree, as discussed below.

[138] CR/PR at V-13 and Table V-6.

percent higher at the end of the POI compared to the first quarter of 2016.[139] Domestic prices for product 2, which *** irregularly between the third quarters of 2016 and 2018, were priced *** percent higher at the end of the POI compared to the first quarter of 2016.[140] Domestic prices for product 3, which *** irregularly between the fourth quarter of 2016 and the third quarter of 2018, were priced *** percent higher at the end of the POI compared to the first quarter of 2016.[141] Subject import prices generally declined until the third quarter of 2018, after which they increased for the remainder of the POI; subject import prices for product 2 increased by *** percent from the first quarter of 2016 to the second quarter of 2019, whereas subject import prices for product 3 declined *** by *** percent.[142]

The average COGS to net sales ratio for non-grinding producers increased during 2016-2018, from *** percent in 2016 to *** percent in 2018. The average COGS to net sales ratio for non-grinding producers was lower in interim 2019, at *** percent, compared to interim 2018, at *** percent.[143]

As discussed above, the record does not show that the subject imports significantly undersold the domestic like product, nor is there substantial evidence in the record showing that subject imports depressed or suppressed the domestic industry's prices to a significant degree. Although the domestic producers' prices declined for much of the POI and the industry experienced a cost-price squeeze, this occurred as the volume of subject imports in the market declined, apparent U.S. consumption declined overall, and the volume of lower-priced nonsubject imports increased.[144] Indeed, the record shows that these factors rather than subject imports likely explain the domestic industry's declining sales prices and any inability to raise prices to cover increasing costs earlier in the POI.[145]

---

[139] CR/PR at Tables V-3 and V-6, Figure V-2. Product 1 is a low-volume specialty product. *See Preliminary Determinations*, USITC Pub. 4860 at 17.

[140] CR/PR at Tables V-4, V-6, Figure V-3.

[141] CR/PR at Tables V-5 – V-6, Figure V-4.

[142] CR/PR at V-13 and Table V-6. There was only one quarter of pricing data for subject imports reported for Product 1.

[143] CR/PR at Tables C-2, E-3. The grinder's COGS/sales ratio increased from *** percent in 2016 to *** percent in 2017 and 2018, and was higher in interim 2019, at *** percent, compared to interim 2018, at *** percent. CR/PR at Table VI-3.

[144] *See* CR/PR at Table IV-5. As explained previously, the domestic industry's prices did increase in the first half of 2019 due to multiple factors, including increasing demand and concerns regarding supply constraints after the petitions were filed and Turkish producer ESAN exited the market.

[145] The record shows that non-grinding producers' average raw material costs increased on a per-unit basis between 2016 and 2018. CR/PR at Table VI-1. Total COGS, however, increased by much less than raw material costs (for a total of ***/MT), as the increase in raw material costs was offset by declines in other factors. *Id.* Additionally, raw materials accounted for a relatively small share of the non-grinding producers' total COGS, and a limited number of purchasers reported that raw material prices had affected their purchase negotiations. *See* CR/PR at V-1 and Table VI-1. The grinding producer's average raw material costs per unit also increased during 2016-2018 but its total average COGS declined on a per-unit basis. CR/PR at Table VI-3. Given these factors, and the overall decline in apparent U.S. consumption, it is unlikely the domestic industry would have been able to raise prices significantly during the full years of the POI.

The *** percent decline in apparent U.S. consumption between 2016 and 2017 would have exerted downward pressure on prices for the domestic like product, particularly given the strong economic incentive for Petitioner to operate its magnesium production facility at a high rate of capacity utilization.[146] Moreover, although apparent U.S. consumption increased by *** percent between 2017 and 2018, domestic producers' sales prices remained low through most of 2018 because they reflected annual contracts negotiated in 2017, when magnesium demand was at a period low.[147] Declining demand also increased the domestic industry's unit COGS as domestic producers were forced to spread their high fixed costs over fewer units of production, contributing to the increase in the domestic industry's ratio of COGS to net sales.[148]

Additionally, low-priced nonsubject import competition likely also contributed to declining prices for the domestic like product during the POI. The volume of nonsubject imports increased irregularly during the POI; it was *** MT in 2016, *** MT in 2017, and *** MT in 2018.[149] Pricing product data show that nonsubject imports were pervasively lower priced than domestically manufactured magnesium during the POI. Nonsubject imports from Russia were lower priced than the domestic like product in *** of *** quarterly price comparisons; nonsubject imports from Taiwan were lower priced than the domestic like product in *** of *** quarterly comparisons; and nonsubject imports from Turkey were lower priced than the domestic like product in *** quarterly comparisons.[150] Moreover, as discussed above, questionnaire responses show that several purchasers sourced nonsubject imports at AUVs well below those of domestic product and subject imports. The increasing volume of low-priced nonsubject imports would have exerted downward pressure on domestic prices during the POI, in light of the moderate-to-high substitutability between nonsubject imports and the

[146] CR/PR at Table IV-5.

[147] CR/PR at Table IV-5. While it appears that domestic producers were unable to capitalize on increasing apparent U.S. consumption in 2018 by raising prices, their ability to implement price increases any earlier than the fourth quarter of 2018 would have been constrained by the terms of their annual contracts, which ***. CR/PR at V-4 – V-5. Further, as discussed above, raw material costs accounted for a small proportion of total COGS and most purchasers were unaware of raw material prices, such that the rise in raw material costs was unlikely to influence supply negotiations. *See* Section IV.B.3. In these circumstances, the record does not indicate that price increases would otherwise have occurred in this period.

[148] *See* Tr. at 135 (Slade) (conceding that Petitioner had not excluded the impact of ATI's closure from the COGS/sales ratio, but arguing that the ratio increased between 2017 and 2018, when the ATI closure should not have an impact). Ms. Slade's argument overlooks the timing of annual contract negotiations in 2017, discussed above, which would have occurred while demand was low. *See also Section 232 Comments* at 17, 23-24.

[149] CR/PR at Table IV-2. The volume of nonsubject imports was *** MT in interim 2019 compared to *** MT in interim 2018. *Id*. The volume of nonsubject imports exceeded the volume of subject imports in the interim periods.

[150] CR/PR at Table F-1. The pervasiveness of low-priced nonsubject imports is further corroborated by purchasers' AUV data, which show that delivered unit prices for nonsubject imports from Russia, Taiwan, and Turkey were lower-priced than subject imports and domestic product throughout the POI. CR/PR at Table G-1.

domestic like product of the same type and the importance of price in purchasing decisions. Indeed, in written comments submitted to Commerce in June 2017 pursuant to the Section 232 national security investigation of imports of aluminum, Petitioner emphasized that imports of pure magnesium from Russia and Turkey, and imports of scrap and secondary alloy magnesium from countries other than Israel, had depressed magnesium prices in the U.S. market.[151] Moreover, nonsubject import market share increased throughout the POI, and was higher in 2018, at *** percent, than in 2016, at *** percent in 2016; it also was higher in interim 2019, at *** percent, compared to interim 2018, at *** percent.[152]

Finally, intra-industry competition from secondary magnesium producers that have access to those low-cost imports of magnesium scrap from nonsubject sources referenced by Petitioner in its Section 232 comments appear to also be exerting downward pressure on domestic prices.[153]

In sum, we do not find that subject imports significantly undersold the domestic like product. We also do not find that subject imports depressed prices or prevented price increases, which otherwise would have occurred, to a significant degree. Accordingly, we do not find that the subject imports have had significant adverse price effects on the domestic industry.

E. Impact of the Subject Imports[154]

Section 771(7)(C)(iii) of the Tariff Act provides that examining the impact of subject imports, the Commission "shall evaluate all relevant economic factors which have a bearing on the state of the industry."[155] These factors include output, sales, inventories, capacity

---

[151] *Section 232 Comments* at 15-16, 18-20. *See* further discussion of these comments below at Section IV.E.

[152] CR/PR at Table IV-6. As previously, stated, nonsubject imports' market share excluding USM's tolled sales to ATI was *** percent in 2016. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[153] As previously discussed, the record indicates that Petitioner lost sales at the *** and *** accounts to other domestic producers. The record similarly indicates that multiple domestic producers supplied the *** account. *** Purchaser Questionnaire, response to questions II-1 and II-2. *See also* Arconic's Prehearing Brief at 4; Alcoa's Prehearing Brief at 3-4.

[154] The statute instructs the Commission to consider the "magnitude of the dumping margin" in an antidumping proceeding as part of its consideration of the impact of imports. 19 U.S.C. § 1677(7)(C)(iii)(V). In its final determination of sales at less value, Commerce found an antidumping duty margin of 218.98 percent for imports from Israel. *Magnesium From Israel: Final Affirmative Determination of Sales at Less Than Fair Valu*e, 84 Fed. Reg. 65781, 65782 (Nov. 29, 2019). We take into account in our analysis the fact that Commerce has made final findings that all subject producers in Israel are selling subject imports in the United States at LTFV. However, in addition to this consideration, our analysis has considered that subject imports have not caused significant adverse price effects and other factors have affected domestic prices.

[155] 19 U.S.C. § 1677(7)(C)(iii); *see also* SAA at 851 and 885 ("In material injury determinations, the Commission considers, in addition to imports, other factors that may be contributing to overall injury. While these factors, in some cases, may account for the injury to the domestic industry, they also

utilization, market share, employment, wages, productivity, gross profits, net profits, operating profits, cash flow, return on investment, return on capital, ability to raise capital, ability to service debts, research and development, and factors affecting domestic prices. No single factor is dispositive and all relevant factors are considered "within the context of the business cycle and conditions of competition that are distinctive to the affected industry."[156]

Non-grinding producers' output and financial performance declined according to most measures during 2016-2018, before improving in the post-petition period.[157] Non-grinding producers' capacity decreased by *** percent between 2016 and 2017, from *** MT to *** MT, and was flat for the remainder of the POI; capacity in the interim periods was *** MT.[158] Non-grinding producers' production declined consistently between 2016 and 2018, by *** percent between 2016 and 2017, from *** MT to *** MT, and by *** percent between 2017 and 2018, to *** MT in 2018.[159] Consequently, non-grinding producers' capacity utilization declined from *** percent in 2016 to *** percent in 2017 and *** percent in 2018.[160] Most of these output measures were higher in interim 2019 compared to interim 2018.[161]

Non-grinding producers' employment indicia fluctuated during 2016-2018: the number of PRWs in 2018 was *** percent lower than in 2016;[162] total hours worked by PRWs were ***

(…Continued)
may demonstrate that an industry is facing difficulties from a variety of sources and is vulnerable to dumped or subsidized imports.").

[156] 19 U.S.C. § 1677(7)(C)(iii). This provision was amended by the Trade Preferences Extension Act of 2015, Pub. L. 114-27.

[157] Non-grinding producers' output and financial performance measures differed from the performance of the grinder. We have thus separated our discussion of non-grinding producers and the grinder as appropriate in this section. Combined industry statistics are summarized in CR/PR at Tables VI-5, C-1.

[158] CR/PR at Tables III-6, C-1. The grinder's capacity was *** MT during 2016-2017, increased by *** percent to *** MT in 2018, and was *** MT in the interim periods. *Id*.

[159] CR/PR at Tables III-6, C-1. Production in interim 2019 was *** percent higher, at *** MT, compared to interim 2018, at *** MT. *Id*. The grinder's production by *** percent between 2016-2017, from *** MT to *** MT, and by *** percent between 2017-2018, to *** MT; production in interim 2019 was *** percent lower, at *** MT, compared to interim 2018, at *** MT. *Id*.

[160] CR/PR at Table III-6. Capacity utilization was *** percent in interim 2019 compared to *** percent in interim 2018. *Id*. The grinder's capacity utilization rate increased from *** percent in 2016 to *** percent in 2017, decreased to *** percent in 2018, and was *** percentage points lower in interim 2019, at *** percent, compared to interim 2018, at *** percent. *Id*.

[161] CR/PR at Table III-6. The grinder's output indicators were mostly lower in interim 2019, compared to interim 2018. *Id*.

[162] The number of PRWs employed by non-grinding producers declined between 2016 and 2017, from *** to ***, increased between 2017 and 2018, to ***, and was higher in interim 2019, at ***, compared to interim 2018, at ***. CR/PR at Tables III-10, C-2.

The number of PRWs employed by the grinder declined from *** in 2016 to *** in 2017, increased to *** in 2018, and was higher in interim 2019, at ***, compared to interim 2018, at ***. CR/PR at Table III-10.

percent lower;[163] wages paid were *** percent higher;[164] hourly wages rose by *** percent;[165] unit labor costs increased by *** percent;[166] and productivity declined by *** percent.[167]

The domestic industry's declining production reflected its declining shipments and market share between 2016 and 2018. Further, the industry's market share was lower in interim 2019 compared to interim 2018. Non-grinding producers' U.S. shipments declined by *** percent between 2016 and 2017, from *** MT to *** MT, driven by both declining demand and the loss of Petitioner's toll production shipments to ATI, and increased by *** percent between 2017 and 2018, to *** MT; non-grinding producers' U.S. shipments were *** lower in interim 2019, at *** MT, compared to interim 2018, at *** MT.[168] The domestic industry's U.S. shipments as a share of apparent U.S. consumption declined from *** percent in 2016 to ***

[163] Total hours worked by non-grinding PRWs declined from *** in 2016 to *** in 2017, increased to *** in 2018, and were higher in interim 2019, at *** compared to interim 2018, at ***. CR/PR at Tables III-10, C-2.

Total hours worked by grinding PRWs increased from *** in 2016 to *** in 2017 and *** in 2018, and were *** lower in interim 2019, at ***, compared to interim 2018, at ***. CR/PR at Table III-10.

[164] Total wages paid to non-grinding PRWs decreased from $*** in 2016 to $*** in 2017, increased to $*** in 2018, and were *** percent higher in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Tables III-10, C-2.

Total wages paid by the grinder increased from $*** in 2016 to $*** in 2017 and $*** in 2018, and were lower in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Table III-10.

[165] Hourly wages for non-grinding PRWs increased from $*** in 2016 to $*** in 2017 and $*** in 2018, and were *** percent higher in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Tables III-10, C-2.

Hourly wages for grinding PRWs increased from $*** in 2016 to $*** in 2017 and $*** in 2018, and were lower in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Table III-10.

[166] Unit labor costs for non-grinding producers increased from $***/MT in 2016 to $***/MT in 2017 and $***/MT in 2018, and were *** percent higher in interim 2019, at $***/MT, compared to interim 2018, at $***/MT. CR/PR at Tables III-10, C-2.

For the grinder, unit labor costs increased from $***/MT in 2016 to $***/MT in 2017, decreased to $***/MT in 2018, and were higher in interim 2019, at $***/MT, compared to interim 2018, at $***/MT. CR/PR at Table III-10.

[167] For non-grinding producers, productivity declined from *** MT/1,000 hours in 2016 to *** MT/1,000 hours in 2017 and *** MT/1000 hours in 2018, and was lower in interim 2019, at *** MT/1,000 hours, compared to interim 2018, at *** MT/1,000 hours. CR/PR at Tables III-10, C-2.

For the grinder, productivity increased from *** MT/1,000 hours in 2016 to *** MT/1,000 hours in 2017 and *** MT/1,000 hours in 2018, and was lower in interim 2019, at *** MT/1,000 hours, compared to *** MT/1,000 hours in interim 2018. CR/PR at Table III-10.

[168] CR/PR at Tables III-7, C-1. The grinder's U.S. shipments increased by *** percent between 2016 and 2017, from *** MT to *** MT, and by *** percent between 2017 and 2018, to *** MT; its U.S. shipments were higher in interim 2019, at *** MT, compared to interim 2018, at *** MT. *Id*.

percent in 2017 and *** percent in 2018, and were *** percent in interim 2019 compared to *** percent in interim 2018.[169] [170]

Non-grinding producers' end-of-period inventories increased from *** MT in 2016 to *** MT in 2017, declined to *** MT in 2018, and were lower in interim 2019, at *** MT, compared to interim 2018, at *** MT.[171] Non-grinding producers' end-of-period inventories as a share of total shipments increased from *** percent in 2016 to *** percent in 2017, declined to *** percent in 2018, and were lower in interim 2019, at *** percent, compared to *** percent in interim 2018.[172]

The domestic industry's declining sales volume, coupled with declining prices for the domestic like product, resulted in a deterioration in the industry's financial performance during the POI. Non-grinding producers' net sales value declined irregularly from $*** in 2016 to $*** in 2017 and $*** in 2018, a level *** percent lower than in 2016. Non-grinding producers' net sales value was $*** million in interim 2019, compared to $*** million in interim 2018.[173] As non-grinding producers' net sales value declined more than its total COGS from 2016 to 2018,[174] non-grinding producers' operating income declined from $*** in 2016 to operating losses of $*** in 2017 and $*** in 2018. Non-grinding producers' operating income in interim 2019 was $***, compared to an operating loss of $*** in interim 2018.[175] Similarly, non-

[169] CR/PR at Table IV-6. The quantity reported for domestic producers' U.S. shipments reflects the quantity of magnesium sold in the U.S. market by non-grinding producers, including both tollers and non-tollers. CR/PR at Table III-8 Note.

[170] As previously stated, excluding USM's tolled sales to ATI, the industry's share of apparent U.S. consumption was *** percent in 2016; the industry's share of the market, as adjusted, declined by *** percentage points during 2016-2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[171] CR/PR at Table III-9, C-2. The grinder's end-of-period inventories increased by *** percent between 2016 and 2018, from *** MT in 2016 to *** MT in 2017 and *** MT in 2018, and were *** lower in interim 2019, at *** MT, compared to interim 2018, at *** MT. CR/PR at III-14 and Table III-9.

[172] CR/PR at Table III-9. The grinder's end-of-period inventories as a share of total production increased during 2016-2018, from *** percent in 2016 to *** percent in 2017 and *** percent in 2018, and were lower in interim 2019, at *** percent, compared to interim 2018, at *** percent. *Id*.

[173] CR/PR at Tables C-2, E-3. We note that the financial results reported in this section include domestic producers' tolling operations.

For the grinder, net sales value increased irregularly during 2016-2018; it was $*** million in 2016, $*** in 2017, and $*** in 2018. Net sales value was *** higher in interim 2019, at $***, compared to $*** in interim 2018. CR/PR at Table VI-3.

[174] Total COGS for non-grinding producers declined from $*** in 2016 to $*** in 2017 and increased to $*** in 2018, a level *** percent lower than in 2016. Total COGS was lower in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Tables C-2, E-3.

For the grinder, total COGS increased irregularly during 2016-2018; it was $*** in 2016, $*** in 2017, and $*** in 2018. Total COGS was higher in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Table VI-3.

[175] CR/PR at Tables C-2, E-3. The grinder's operating income declined from $*** in 2016 to $*** in 2017, increased to $*** in 2018, and was lower in interim 2019, at $***, compared to interim 2018, at $***. CR/PR at Table VI-3.

grinding producers' operating income margin of *** percent in 2016 declined to operating losses of *** percent in 2017 and *** percent in 2018. Non-grinding producers' operating income margin in interim 2019 was *** percent, compared to an operating loss of *** percent in 2018.[176] Non-grinding producers' gross profit declined from $*** in 2016 to negative $*** in 2017 and negative $*** in 2018. Non-grinding producers' gross profit in interim 2019 was $***, compared to $*** in interim 2018.[177] Non-grinding producers reported net losses throughout the POI, of $*** in 2016, $*** in 2017, $*** in 2018, and $*** in interim 2019, compared to $*** in interim 2018.[178] Non-grinding producers' average operating return on assets declined from negative *** percent in 2016 to negative *** percent in 2017 and negative *** percent in 2018.[179]

The domestic industry's capital expenditures declined from $*** in 2016 to $*** in 2017, increased to $*** in 2018, and were higher in interim 2019, at $***, compared to $*** in interim 2018.[180] Additionally, three domestic producers reported negative effects on investment or growth and development purportedly due to subject imports.[181]

The record in the final phase of these investigations does not show a causal nexus between subject imports and the domestic industry's declining performance during the POI. The volume of subject imports declined overall between 2016 and 2018, although it was higher in interim 2019 than in interim 2018.[182] Subject import market share declined from *** percent in 2016 to *** percent in 2018, and was lower in interim 2019, at *** percent, than in interim 2018, at *** percent.[183] U.S. shipments of subject imports also declined between 2016

---

[176] CR/PR at Tables C-2, E-3. The grinder's operating income margin was *** percent in 2016, *** percent in 2017, *** percent in 2018, and *** percent in interim 2019 compared to *** percent in interim 2018. CR/PR at Table VI-3.

[177] CR/PR at Tables C-2, E-3. The grinder's gross profit was $*** in 2016, $*** in 2017, $*** in 2018, and $*** in interim 2019, compared to $*** in interim 2018. CR/PR at Table VI-3.

[178] CR/PR at Tables C-2, E-3. The grinder reported net income of $*** in 2016, $*** in 2017, $*** in 2018, and $*** in interim 2019 compared to $*** in interim 2018. CR/PR at Table VI-3.

[179] CR/PR at Table VI-9. The grinder's average operating return on assets declined irregularly from *** percent in 2016 to *** percent in 2017 and *** percent in 2018. *Id*.

[180] CR/PR at Table VI-8. The grinder's capital expenditures were $*** during 2016-2017, increased to $*** in 2018, and were higher in interim 2019, at $***, compared to $*** in interim 2018. *Id*.

[181] CR/PR at Tables VI-10 and 11. *** firms reported that subject imports had neither negatively impacted investment, nor had negative effects on growth and development, while *** firms reported that subject imports did have such negative impacts and effects. *Id*. at Table VI-10. For the reasons discussed below, we do not find a causal nexus between subject imports and the domestic industry's declining performance during the POI that would support the negative impacts and effects alleged by certain domestic producers.

[182] CR/PR at Table IV-2.

[183] CR/PR at Table IV-6. As discussed above, subject imports' loss of market share during the POI is even starker if we exclude USM's tolled sales to ATI, which would revise subject imports' market share to *** percent in 2016. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

and 2018, as well as between interim 2018 and 2019.[184] The domestic industry's best performance during the POI, in 2016, coincided with the largest volume of subject imports in the market. As the domestic industry's performance declined, the volume of subject imports also declined. While subject imports increased as a share of apparent U.S. consumption between 2016 and 2017, as noted above apparent consumption and relative market shares were affected by more significant developments, namely declining demand and ATI's closure of its titanium sponge plant.[185]

Nor does the record show that subject imports had significant adverse price effects. Subject imports predominantly oversold the domestic like product, and neither depressed nor suppressed domestic prices to a significant degree.[186] Most purchasers reported purchasing an increasing share of magnesium from domestic producers and a decreasing share from DSM, while few reported that price was the primary reason for purchasing subject imports or that domestic producers reduced their prices to compete with lower-priced subject imports.[187]

Petitioner relies heavily on the alleged post-petition effects as evidence of causation in these investigations.[188] While it is true that the industry was able to raise prices and its financial performance improved following the filing of the petitions, we do not find that this demonstrates a causal link between the subject imports and the domestic industry's declining performance during the full years of the POI. USM filed the petition in October 2018, which fell squarely within the annual contract negotiation period.[189] Demand was strong in 2018, bolstering price increases for 2019 contracts. Moreover, there were concerns about supply in the market in light of Turkish producer ESAN's closure and the timing of these petitions. The fact that domestic producers were able to obtain price increases in the wake of this filing is unsurprising given the uncertainty initiation of these investigations would have created on the continued availability of subject imports. Indeed, *all suppliers* – domestic producers, subject sources, and nonsubject sources – were able to raise prices for sales in 2019. The fact that suppliers were able to capitalize on the uncertainty created in the market by the filing of antidumping and countervailing duty petitions against the leading import source does not demonstrate, by itself, a causal nexus between the subject imports and the domestic industry's prior performance during the POI.[190] Moreover, we have found that the weight of the record evidence supports the finding that subject imports did not have significant adverse price effects or a significant adverse impact on the domestic industry's condition; the post-petition data do not contradict nor outweigh that evidence.

---

[184] CR/PR at Table IV-5.

[185] *See* Section IV.C., above.

[186] *See* Section IV.D., above.

[187] CR/PR at Tables V-8 – V-10. As discussed above, in Section IV.D., we have found that the record does not show that domestic producers lost significant sales or revenues to subject imports.

[188] Petitioner's Final Comments at 8-10.

[189] *See* CR/PR at I-1, V-3.

[190] We also note that, comparing interim 2019 to interim 2018, subject import volume was higher and U.S. shipments of subject imports declined by only *** percent, CR/PR at Tables IV-2 and IV-5, indicating that the petitions did not appear to have a restraining effect on subject import volume.

While the record does not support a finding that subject imports had a significant adverse impact on the domestic industry, it does indicate that other factors, mainly declining demand, low-priced nonsubject import competition, and intra-industry competition led to the industry's declining performance. Trends in the domestic industry's U.S. shipments followed trends in apparent consumption, with both declining between 2016 and 2017 and increasing in 2018.[191] Conversely, U.S. shipments of subject imports declined in both 2017 and 2018.[192] Declining demand also contributed to the domestic industry's increasing COGS to net sales ratio by placing downward pressure on prices and by increasing the domestic industry's unit costs, as discussed in Section IV.D. above.

In addition, the increasing volume of nonsubject imports during the POI from Russia, Taiwan, and Turkey displaced domestic industry shipments from the U.S. market and placed additional downward pressure on prices. Nonsubject imports, which increased their market share by *** percentage points during 2016-2018, captured the *** percentage points of market share lost by domestic producers in this period, and the *** percentage points of market share lost by subject imports.[193] Nonsubject import market share was *** percentage points higher in interim 2019 compared to interim 2018, whereas the domestic industry's share of the market was *** percentage points lower, and subject imports' share was *** percentage points lower. Thus, nonsubject imports captured a portion of apparent U.S. consumption in interim 2019 at the expense of the domestic industry.[194]

Finally, due to the importance of supplier diversity and price in the market, intra-industry competition from secondary magnesium producers that have access to low-cost magnesium scrap inputs from nonsubject sources also placed downward pressure on domestic prices, as discussed in Sections IV.B and D above.

We find additional evidence that ATI's closure of its titanium plant and increased nonsubject imports had a negative effect on the domestic industry's performance in Petitioner's Section 232 comments to Commerce. According to Petitioner, the closure of ATI's plant forced Petitioner to "shut down cells that supplied ATI," which "{r}ais{ed} per unit production costs, making it more difficult for US Magnesium to compete in the long term."[195]

---

[191] Apparent U.S. consumption declined by *** MT between 2016 and 2017 while the domestic industry's U.S. shipments declined by *** MT during the same period. Similarly, apparent consumption rose by *** MT between 2017 and 2018, and the domestic industry's U.S. shipments rose by *** MT. Derived from CR/PR at Table IV-6.

[192] Subject import shipments declined by *** MT between 2016 and 2017, and by *** MT between 2017 and 2018. CR/PR at Table C-1.

[193] Considering apparent U.S. consumption excluding USM's tolled sales to ATI in 2016, nonsubject imports gained *** percentage points of market share during 2016-2018 as domestic producers lost *** percentage points of market share and subject imports lost *** percentage points of market share. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

[194] CR/PR at Tables IV-6 – IV-7.

[195] *Section 232 Comments* at 17, 23-24. Low market prices and diminished cash flow also forced Petitioner to delay the rebuilding of dozens of electrolytic cells, which impacted its production rate and

Petitioner also stated in its Section 232 comments that significant increases of pure magnesium from Russia and Turkey in 2017 and "imports of secondary alloy magnesium, made from scrap produced from Chinese alloy magnesium" beginning in 2016, had displaced Petitioner's sales and depressed its prices, adversely impacting Petitioner's performance.[196] Far from alleging that subject imports had contributed to this predicament, Petitioner had used Israel's declining share of total imports as evidence that low-priced nonsubject imports had increased to abnormally high levels.[197] The record contains no evidence of any change in subject import volume or prices since June 2017 that would explain the change in Petitioner's position on the causes of its declining performance between the time it filed its Section 232 comments and the time it filed the petition in these investigations.

For the foregoing reasons, we do not find that subject imports are having a significant adverse impact on the domestic industry. Accordingly, we find that the domestic industry is not materially injured by reason of subject imports of magnesium from Israel that were found by Commerce to be sold in the United States at LTFV and subsidized by the government of Israel.

V. No Threat of Material Injury by Reason of Subject Imports

A. Legal Standard

Section 771(7)(F) of the Tariff Act directs the Commission to determine whether the U.S. industry is threatened with material injury by reason of the subject imports by analyzing whether "further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted."[198] The Commission may not make such a determination "on the basis of mere conjecture or supposition," and considers the threat factors "as a whole" in making its determination whether dumped or subsidized imports are imminent and whether material injury by reason of subject imports would occur unless an order is issued.[199] In making our determination, we consider all statutory threat factors that are relevant to these investigations.[200]

(…Continued)
productivity and further increased its unit cost of production. Conference Tr., EDIS Doc. 663231 (Dec. 12, 2018) at 63 (Lutz), 64 (Tissington).

[196] *Section 232 Comments* at 19.

[197] *Section 232 Comments* at 19-20. We acknowledge that the executive summary of Petitioner's Section 232 comments states that "US Magnesium is adversely affected by imports of pure, alloy, and granular magnesium from Israel, Russia, and Turkey, among many other countries." *Id*. at 3. We nevertheless find it noteworthy that the body of Petitioner's comments uses Israel's declining share of total imports to argue that the increase in low-priced nonsubject imports was injurious.

[198] 19 U.S.C. § 1677(7)(F)(ii).

[199] 19 U.S.C. § 1677(7)(F)(ii).

[200] These factors are as follows:

(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable

B. Analysis

1. Likely Volume

As discussed above in Section IV.C, we have found the volume of subject imports to be significant during the POI. However, from 2016 to 2018, subject import volume declined by *** percent, shipments of subject imports fell by *** percent, and their market share declined by *** percentage points.[201] While the volume of subject imports was higher in interim 2019 compared to interim 2018, subject imports' market share was lower in interim 2019. Consequently, there was no significant rate of increase in either the volume or the market share of the subject imports during the POI, which could indicate a likelihood of substantially increased subject imports.

(…Continued)
subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement) and whether imports of the subject merchandise are likely to increase,

(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,

(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,

(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices and are likely to increase demand for further imports,

(V) inventories of the subject merchandise,

(VI) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,

…

(VIII) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and

(IX) any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).

19 U.S.C. § 1677(7)(F)(i). To organize our analysis, we discuss the applicable statutory threat factors using the same volume/price/impact framework that applies to our material injury analysis. Statutory threat factors (I), (II), (III), (V), and (VI) are discussed in the analysis of subject import volume. Statutory threat factor (IV) is discussed in the analysis of subject import price effects. Statutory factors (VIII) and (IX) are discussed in the analysis of impact. Statutory factor (VII) concerning agricultural products is inapplicable to this investigation.

[201] CR/PR at Table IV-2, IV-5, and IV-6. As previously stated, excluding USM's tolled sales to ATI, subject import market share was *** percent in 2016 and declined by *** percentage points between 2016 and 2018. Derived from Petitioner's Producer Questionnaire, response to question V-1 and CR/PR at Tables IV-5 – IV-6.

The record also does not indicate that the subject industry had substantial existing unused production capacity or has plans for any substantial increase in capacity. To the contrary, the production capacity of the sole subject producer in Israel declined during the POI, and is projected to decline further in 2019 and increase *** by *** percent in 2020 compared to 2019.[202] The reported capacity utilization rate of the subject producer, which remained above *** percent throughout the POI, except for *** percent in interim 2018, is projected to be *** percent in 2019 and *** percent in 2020.[203]

DSM reported arranging for a declining level of subject imports in the imminent future, with such arranged imports remaining below those for most nonsubject sources.[204] Inventories of magnesium held by the subject producer fluctuated during the POI.[205] The U.S. importer's inventories of subject merchandise from Israel increased by *** percent during 2016-2018, and were *** percent higher in interim 2019 compared to interim 2018.[206] However, DSM reports

---

[202] CR/PR at Table VII-2. DSM's production capacity during the POI was *** MT in 2016, *** MT in 2017, *** MT in 2018, *** MT in interim 2018, and *** MT in interim 2019; and is projected to be *** MT in 2019 and *** MT in 2020. *Id*.

As discussed above in Section IV.B.3, DSM states that its ability to increase capacity is limited by the volume of chlorine needed by the ICL Group and the number of active electrolytic cells available to produce magnesium and chlorine. DSM also states that the ICL Group has another internal source of chlorine gas and is increasing the capacity of this plant. DSM also notes that its chlorine production fell from *** between 2016 and 2018, and that its sales to an unrelated customer, ***, declined over this period and are projected to be *** in 2020. DSM's Posthearing Brief at II-4 – II-5; and CR/PR at Table VII-3. DSM adds that the distribution of chlorine gas is highly regulated, due to its toxicity, that the transportation of chlorine gas requires the use of large stationary containers or the installation of pipelines, and that expanding its electrolytic cell count would require added permitting and investments in a new fluid bed dryer and chlorinator at substantial costs. Tr. at 207 (Lerer); DSM's Prehearing Brief at 48; and DSM's Posthearing Brief at II-7 – II-8.

[203] CR/PR at Table VII-2. DSM's capacity utilization rate during the POI was *** percent in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. *Id*.

[204] CR/PR at Table VII-7. DSM's arranged imports were *** MT in the third quarter of 2019, *** MT in the fourth quarter of 2019, and were projected to be *** in the first two quarters of 2020. *Id*. DSM's total arranged imports of *** MT were lower than those reported by importers for all other sources of imports, except for Turkey; total arranged imports from Turkey were *** MT. *Id*.

[205] The subject producer's end-of-period inventories were *** MT in 2016, *** MT in 2017, *** MT in 2018, *** MT in interim 2018, and *** MT in interim 2019. CR/PR at Table VII-2. They are projected to be *** MT in 2019 and *** MT in 2020. *Id*. These inventories were equivalent to *** percent of production in 2016, *** percent in 2017, *** percent in 2018, *** percent in interim 2018, and *** percent in interim 2019. Its projected inventories are equivalent to *** percent of projected production in 2019 and *** percent in 2020. *Id*.

[206] CR/PR at Table VII-6. The U.S. importer's inventories of subject merchandise from Israel were *** MT in 2016, *** MT in 2017, *** MT in 2018, and were higher in interim 2019, at *** MT, compared to interim 2018, at *** MT. The ratio of the U.S. importer's inventories of subject merchandise to U.S. shipments of subject imports was *** percent in 2016, *** percent in 2017, ***

that its U.S. inventories declined after the POI, and were zero in the third quarter of 2019, such that it cannot undertake annual negotiations to provide supply in 2020.[207]

The record shows that DSM exported *** percent of its shipments throughout the POI.[208] Its reliance on the U.S. market, however, declined as it increased shipments to other export markets. DSM's reported share of total shipments that were exported to the United States decreased from *** percent in 2016 to *** in 2017 and *** percent in 2018, and was lower in interim 2019, at *** percent, compared to interim 2018, at *** percent.[209] DSM projects that its share of total shipments exported to the United States will be *** percent in 2019 and *** percent in 2020.[210] It states that it has increased its shipments to ICL Group affiliates in third countries at attractive prices.[211] While we acknowledge that DSM is export-oriented, and that the U.S. market was its single largest export destination during the POI, its shipments to the United States declined as a share of its total shipments and it has limited excess capacity with which to increase exports.[212] Therefore, the record does not suggest the likelihood of substantially increased imports in the imminent future.[213] This is supported by the fact that annual contract sales accounted for the majority of DSM's sales in the U.S. market during the POI, but the pendency of these investigations prevented DSM from engaging in the

---

(…Continued)
percent in 2018, and was higher in interim 2019, at *** percent, compared to interim 2018, at *** percent. *Id*.

[207] DSM's Prehearing Brief at 53.

[208] CR/PR at Table VII-2. Magnesium in the U.S. market is sold mainly from inventory. *See* above discussion at Section IV.B.3.

[209] CR/PR at Table VII-2.

[210] CR/PR at Table VII-2.

[211] DSM's Posthearing Brief at II-10 – II-11, Att. G.

[212] The record indicates that there are no antidumping or countervailing duty orders or investigations concerning magnesium from Israel in any other markets. CR/PR at VII-12.

[213] Petitioner cites a 20-F Disclosure Statement filed by the ICL Group to argue that DSM's annual production capacity was around 33,000 MT, such that it has some 12,000 MT in excess capacity to redirect to the U.S. market. Inasmuch as DSM claims to be limited by the ICL Group's chlorine requirements for its bromine production operations, Petitioner adds that global demand for bromine is growing, and that the ICL Group's stated bromine production capacity, in its 20-F Disclosure Statement, far exceeds DSM's stated magnesium capacity limits. Petitioner's Prehearing Brief at 52-55, Exh. 7; Petitioner's Posthearing Brief at 13-14, Exh. 1, 82-84. DSM contends that the 33,000 MT figure reflects its nameplate capacity, that the 20-F Disclosure Statement explicitly states that actual magnesium production is limited by "demand for chlorine," and that its chlorine production *** from 2016 to 2018. CR/PR at Table VII-3; DSM's Posthearing Brief at II-3 – II-6. While the record is unclear as to the proper measure of capacity, subject imports decreased during the POI in terms of volume and market share, despite any alleged excess capacity. There is nothing in the record to suggest a change in the conditions of competition that would likely cause DSM to significantly alter its production operations and increase shipments to the United States. Accordingly, we find that even if the subject industry has additional capacity, the record does not indicate that it would direct substantial additional quantities of magnesium to the United States.

2020 annual contract negotiations during the fourth quarter of 2019.[214] Consequently, DSM's sales in the imminent future will likely be significantly restricted by its lack of contracts.

DSM did not report the production of *** out-of-scope products on the same equipment and machinery used to produce magnesium, such that the potential for product shifting by the subject industry is unlikely.[215]

Given the declining volume and market share of subject imports in the U.S. market during the POI, the subject industry's high capacity utilization rates, the depleted U.S. inventories of the subject merchandise, the subject industry's declining U.S. exports and increasing shipments to third country markets, and the lack of potential for product-shifting, we do not find a likelihood of substantially increased subject imports in the imminent future.[216]

2. Likely Price Effects

As discussed above in Section IV.D, we have found that subject imports predominantly oversold the domestic like product in quarterly price comparisons, and for an *** portion of subject import sales volume, such that they are not currently having significant adverse price effects. In light of our finding that there is not a likelihood of substantially increased subject imports in the imminent future, there is not a likelihood that the volume of subject imports and consequently their pricing patterns will change appreciably in the imminent future.

We have found that declining demand, low-priced nonsubject import competition, and intra-industry competition exerted downward pressure on prices for magnesium. We did not find, however, that any declines in prices for magnesium observed during the POI were substantially caused by subject imports, nor did we find that subject imports prevented price increases for the domestic like product that otherwise would have occurred. Given that subject import volume and pricing patterns are unlikely to change appreciably in the imminent future, and the absence of significant adverse price effects during the POI, this lack of adverse effects will likely continue. Accordingly, we find that imports of subject merchandise are unlikely to

[214] DSM's Prehearing Brief at 52-53 and Att. I.

[215] CR/PR at VII-6.

[216] In our analysis, we have considered the nature of the subsidies Commerce has found to be countervailable, particularly whether the countervailable subsidies are ones described in Articles 3 or 6.1 of the WTO Agreement on Subsidies and Countervailing Measures ("ASCM"), and whether imports of the subject merchandise are likely to increase. 19 U.S.C. § 1677(7)(F)(i)(I). We observe that Commerce found eight countervailable subsidy programs. *Magnesium From Israel: Final Affirmative Countervailing Duty Determination*, 84 Fed. Reg. 65785 (Nov. 29, 2019); Commerce Memorandum from James Maeder to Jeffrey I. Kessler, Issues and Decision Memorandum for the Final Determination in the Countervailing Duty Investigation of Magnesium from Israel, EDIS Doc. 697082 (Nov. 21, 2019) at 4-5. Notwithstanding Petitioner's argument that the lack of a home market for DSM renders these programs, in effect, export subsidies, we observe that Commerce did not report any of these programs to be export subsidies or otherwise among the ones described in ASCM Articles 3 or 6.1. We have taken these subsidy findings into account in our analysis of likely subject import volume. Particularly probative for this analysis is the information provided in the text concerning subject import trends during the POI.

enter at prices that would be likely to have a significant depressing or suppressing effect on domestic prices, or are likely to increase demand for such imports.

3. Likely Impact

As discussed above, we have found that the volume of subject imports is not likely to increase significantly in the imminent future. Further, subject imports are not likely to significantly undersell the domestic like product and are not entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices. While the domestic industry's performance declined throughout most of the POI, we have discussed in Section IV.E. that the domestic industry's fluctuations in output and financial performance measures mirrored or tracked changes in apparent U.S. consumption during the POI. We also discussed the role of low-priced nonsubject import competition and intra-industry competition in exerting additional downward pressure on prices for magnesium.[217] [218]

In view of the foregoing, we find that subject imports are not likely to have a significant adverse impact so as to threaten material injury to an industry in the United States in the imminent future.

VI. Conclusion

For the reasons stated above, we determine that an industry in the United States is not materially injured or threatened with material injury by reason of subject imports of magnesium from Israel that are sold in the United States at LTFV and that are subsidized by the government of Israel.

[217] For these reasons, we find that subject imports, which did not have a significant adverse impact on the domestic industry during the POI, are not likely to have an actual or potential negative effect on the domestic industry's existing development and production efforts.

[218] Moreover, the record does not show that there are other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of subject imports.

Part I: Introduction

Background

These investigations result from petitions filed with the U.S. Department of Commerce ("Commerce") and the U.S. International Trade Commission ("USITC" or "Commission") by US Magnesium LLC ("US Magnesium"), Salt Lake City, Utah, on October 24, 2018, alleging that an industry in the United States is materially injured and threatened with material injury by reason of subsidized and less-than-fair-value ("LTFV") imports of magnesium[1] from Israel. The following tabulation provides information relating to the background of these investigations.[2] [3]

Effective date	Action
October 24, 2018	Petitions filed with Commerce and the Commission; institution of the Commission's investigations (83 FR 54778, October 31, 2018)
November 13, 2018	Commerce's notice of initiation AD (83 FR 58533, November 20, 2018); Commerce' notice of initiation CVD (83 FR 58529, November 20, 2018)
December 11, 2018	Commission's preliminary determinations
May 8, 2019	Commerce's preliminary determination CVD (84 FR 20092)
July 9, 2019	Commerce's preliminary determination AD (84 FR 32712); scheduling of final phase of Commission investigations (84 FR 38057, August 5, 2019)
November 21, 2019	Commission's hearing
November 29, 2019	Commerce's final determination CVD (84 FR 65785); Commerce's final determination AD (84 FR 65781)
December 18, 2019	Commission's vote
January 13, 2020	Commission's determination and views

[1] See the section entitled "The Subject Merchandise" in Part I of this report for a complete description of the merchandise subject in this proceeding.

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

[3] A list of witnesses appearing at the conference is presented in appendix B of this report.

Statutory criteria

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

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

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

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

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

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

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

Organization of report

Part I of this report presents information on the subject merchandise, subsidy and dumping margins, and domestic like product. Part II of this report presents information on conditions of competition and other relevant economic factors. Part III presents information on the condition of the U.S. industry, including data on capacity, production, shipments, inventories, and employment. Parts IV and V present the volume of subject imports and pricing of domestic and imported products, respectively. Part VI presents information on the financial experience of U.S. producers. Part VII presents the statutory requirements and information obtained for use in the Commission's consideration of the question of threat of material injury as well as information regarding nonsubject countries.

Market summary

Magnesium is used in a variety of applications, including as an alloying element in the production of aluminum; in the production of cast and wrought products; in iron and steel desulfurization; as a reducing agent in the production of titanium and other nonferrous metals; in defense applications such as flares; and in various chemical and electrochemical applications. The leading U.S. producers of magnesium are US Magnesium, Advanced Magnesium Alloy Corporation ("AMACOR"), and MagPro LLC ("Magpro"), while the sole producer of magnesium from Israel is Dead Sea Magnesium Ltd ("DSM"). The leading U.S. importer of magnesium from Israel is also DSM. Leading importers of magnesium from nonsubject countries include ***. U.S. purchasers of magnesium include firms that produce aluminum products; leading purchasers include ***.

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

Apparent U.S. consumption of magnesium totaled approximately *** in 2018. Currently, seven[6] firms are known to produce magnesium in the United States. U.S. producers' U.S. shipments of magnesium totaled *** in 2018, and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments of imports from subject sources totaled *** in 2018 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. importers' U.S. shipments of imports from nonsubject sources totaled *** in 2018 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value.

Summary data and data sources

A summary of data collected in these investigations is presented in appendix C, table C-1. Except as noted, U.S. industry data are based on questionnaire responses of five firms that accounted for over 80 percent of U.S. production of magnesium during 2017.[7] U.S. imports are based on data submitted in response to Commission questionnaires provided by 14 firms accounting for over 80 percent of U.S. imports of magnesium in 2018, including all such imports from Israel.

Previous and related investigations

Antidumping and countervailing duty investigations

As a result of a petition filed on October 17, 2000, on behalf of Magcorp, Salt Lake City, Utah, the United Steel Workers of America ("USWA"), Local 8319, Salt Lake City, Utah, and the USWA International, the Commission conducted countervailing and antidumping duty investigations concerning magnesium from Israel. On November 13, 2001, the Commission determined that an industry in the United States was not materially injured or threatened with material injury, and the establishment of an industry in the United States was not materially retarded by reason of imports from Israel of pure magnesium provided for in subheadings

[6] The Preliminary phase staff report for these investigations notes nine firms are known to produce magnesium in the United States. Two of those firms, Opta Minerals and its subsidiary, ESM, confirmed ***. ***

[7] Based on estimates provided in the petition using the latest available data. ***

8104.11.00, 8104.19.00, and 8104.30.00 of the HTSUS, that had been found by the Commerce to be sold in the United States at LTFV and to be subsidized by the Government of Israel.[8]

As shown in table I-1, the Commission has conducted a series of countervailing and antidumping duty investigations regarding magnesium from Canada, China, Israel, Norway, Russia, and Ukraine. Currently China is under separate antidumping duty orders concerning pure magnesium, alloy magnesium, and granular magnesium.

Table I-1
Magnesium: Actions taken by the Commission and Commerce

Date	Action	Cited Federal Register Notice
Canada:		
August 26, 1992	Commission's affirmative determinations in 701-TA-309 and 731-TA-528 (Final)	57 FR 38696
August 31, 1992	Countervailing duty ("CVD") orders issued (C-122-814) *(pure and alloy ingot)*	57 FR 39390
August 31, 1992	Antidumping duty ("AD") order issued (A-122-814) *(pure ingot)*	57 FR 39392
August 2, 1999	Institution of first five-year reviews of AD and CVD orders (full)	64 FR 41961
August 2, 2000	Commission's affirmative determinations in first five-year reviews	65 FR 47517
August 16, 2000	Continuation of AD and CVD orders	65 FR 49964
December 7, 2004	Revocation of AD order	69 FR 70649
July 1, 2005	Institution of second five-year reviews of CVD orders (full)	70 FR 38199
June 26, 2006	Commission's negative CVD determinations in second five-year reviews	71 FR 36359
July 6, 2006	Revocation of CVD orders	71 FR 38382
China (Inv. No. 731-TA-696):		
May 17, 1995	Commission's affirmative determination in 731-TA-696 (Final)	60 FR 26456
May 12, 1995	AD order issued (A-570-832) (*pure ingot*)	60 FR 25691
April 3, 2000	Institution of first five-year review (expedited)	65 FR 17531
September 12, 2000	Commission's affirmative determination in first five-year review	65 FR 55047
October 27, 2000	Continuation of AD order	65 FR 64422
July 10, 2005	Institution of second five-year review (full)	70 FR 38101
June 26, 2006	Commission's affirmative determination in second five-year review	71 FR 36359
July 10, 2006	Continuation of AD order	71 FR 38860
June 1, 2011	Institution of third five-year review (expedited)	76 FR 31635
November 8, 2001	Commission's affirmative determination in third five-year review	76 FR 69284
November 11, 2011	Continuation of AD order	76 FR 72172
October 3, 2016	Institution of fourth five-year review (expedited)	81 FR 68046
April 10, 2017	Commission's affirmative determination in fourth five-year review	82 FR 17280
April 17, 2017	Continuation of AD order	82 FR 17280

Table continued on next page.

[8] 66 FR 58162, November 20, 2001.

Table I-1 Continued
Magnesium: Actions taken by the Commission and Commerce

Date	Action	Cited Federal Register Notice
China (Inv. No. 731-TA-895):		
November 20, 2001	Commission's affirmative determination in 731-TA-895 (Final)	66 FR 58162
November 19, 2001	AD order issued (A-570-864) (*pure granular*)	66 FR 57936
October 2, 2006	Institution of first five-year review (expedited)	71 FR 58001
March 7, 2007	Commission's affirmative determination in first five-year review	72 FR 10258
March 26, 2007	Continuation of AD order	72 FR 14076
February 1, 2012	Institution of second five-year review (expedited)	77 FR 5049
October 1, 2012	Commission's affirmative determination in second five-year review	77 FR 59979
October 17, 2012	Continuation of AD order	77 FR 63787
September 1, 2017	Institution of third five-year review (expedited)	82 FR 41651
March 5, 2018	Commission's affirmative determination in third five-year review (expedited)	83 FR 9337
March 12, 2018	Continuation of AD order	83 FR 10676
China (Inv. No. 731-TA-1071):		
April 15, 2005	Commission's affirmative determination in 731-TA-1071 (Final)	70 FR 19969
April 15, 2005	AD order issued (A-570-896) *(alloy)*	70 FR 19928
March 1, 2010	Institution of first five-year review (full)	75 FR 9252
March 3, 2011	Commission's affirmative determination in first full five-year review	76 FR 11813
March 11, 2011	Continuation of AD order	76 FR 13356
February 1, 2016	Institution of second five-year review (expedited)	81 FR 5136
July 7, 2016	Commission's affirmative determination in second five-year review	81 FR 44328
July 21, 2016	Continuation of AD order	81 FR 47351
Israel:		
October 25, 2000	Commission's institution of 701-TA-403 and 731-TA-896 (Preliminary)	65 FR 63888
November 20, 2001	Commission's negative determinations in 701-TA-403 and 731-TA-896 (Final)	66 FR 58162
Norway:		
September 12, 1991	Commission's institution of 701-TA-310 and 731-TA-529 (Preliminary) 09/12/1991 56 FR 46443	56 FR 46443
October 1, 1991	Commerce's dismissal of CVD petition and termination of CVD proceeding 10/01/1991 56 FR 49748	56 FR 49748
October 23, 1991	Commission's termination of CVD investigation (701-TA-310 (Preliminary)) 10/23/1991 56 FR 54887	56 FR 54887
July 13, 1992	Commerce's final negative AD determination (A-403-803) *(pure)* and rescission of investigation and partial dismissal of petition (*alloy*)	57 FR 30942
Russia (731-TA-697):		
May 12, 1995	AD issued (A-821-805) *(pure ingot)*	60 FR 25691
May 17, 1995	Commission's affirmative determination in 731-TA-697 (Final)	60 FR 26456
April 3, 2000	Institution of five-year review (expedited)	65 FR 17531
July 7, 2000	Revocation of AD order	65 FR 41944
July 17, 2000	Termination of five-year review	65 FR 44076

Table continued on next page.

Table I-1 Continued
Magnesium: Actions taken by the Commission and Commerce

Date	Action	Cited Federal Register Notice
Russia (731-TA-897):		
October 25, 2000	Institution of 731-TA-897 (Preliminary)	65 FR 63888
September 27, 2001	Commerce's negative final AD determination (A-821-813) (*pure ingot and granules*)	66 FR 49347
October 4, 2001	Commission terminates 731-TA-897 (Final)	66 FR 50680
Russia (731-TA-1072):		
April 15, 2005	Commission's affirmative determination in 731-TA-1072 (Final)	70 FR 19969
April 15, 2005	AD order issued (A-821-819) (*pure and alloy*)	70 FR 19930
March 1, 2010	Institution of first five-year review (full)	75 FR 9252
March 3, 2011	Commission's negative determination in first five-year review	76 FR 11813
March 10, 2011	Revocation of the AD order	76 FR 13128
Ukraine:		
May 17, 1995	Commission's affirmative determination in 731-TA-698 (Final)	60 FR 26456
May 12, 1995	AD order issued (A-823-806) (*pure ingot*)	60 FR 25691
June 1998	Commission's negative determination on remand	N/A
August 24, 1999	Revocation of the AD order	64 FR 46182

Note: Canada – Excluded from the AD and CVD orders on magnesium from Canada was Timminco Canada. On October 7, 2004, an Extraordinary Challenge Committee issued a determination which affirmed the final remand opinion of the NAFTA Binational panel concerning alloy magnesium from Canada (69 FR 67703, November 19, 2004). Subsequently, Commerce revoked the AD order on pure magnesium ingot from Canada retroactively effective August 1, 2000. Commerce revoked the CVD orders on pure and alloy magnesium ingot from Canada retroactively effective August 16, 2005 after the Commission's negative second five-year review determinations.

Note: China (66 FR 58162) – The Commission made a negative determination with respect to alloy magnesium.

Note: China (Inv. No. 731-TA-1071) – In its original determination and its expedited first five-year review determination, Commerce found the weighted-average AD margin for Tianjin Magnesium International Co., Ltd. and Beijing Guangling Jinghua Science & Technology Co., Ltd. to be 49.66 percent *ad valorem* and 141.49 percent *ad valorem* for all other manufacturers and exporters in China (70 FR 19928, April 15, 2005; and 75 FR 38983, July 7, 2010).

Note: Russia (731-TA-697) – The Commission made a negative determination with respect to alloy magnesium. On September 5, 2000, Commerce issued a correction to the revocation order making the effective date of revocation May 12, 2000, the fifth anniversary of the date of publication of the original order (65 FR 53700, September 5, 2000).

Note: Ukraine (60 FR 26456) – The Commission made a negative determination with respect to alloy magnesium.

N/A – No corresponding *Federal Register* citation.

Source: Cited *Federal Registe*r Notices.

Other investigations

On December 17, 1999, the Commission received a request from the United States Trade Representative ("USTR") for an investigation under section 332(g) of the Tariff Act of 1930 for the purpose of providing advice concerning possible modifications to the U.S. Generalized System of Preferences ("GSP") for several products including alloy and granular magnesium. Subsequently, on December 23, 1999, the Commission instituted an investigation No. 332-410. After a public hearing was held on February 2, 2000, the Commission presented its advice to the USTR on March 16, 2000. In a Presidential Proclamation of June 29, 2000, the President added granular magnesium to the list of GSP-eligible articles.

Overview on Section 232 and Section 301 proceedings

Magnesium is currently not covered by any trade action taken under section 232 of the Trade Expansion Act of 1962, as amended (19 U.S.C. 1862). During the 232 proceeding on aluminum, however, US Magnesium requested that domestically produced magnesium necessary to supply the domestic aluminum industry be included in any relief given to the industry. Magnesium was not covered in Commerce's report, although products that use magnesium are covered.

On April 26, 2017, Commerce initiated an investigation under section 232 to determine the effects on the national security of imports of aluminum. A public hearing in this investigation was held on June 23, 2017. On January 19, 2018, the Secretary of Commerce transmitted to the President Commerce's report of its findings and remedy recommendations on U.S. aluminum imports. On March 8, 2018, the President announced his decision to impose 10 percent ad valorem duties on U.S. imports of various aluminum products.

On August 18, 2017, the Office of the U.S. Trade Representative ("USTR") initiated an investigation into certain acts, policies, and practices of the government of China related to technology transfer, intellectual property and innovation. On April 6, 2018, the USTR, pursuant to Section 301(b) of the Trade Act of 1974 (19 U.S.C. 2411), determined it was appropriate to impose a 25 percent ad valorem duty on certain products from China. Additional duties were applied in two tranches to include 818 tariff subheadings and 279 tariff subheadings. On August 7, 2018, the USTR announced that supplemental action may be taken to impose additional duties on imports from China, and subsequently held a 6-day public hearing from August 20-27, 2018. On September 21, 2018, the USTR modified its section 301 tariff to impose additional duties on products imported from China to include magnesium raspings, turnings and granules graded according to size; and magnesium powers. The initial duty rate on or after September 24, 2018 is 10 percent ad valorem with an increase to 25 percent ad valorem on January 1,

2019. On October 1, 2019, USTR proposed modifying the duty rate from 25 percent to 30 percent ad valorem.[9] The proposed modification was then delayed to October 15, 2019.[10] As of October 11, 2019, the proposed modification was halted due to ongoing trade negotiations.[11]

Nature and extent of subsidies and sales at LTFV

Subsidies

On November 29, 2019, Commerce published a notice in the *Federal Register* of its final determination of countervailable subsidies for producers and exporters of magnesium from Israel.[12] Table I-2 presents Commerce's findings of subsidization of magnesium from Israel.

Table I-2
Magnesium: Commerce's preliminary and final subsidy determinations with respect to imports from Israel

Entity	Preliminary countervailable subsidy margin (percent)	Final countervailable subsidy margin (percent)
Dead Sea Magnesium, Ltd	7.48	13.77
All others	7.48	13.77

Source: 84 FR 20092, May 8, 2019 and 84 FR 65785, November 29, 2019.

Sales at LTFV

On November 29, 2019, Commerce published a notice in the *Federal Register* of its Final determination of sales at LTFV with respect to imports from Israel.[13] Table I-3 presents Commerce's dumping margins with respect to imports of magnesium from Israel.

[9] 84 FR 46212, September 3, 2019.

[10] "Trump Agrees to 2-Week Delay in China Tariff Increase," *Associated Press*, September 11, 2019, https://www.apnews.com/402432900d664584906126818d0257c9; and Melissa Leon, "Trump Delays Tariff Increase on $250B in Chinese Goods for Two Weeks to Oct. 15," *Fox News*, September 11, 2019, https://www.foxnews.com/politics/trump-delays-tariff-increase-250-billion-in-chinese-goods-gesture-of-good-will.

[11] James Politi and Richard Henderson, "US Agrees Limited Trade Deal with China," *Financial Times,* October 11, 2019, https://www.ft.com/content/28cc18f0-ec61-11e9-a240-3b065ef5fc55; and David J. Lynch, "Trump Announces Partial Trade Deal with China, Lifting Hopes That Tensions Could Ease," *The Washington Post,* October 11, 2019, https://www.washingtonpost.com/business/2019/10/11/us-stocks-poised-big-bounce-expectations-grow-us-china-trade-deal/.

[12] 84 FR 20092, May 8, 2019.

[13] 84 FR 32712, July 9, 2019.

Table I-3
Magnesium: Commerce's preliminary and final weighted-average LTFV margins with respect to imports from Israel

Exporter	Producer	Preliminary dumping margin (percent)	Final dumping margin (percent)
Dead Sea Magnesium, Ltd	Dead Sea Magnesium, Ltd	193.24	218.98
All others		193.24	218.98

Source: 84 FR 32712, July 09, 2019 and 84 FR 65781, November 29, 2019.

The subject merchandise

Commerce's scope

In the current proceeding, Commerce has defined the scope as follows:[14]

Primary and secondary pure and alloy magnesium metal, regardless of chemistry, raw material source, form, shape, or size. Magnesium is a metal or alloy containing by weight primarily the element magnesium. Primary magnesium is produced by decomposing raw materials into magnesium metal. Secondary magnesium is produced by recycling magnesium-based scrap into magnesium metal. The magnesium covered by this investigation also includes blends of primary magnesium, scrap, and secondary magnesium.

The subject merchandise includes the following pure and alloy magnesium metal products made from primary and/or secondary magnesium, including, without limitation, magnesium cast into ingots, slabs, t-bars, rounds, sows, billets, and other shapes, and magnesium ground, chipped, crushed, or machined into raspings, granules, turnings, chips, powder, briquettes, and other shapes: (1) products that contain at least 99.95 percent magnesium, by weight (generally referred to as "ultra-pure" or "high purity" magnesium); (2) products that contain less than 99.95 percent but not less than 99.8 percent magnesium, by weight (generally referred to as "pure" magnesium); and (3) chemical combinations of magnesium and other material(s) in which the magnesium content is 50 percent or greater, but less than 99.8 percent,

[14] 84 FR 32712, July 9, 2019.

by weight, whether or not conforming to an "ASTM Specification for Magnesium Alloy."

The scope of this investigation excludes: (1) magnesium that is in liquid or molten form; and (2) mixtures containing 90 percent or less magnesium in granular or powder form by weight and one or more of certain non-magnesium granular materials to make magnesium-based reagent mixtures, including lime, calcium metal, calcium silicon, calcium carbide, calcium carbonate, carbon, slag coagulants, fluorspar, nephaline syenite, feldspar, alumina (A1203), calcium aluminate, soda ash, hydrocarbons, graphite, coke, silicon, rare earth metals/mischmetal, cryolite, silica/fly ash, magnesium oxide, periclase, ferroalloys, dolomite lime, and colemanite.

Tariff treatment

Based upon the scope set forth by Commerce, information available to the Commission indicates that the merchandise subject to these investigations is provided for in the following provisions of the Harmonized Tariff Schedule of the United States ("HTS"): 8104.11.00 (pure magnesium ingots); 8104.19.00 (alloy magnesium ingots); and 8104.30.00 (magnesium granules).

The 2019 column-1 general rate of duty is 8 percent ad valorem for subheading 8104.11.00; 6.5 percent for subheading 8104.19.00; and 4.4 percent for subheading 8104.30.00.[15] The special rate of duty for magnesium produced in Israel under the United States-Israel Free Trade Area is free for all subject subheadings, where this treatment is properly claimed by the importer. Decisions on the tariff classification and treatment of imported goods are within the authority of U.S. Customs and Border Protection.

The product

Description and applications[16]

Magnesium, the eighth most abundant element in the earth's crust and the third most plentiful element dissolved in seawater, is a silver-white metallic element. It is the lightest of all

[15] USITC, Chapter 81 of the HTSUS Tariff Schedule, 2018 HTSA Basic Edition.

[16] Unless otherwise noted, information in this section is based on *Pure Granular Magnesium from China, Inv. Nos. 731-TA-895 (Third Review),* USITC Publication 4761, February 2018, pp. I-15-18.

structural metals with a density approximately 63 percent of that of aluminum, the principal metal with which it competes in the U.S. market. Magnesium's light weight and high vibrational-dampening properties have encouraged the development of magnesium-based alloys with improved physical and mechanical properties for use as a structural metal in applications where minimizing weight is an important design consideration. The principal end-uses for magnesium in the United States in 2018 were, in descending order, die casting, aluminum alloying, iron and steel desulfurization, and metals production from reduction processes.[17] Magnesium is available in two principal forms: pure[18] and alloy.

Pure magnesium

Pure magnesium in unwrought form[19] contains at least 99.8 percent magnesium by weight, and includes both ultra-pure or ultra-high purity ("UHP") and commodity-grade magnesium.[20] Pure magnesium is widely used in commercial and industrial applications because it is easily machined and lightweight, has a high strength-to-weight ratio, and has beneficial chemical and electrical properties. Its metallurgical and chemical properties allow pure magnesium to readily alloy with metals, such as aluminum. Pure magnesium is typically sold to end users who then combine it with other elements for use in a final product. Generally, a magnesium ingot in its pure state has little direct commercial application except when alloyed. Pure magnesium is typically used in the production of aluminum alloys for use in beverage cans, die cast automotive parts, and iron and steel desulfurization; as a reducing agent for various other nonferrous metals (e.g., titanium, zirconium, hafnium, uranium, and beryllium); and in magnesium anodes for the protection of iron and steel in underground pipe and water tanks and other various marine applications. Pure magnesium is also used in the

[17] Bray, E. Lee, "Magnesium Metal," *2019 Mineral Commodity Summary*, United States Geological Survey (USGS), February 2019, p. 102.

[18] Unless otherwise noted, the term "pure magnesium" applies to pure magnesium ingot and pure granular magnesium.

[19] "Unwrought" magnesium is pure magnesium that has not been worked in any way. "Wrought" magnesium is magnesium that has been worked into a desired shape, for example the working of the magnesium to produce extrusions, rolled product, forgings, etc.

[20] Ultra-high purity ("UHP") magnesium is unwrought magnesium containing at least 99.95 percent magnesium by weight and is used principally as a reagent in the pharmaceutical and chemical industries. UHP magnesium has a maximum of 500 parts per million of residual materials. Commodity-grade pure magnesium is unwrought magnesium containing at least 99.8 percent magnesium but less than 99.95 percent magnesium by weight and is most commonly used in the aluminum alloying industry. Commodity-grade pure magnesium has a maximum of 2,000 parts per million of residual materials.

production of titanium sponge, which is a precursor metal product in the production of titanium metal products for use in aerospace, medical, and industrial applications.

Magnesium alloy

Magnesium alloy (or alloy magnesium) consists of chemical combinations of magnesium and other metals (typically aluminum and zinc) and contains less than 99.8 percent magnesium by weight but more than 50 percent magnesium by weight, with magnesium being the largest metallic element in the alloy by weight. Alloy magnesium is typically produced to meet various industry-recognized American Society for Testing and Materials ("ASTM") specifications for alloy magnesium, such as AM50A, AM60B, and AZ91D.[21] Magnesium alloy has a high strength-to-weight ratio and is easily machined, making it ideal for use in a number of structural components; for example, the alloying elements contained in magnesium alloy are critical in imparting to the product the structural characteristics necessary for use in die-casting applications. Thus, it is principally used in structural applications, primarily in castings (die, permanent mold, and sand) and extrusions for the automotive industry. Magnesium alloy has certain properties that improve its strength, ductility, workability, corrosion resistance, density, or castability compared to pure magnesium. In contrast, pure magnesium is not used in structural applications because of its low tensile and yield strengths.

Off-specification pure magnesium

Off-specification pure magnesium is pure primary magnesium that also contains magnesium scrap, secondary magnesium, oxidized magnesium, or impurities (whether or not intentionally added) that cause the primary magnesium content to fall below 99.8 percent of weight. Off-specification pure magnesium products contain between 50 percent and 99.8 percent primary magnesium by weight; do not conform to ASTM specifications for magnesium alloy; and generally do not contain individually or in combination 1.5 percent or more, by weight, any of the following alloying elements: aluminum, manganese, zinc, silicon, thorium, zirconium, and rare earths. Typically, producers do not set out to produce off-specification pure magnesium. Rather, its production results from stopping and re-starting, or some malfunction in, the primary magnesium production process, or some malfunction in the production process.

[21] The ASTM specifications designate the chemical composition of the alloy. The first two letters designate the two alloying elements most prevalent in the alloy (e.g., "A" for aluminum, "M" for manganese, or "Z" for zinc), while the numbers represent the percent of other elements contained in the alloy, by weight. For example, AZ91D contains 9 percent aluminum, 1 percent zinc, and 90 percent magnesium.

Primary versus secondary magnesium

Primary magnesium refers to unwrought magnesium metal shapes (typically ingots) which are produced by decomposing virgin raw materials into magnesium metal. Secondary magnesium is pure or magnesium alloy that is produced by recycling (or melting) magnesium-based scrap. Most primary and secondary magnesium alloy is similar physically or chemically. However, primary pure magnesium is not used in automotive die castings. Only primary alloy magnesium and higher purity secondary magnesium alloy, typically produced from scrap recovered from used automotive parts, is acceptable for use in automotive die-casting applications.

Magnesium scrap

Magnesium scrap is typically separated into two categories, depending upon its origin. Old (postconsumer) scrap becomes available to producers of secondary magnesium when durable and nondurable consumer products are discarded from end-use categories, such as packaging, building and construction, consumer durables (such as automobiles), electrical, and machinery and equipment, etc.

New (process) scrap is metal that never reaches the consumer, but rather is generated by fabricators in the process of converting wrought and cast products into consumer or industrial products. Home scrap is new scrap that is recycled within the company generating the scrap and seldom enters the commercial secondary magnesium market. Prompt scrap is new scrap from a fabricator that does not recycle the scrap. This scrap then enters the secondary magnesium market. New scrap may include solids, clippings, stampings, and cuttings; borings and turnings that are generated during machining operations; and melt residues, such as skimmings, drosses, spillings, and sweepings.

Cast versus granular magnesium

Cast magnesium is the solid, cooled form (ingots) of molten magnesium metal. Most pure and magnesium alloy ingots are sold in standard bar sizes ranging in weight from 12 to 500 pounds per bar. Ingots may vary in dimension as some die casters require bars of certain dimensions to fit the specific configuration of their furnaces. Granular magnesium is cast magnesium that has been ground, chipped, crushed, machined, or atomized into raspings, granules, turnings, chips, powder, or briquettes and is different from cast magnesium in size, dimensions, and shape. Granular magnesium includes all non-molten physical forms of magnesium other than castings. Although the chemical compositions of cast magnesium and granular magnesium are identical, granular magnesium is much more volatile than cast

magnesium.[22] Granular magnesium may either be pure or magnesium alloy. However, based on information obtained from previous investigations of granular magnesium from China, granular magnesium is typically pure magnesium or off-specification pure magnesium. Die casters sometimes require magnesium in the form of ingots as an input for their furnace. Other die casters can purchase ingots and granular primary magnesium alloy for use in magnesium alloy castings, and/or recycle scrap magnesium generated in their die-casting operations into secondary magnesium alloy.[23] Granular magnesium, on the other hand, is typically used in the production of magnesium-based desulfurizing reagent mixtures that are used in the steelmaking process to reduce the sulfur content of steel.[24] Lesser amounts of granular magnesium are used in defense applications, such as military ordnance and flares.

Manufacturing processes[25]

Primary magnesium

Worldwide, most magnesium is derived from magnesium-bearing ores—dolomite, (calcium-magnesium carbonite), magnesite (magnesium carbonate), brucite (magnesium hydroxide), and olivine (iron-magnesium silicate)— seawater, well, and lake brines.[26] Large deposits of dolomite are widely distributed throughout the world, and are mined by open-pit methods. However, in the United States, US Magnesium produces primary magnesium by extracting magnesium from brines of the surface waters of the Great Salt Lake in Utah.

Magnesium metal is normally produced by either an electrolytic process or a silicothermic process. Most of the world's production of magnesium uses the silicothermic

[22] Granular magnesium requires special handling due to its volatility.

[23] Normally, die-casting companies pay to have magnesium metal slivers removed because they are difficult to recycle, but some facilities have a process to economically recycle the turnings. Kramer, Deborah A., Mineral Industry Surveys, Magnesium in the First Quarter 2011, USGS, May 2011.

[24] Firms that grind magnesium ingots into granular form are known as "grinders." U.S. grinders typically sell three different steel desulfurization blends: (1) containing 90 percent pure magnesium powder and 10 percent lime (calcium oxide); (2) containing 25 percent magnesium and 75 percent lime; and (3) containing 8-10 percent magnesium with the remainder lime and calcium carbonate. Fluorspar (calcium fluoride) and a fluidizer are also incorporated in these products.

[25] Unless otherwise noted, information in this section is based on *Pure Granular Magnesium from China, Inv. No. 731-TA-895 (Third Review),* USITC Publication 4761, February 2018, pp. I-18-22.

[26] The magnesium content of magnesium-bearing ores typically ranges from nearly 22 percent for dolomite to 69 percent for brucite. The magnesium content of seawater is 0.13 percent, which is much lower than that of the lowest grade of magnesium ore deposits; however, seawater has the advantage of being abundant, accessible, and extremely uniform in its magnesium content, allowing for easier standardization of the refining process.

process. In previous investigations, the silicothermic process was reported to be less cost-effective than the electrolytic process for production of magnesium.[27]

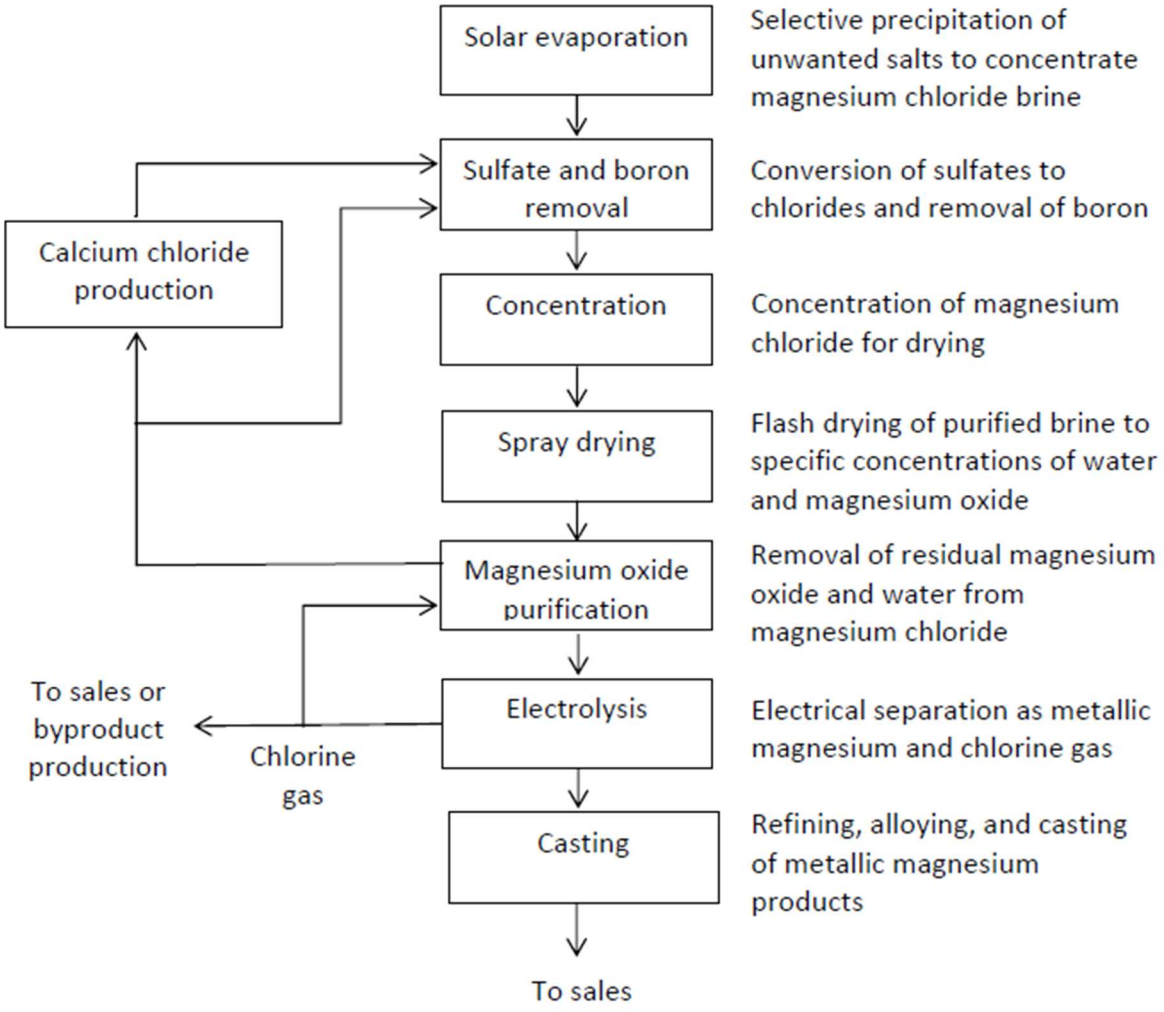
US Magnesium uses the electrolytic method to produce magnesium. Figure I-1 is a schematic diagram of US Magnesium's production process. In the electrolytic process, seawater or brine is evaporated and treated to produce a concentrated solution of magnesium chloride, which is further concentrated and dried to yield magnesium chloride powder.[28] The powder is then melted, further purified, and fed into electrolytic cells operating at 700 degrees Celsius. Direct electrical current is sent through the cells to break down the magnesium chloride into chlorine gas and molten magnesium metal.[29] The metal rises to the surface where it is guided into storage wells and cast into ingots.

[27] *Pure Granular Magnesium from China, Inv. No. 731-TA-895 (Third Review),* USITC Publication 4761, February 2018, p. I-22; and ***.

[28] The electrolytic cells are large steel boxes with ceramic lining – wherein electrolyzed molten magnesium chloride separates to produce magnesium metal and chloride gas. The process for replacing electrolytic cells involves the deconstruction of the ceramic linings and mortars to strip the cell down to the steel envelopment via jack hammers. Electrolytic cells have an optimal productive lifespan of approximately five years, after which cells begin to deteriorate with lower cell productivity and higher replacement costs. The cost to replace electrolytic cells is between $650,000 and $700,000 per cell ***. Installing new capacity requires an additional expense of $500,000 to include an upstream chlorinator (DSM's postconference brief, p. 1).

[29] The electrolytic cells must be kept in constant operation. If they are shut down, a "refractory lining" requires rebuilding, which is costly and time consuming ***.

Figure I-1
Magnesium: Schematic diagram of US Magnesium's production process flow chart



Source: *Pure Granular Magnesium from China, Inv. Nos. 731-TA-895 (Third Review)*, USITC Publication 4761, February 2018, pp. I-18-22.

Once the electrolytic or silicothermic reduction of magnesium is completed, the manufacturing processes used for the production of both pure and magnesium alloy ingot are very similar. In US Magnesium's facility, which produces both pure and alloy magnesium, the same production employees work on both lines.[30]

[30] ***.

Both primary pure and alloy magnesium begin with the production of molten pure magnesium. For US Magnesium, the production process for the pure and magnesium alloy is identical to the point when alloys are added to the molten pure magnesium to make magnesium alloy. US Magnesium makes both pure and alloy magnesium using the same machinery, equipment, and workers. Molten pure magnesium is either cast directly into pure magnesium ingots or alloyed by the addition of alloying elements (typically aluminum and zinc) and scrap magnesium and then cast to produce magnesium alloy ingots. In previous cases, US Magnesium reported that the amount of value added to the magnesium in the alloying phase is small.[31]

Primary magnesium is typically cast into ingots or slabs. Aluminum producers typically purchase larger pure cast shapes such as rounds, billets, peg-lock ingots, or t-bars. Producers of magnesium powder for steel desulfurization applications typically purchase smaller ingots or magnesium "chips" that are then ground into powder[32] and used internally to produce magnesium-based reagent mixtures or, to a lesser extent, pyrotechnic products. Die casters purchase ingots and granular primary magnesium alloy for use in magnesium alloy castings, and/or recycle scrap magnesium generated in their die casting operations into secondary magnesium alloy. The production facilities, processes, and employees of cast and granular magnesium do not overlap. Primary and secondary producers of cast magnesium in ingot form extract magnesium from raw materials or scrap and cast it into magnesium ingots or slabs. Granular production facilities (known as "grinders") purchase cast magnesium in ingot form, transform the physical shape by grinding it, and then sell powdered/granule magnesium to end users.[33]

---

[31] *Pure Granular Magnesium from China, Inv. No. 731-TA-895 (Third Review),* USITC Publication 4761, February 2018, p. I-21.

[32] Magnesium chips are ground into powder using a particle reduction process. Magnesium powder can also be produced from molten pure magnesium by atomization (spraying through nozzles); however, this technique is less frequently used than grinding.

[33] U.S. producer Luxfer Magtech produces atomized magnesium powders for certain applications, such as flares, fireworks, military illuminating and infrared countermeasure flares, propellants, and powder metallurgy. Atomized magnesium powders are made from a specialized process that consists of melting at minimum commodity-grade pure magnesium, spraying the molten magnesium in an atmosphere comprised of inert gases, and blending the atomized magnesium to customer specifications. Luxfer Magtech, "Atomized Magnesium Powders," retrieved December 9, 2019, https://luxfermagtech.com/our-products/magnesium/atomized-powders/.

Magnesium, in a molten or ingot form, is also used in the production of titanium sponge, which is a precursor metal product in the production of titanium metal products. In the Kroll reduction process, titanium sponge results from the reduction of titanium tetrachloride with magnesium.[34]

Secondary magnesium

Secondary magnesium is produced from recycling magnesium-based scrap.[35] The magnesium scrap arrives at the recycler, either in a loose form or contained in boxes. After the magnesium is separated out from other alloys by the recycler, the sorted magnesium is heated in a steel crucible to nearly 675 degrees Celsius. Alloying elements (such as aluminum, manganese, or zinc) can be added to the liquid magnesium and the alloyed magnesium can then be cast in ingot molds by hand ladling, pumping, or tilt pouring. Secondary magnesium ingot can be processed by direct grinding into powder for iron and steel desulfurization applications.

[34] The titanium tetrachloride is reacted in a molten pool of magnesium metal in which the temperature and composition of the mixture are carefully controlled. Along with pure titanium metal sponge, molten magnesium chloride (the result of magnesium reacting with the titanium tetrachloride liquid) is a product of the reaction. The magnesium chloride can be further refined back to pure magnesium in an electrolytic cell. The electrolytic cell separates the magnesium metal from the chlorine which is also collected for sale. All titanium tetrachloride producers use chlorine gas in the production of titanium tetrachloride. For more information, see: "Manufacturing Process" in *Titanium Sponge from Japan and Kazakhstan, Inv. Nos. 701-TA-587 and 731-TA-1385-1386 (Preliminary),* USITC Publication 4736, October 2017, pp. I-10 through I-12.

[35] However, recycled magnesium alloy contained in used aluminum beverage cans ("UBCs") often remains within the UBC material flow cycle, since approximately two-thirds (67 percent in 2012) of all U.S. UBCs are recovered for melting, casting, and rolling into can stock for the production of new aluminum beverage cans. According to statistics of the Aluminum Association, Can Manufacturers Institute ("CM"), and Institute of Scrap Recycling Industries ("ISRI"), the U.S. aluminum industry recycled some 62 billion domestic and imported UBCs, and shipped some 92 billion new cans, in 2012. Aluminum Association, "Aluminum Can Continues Leadership in Sustainable Packing As Most Recycled Beverage Container," October 24, 2013.

Conversely, aluminum beverage can manufacturers are sensitive to the presence of beryllium in melted scrap. Therefore, these firms generally do not purchase recycled magnesium alloy produced from scrap. *Pure Granular Magnesium from China, Inv. Nos. 731-TA-895 (Third Review)*, USITC Publication 4761, February 2018, p. I-22.

Domestic like product issues

No issues with respect to domestic like product have been raised in these investigations. The petitioner and DSM agree that the Commission should define the domestic like product to be coextensive with the scope of these investigations, which includes primary and secondary magnesium, pure and alloy magnesium, and granular or powered magnesium as it has in prior investigations and reviews of the same product. No party requested data or other information necessary for the analysis of the domestic like product.

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

U.S. market characteristics

The four principal uses of magnesium in the U.S. market are die castings, aluminum alloying, desulfurization of iron and steel, and as a reduction agent for metals production. Traditionally, magnesium markets are characterized by three general product distinctions: primary vs. secondary magnesium, pure vs. alloy magnesium, and cast vs. granulated magnesium. Pure primary magnesium is used in cast form for aluminum alloying and in cast or granular form for iron and steel desulfurization, while primary alloy magnesium is used in die casting, which requires alloy magnesium and cannot use pure magnesium. [1] [2] There is limited substitutability between primary and secondary magnesium.[3] Consumption of these downstream products, including automotive and aluminum products, follow general macroeconomic trends. The magnesium market is supplied by five U.S. producers, imports of magnesium from Israeli producer Dead Sea Magnesium, and nonsubject imports.[4] Most U.S. producers are non-grinding producers.[5]

Apparent U.S. consumption of magnesium decreased during 2016-2018, and consumption was marginally higher in January-June 2019 than in January-June 2018. Overall, apparent U.S. consumption in 2018 was *** percent lower than in 2016.

---

[1] *Magnesium from China and Russia, Invs. Nos. 731-TA-1071-1072 (Review)*, USITC Publication 4214, February 2011, p. II-1.

[2] DSM added that pure magnesium can be used as a reducing agent for "making rock products" or as a hardener in aluminum alloy. Magnesium alloy can be used for die-casting, for "making rock products", and as a hardener in aluminum alloy. Hearing transcript, p, 154 (Wanless).

[3] US Magnesium also explained that all secondary magnesium is not substitutable. Secondary magnesium from high-grade scrap that is recycled to meet ASTM standards for casting may be substitutable for primary magnesium in the casting industry. Secondary magnesium made from low-grade scrap with higher impurities is not substitutable with primary magnesium for casting and is used as a hardener in the aluminum industry. Hearing transcript, pp. 119 and 136 (Slade).

[4] Pure magnesium is produced by US Magnesium, DSM, and producers from Russia and Turkey. Alloy magnesium is produced by multiple U.S. producers, including US Magnesium using a primary production process and other domestic producers which recycle magnesium. Major import sources for magnesium alloy are DSM and Taiwan. Hearing transcript, pp. 153-155 (Wanless).

[5] Grinding producers purchase magnesium ingots, grind the ingots into shapes, and sell the ground magnesium to end users. *** is the *** responding grinding U.S. producer. *See* Part I for a detailed description of magnesium production.

U.S. purchasers

The Commission received 35 usable questionnaire responses from firms that had purchased magnesium since January 1, 2016.[6] Twenty-eight responding purchasers are end users, three are distributors, and four other types of firms.[7] In general, responding U.S. purchasers were located throughout the contiguous United States. The responding purchasers represented firms in a variety of domestic industries, many of which included aluminum products such as billets, sheets, rods, extrusions, and alloys. Industries outside of aluminum included the automotive and aerospace industries, and nuclear fuel production. Large purchasers of magnesium include ***, and ***. *** accounted for 20.4 percent of purchasers' reported purchases and imports since January 1, 2016, and *** accounted for 15.5 percent.

Channels of distribution

U.S. producers and importers sold almost all shipments to end users, as shown in table II-1 below.

[6] Of the 35 responding purchasers, 29 purchased the domestic magnesium, 19 purchased imports of the subject merchandise from Israel, and 17 purchased imports of magnesium from other sources. Multiple firms reported purchasing product from more than one source.

[7] Other responses included a die caster (***), a producer of *** (***), an aluminum sheet manufacturer (***), and an aluminum smelter (***).

Table II-1
Magnesium: U.S. producers' and importers' U.S. commercial shipments, by sources and channels of distribution, 2016-2018, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Share of U.S. shipments (percent)				
Non-grinding U.S. producers: to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
Grinding U.S. producers: to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
All U.S. producers: to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: Israel to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: Russia to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: Taiwan to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: Turkey to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: All other sources to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: Nonsubject to Distributors	***	***	***	***	***
to End users	***	***	***	***	***
U.S. importers: All sources to Distributors	***	***	***	***	***
to End users	***	***	***	***	***

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

Geographic distribution

U.S. producers *** reported selling magnesium to all regions in the contiguous United States, excluding the "other" region (table II-2). For U.S. producers, *** percent of sales were within 100 miles of their production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. The subject importer sold *** percent within 100 miles of its U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-2
Magnesium: Geographic market areas in the United States served by U.S. producers and subject importers

Region	U.S. producers	Subject importers
Northeast	4	***
Midwest	5	***
Southeast	4	***
Central Southwest	4	***
Mountain	4	***
Pacific Coast	3	***
Other	---	***
All regions (except Other)	3	***
Reporting firms	5	1

Note: All other U.S. markets, including AK, HI, PR, and VI.

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

Supply and demand considerations

U.S. supply

Table II-3 provides a summary of the supply factors regarding magnesium from grinding and non-grinding U.S. producers and from Israel. Non-grinding U.S. producers' capacity decreased, the grinding producer's capacity ***, and DSM's capacity *** from 2016 to 2018. Capacity utilization declined for all U.S. producers and DSM. The subject foreign producer reported *** home shipments, while grinding and non-grinding U.S. producers reported a substantial majority of their shipments were to the U.S. market.

Table II-3
Magnesium: Supply factors that affect the ability to increase shipments to the U.S. market

Item	2016	2018	2016	2018	2016	2018	Shipments by market in 2018 (percent)		Able to shift to alternate products
	Capacity (metric tons)		Capacity utilization (percent)		Inventories as a ratio to total shipments (percent)		Home market shipments	Exports to non-U.S. markets	No. of firms reporting "yes"
United States:									
Non-grinders	***	***	***	***	***	***	***	***	0 of 4
Grinders	***	***	***	***	***	***	***	***	***
Israel	***	***	***	***	***	***	***	***	***

Note.--Responding U.S. producers accounted for almost all of U.S. production of magnesium in 2018. Responding foreign producer/exporter firms accounted for *** of U.S. imports of magnesium from Israel during 2018. For additional data on the number of responding firms and their share of U.S. production and of U.S. imports from each subject country, please refer to Part I, "Summary Data and Data Sources." These results do not include the full impact of toll operations for non-grinding producers, see appendix E for full details.

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

Domestic production

Based on available information, U.S. producers of magnesium have the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of U.S.-produced magnesium to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the availability of unused capacity and the ability to shift shipments from alternate markets or inventories. Factors mitigating responsiveness of supply include the inability to shift production to or from alternate products and limited inventories of non-grinding producers. [8]

From 2016 to 2018, non-grinding U.S. producers' capacity decreased by *** percent and production decreased by *** percent, resulting in decreased capacity utilization from 2016-18. The grinding producer's capacity *** and capacity utilization *** over the same period. The ratio of inventories to total shipments decreased for non-grinding producers, while it *** for the grinding producer. Major export markets included Mexico, Canada, and Brazil; there were no reported barriers to exporting. All grinding and non-grinding U.S. producers reported that they cannot produce

[8] Non-grinding U.S. producers produce primary and secondary magnesium. The grinding producer ***.

other products on the same equipment as magnesium. *** of the four non-grinding U.S. producers reported that they can switch between pure and alloy magnesium production,[9] ***. The *** other non-grinding U.S. producers stated that they do not have the equipment available to switch.[10] Non-grinding U.S. producers also reported production constraints of magnesium such as equipment constraints and scrap availability. [11] *** reported the availability of helium as a production constraint.[12]

Subject imports from Israel

Based on available information, the producer of magnesium from Israel, DSM, has the ability to respond to changes in demand with moderate changes in the quantity of shipments of magnesium to the U.S. market. The main contributing factors to this degree of responsiveness of supply are the ability to shift shipments from alternate markets. Factors mitigating responsiveness of supply include limited availability of unused capacity and inventories, as well as the *** to shift production to or from alternate products.

During 2016-2018, DSM's capacity *** and production ***. Capacity utilization *** by *** percent from 2016 to 2018. Reported major export markets include ***, and there are no third country trade actions against product produced by Israel. DSM *** on the same equipment as magnesium. The foreign producer also reported that it *** capacity as it ***.[13] [14]

[9] *** reported being able to switch between the two products.

[10] U.S. producer *** noted that its equipment is ***, *** reported that it ***, and *** stated that its ***.

[11] Equipment constraints included the capacity of existing furnaces (***), and the capacity of the spray dryers and number of electrolytic cells (***). US Magnesium also stated that it must run all of its electrolytic cells continuously, and must operate at high levels of capacity utilization. US Magnesium reported that it could build new electrolytic cells in approximately three weeks, but it would require a "some price certainty" to justify such an investment. Petitioner's prehearing brief, p. 8, and hearing transcript, pp. 85-86 (Slade).

[12] ***.

[13] DSM reported that ***. DSM's foreign producer questionnaire response at Attachment A.

[14] US Magnesium disagreed with DSM's reported capacity limitations. US Magnesium argued that ICL, DSM's parent company, reported 33,000 tons of magnesium capacity in its 2018 SEC filings, which is higher than DSM's reported capacity of *** tons in 2018. Petitioner prehearing brief, p. 55, and hearing transcript, p. 51 (Reynolds).

DSM added that even if it increases the number of electrolytic cells in operation,[15] it would need to "debottleneck" other parts of its production process.[16]

Imports from nonsubject sources

Nonsubject imports accounted for *** percent of total U.S. imports in 2018. The largest sources of nonsubject imports during 2016-18 were Russia, Taiwan, and Turkey. Combined, these countries accounted for *** percent of nonsubject imports in 2018.

Supply constraints

Four of the 14 responding importers, and 14 of the 34 responding purchasers reported supply constraints of magnesium from all sources.[17] Purchasers reported that US Magnesium declined or refused to sell magnesium to them (***), with *** stating that "it often feels like US Magnesium {is} behaving in a dominant fashion when selling their products." Purchaser *** noted that US Magnesium was unable to supply additional volume over its quoted quantity. Purchasers ***,[18] indicated that US Magnesium's product was disqualified as the product did not meet their specifications. In additional comments, purchaser *** noted that the "current situation" has created a "capacity concern" in the United States. Purchaser Arconic also indicated that US Magnesium would not sell it any product in November 2018.[19] US Magnesium stated that if purchasers

[15] US Magnesium stated that it would take approximately three weeks to build new electrolytic cells; DSM disagreed with this estimate and repotted it would take two and a half months. Hearing transcript, pp. 85 (Slade) and 223 (Lerer).

[16] Respondent's posthearing brief, p. II-7.

[17] None of the responding U.S. producers reported supply constraints.

[18] ***.

[19] Arconic reported that US Magnesium's explanation was that it had reached the "upper end" of the negotiated purchase quantities, which had been negotiated a year prior, and it would not provide additional material. Arconic's prehearing brief, p. 6.

"drag out" the negotiation process, which can take weeks, it may not be able to supply all of the purchaser's needs by the time the negotiation process ends.[20] US Magnesium also reported that if a customer is contracted for a certain volume and then tries to buy additional volume later in the year, US Magnesium may not have product available for that customer.[21]

DSM, the sole importer of Israeli product, reported that ***. It also added that it self-imposes supply constraints as a "deliberate strategy" to avoid a trade case.[22] Purchasers also reported that they experienced supply constraints of Israeli-produced product. *** reported that DSM limited the amount of available magnesium in 2019. Purchasers *** also reported difficulty in purchasing DSM's product. Purchaser *** indicated that DSM was disqualified in 2016 and remains unqualified.

Firms also indicated supply constraints of magnesium from nonsubject countries. Importer *** reported that it only quotes current customers due to the limited magnesium quantities available.[23] [24] Purchasers *** and importer *** reported issues with purchasing Russian magnesium, including limited availability. Purchaser *** added that Russian producers take a "careful approach" to the U.S. market to mitigate a trade case.

New suppliers

Eleven of 34 purchasers indicated that new suppliers entered the U.S. market since January 1, 2016. Purchasers cited U.S. producer Magretech and Turkish producers ESAN and KAR as new suppliers.[25]

[20] Hearing transcript, p. 28 (Tissington).

[21] US Magnesium explained that contracts are "hotly contested and negotiated" which can lead to either party "overplay{ing} their hands." At the end of the season the supplier may not have enough metal to supply the customer, or the customer may not have "the amount left in their purchase order that {US Magnesium} wants to sell. Hearing transcript, pp. 73-75 (Tissington).

[22] Respondent's posthearing brief, p. II-12.

[23] *** imported product from Russia, Taiwan, and Turkey from January 2016-June 2019.

[24] Importer *** indicated that it had been unable to supply magnesium but did not provide an explanation.

[25] US Magnesium noted that a ***. Petitioner's prehearing brief, p. 23.

Availability of certain types of magnesium

Ten of 32 responding purchasers reported that certain types of magnesium were only available from one source. Multiple purchasers reported the limited availability of large magnesium bars. *** reported that DSM and US Magnesium were the only suppliers able to supply "T-bars,"[26] while other producers supplied ingots or had limited availability of "T-bars/saws."[27] *** similarly reported that it could only purchase 250-pound, 500-pound and 17.5-pound bars from Israel, and *** indicated it could only find "large T-bars, i.e. 500 pounds" from Israel. ***, however, reported that it could only find "magnesium {saws}" of 250 pounds from U.S.-based companies.[28] Purchaser ATI reported that the domestic industry cannot supply magnesium that meets ATI's specification for the production of zirconium sponge, and that ***.[29] US Magnesium reported that it and DSM are the only two suppliers of T-bars which aluminum producers prefer,[30] and that US Magnesium and DSM have nearly identical product ranges.[31] [32]

Sole supplier arrangements

Purchasers were asked whether they had a sole supplier arrangement with any magnesium supplier. Five of 35 purchasers reported they had a sole supplier arrangement. Purchaser *** stated that it purchases 100 percent of its product from ***, and *** said it had exclusivity agreements in 2016 and 2017 with "US

[26] *** defined T-bars as "large format products in the 250 to 1,000 pound range."

[27] *** also stated that DSM and US Magnesium were the only producers of pure magnesium. *** also noted there are limited sources of non-Chinese primary magnesium.

[28] Not all purchasers that responded that certain types of magnesium were available from only one source provided an explanation.

[29] ATI's prehearing brief, p. 2.

[30] T-bars represent approximately *** percent of the U.S. market, according to US Magnesium. US Magnesium reported that T-bars are about *** of its sales, and DSM reported T-bars are *** percent of DSM's U.S. sales. Petitioner's posthearing brief, Exhibit 1 pp. 74-75, and Respondent's posthearing brief, p. II-22.

[31] Hearing transcript, p. 13 (Jones) and p. 74 (Tissington).

[32] Petitioner stated that ingot pure magnesium is a substitute for large direction cast bars as they have the same product chemistry, but large format bars may be preferred for "safety and convenience reasons." Hearing transcript, p. 118 (Slade).

Magnesium/Renco Group."[33] Purchasers were also asked whether, since January 1, 2016, any firm attempted to be a sole supplier of magnesium. Nine of 35 purchasers reported that a firm had attempted a sole supplier arrangement, with 8 of the 9 firms reporting US Magnesium attempted an exclusivity agreement.[34] Purchaser *** stated that US Magnesium was supposed to supply all of its 2019 purchases but US Magnesium later decreased the available quantity due to capacity restraints.[35] Purchasers *** reported that they did not accept US Magnesium's bid to be their sole supplier, as they wanted to maintain a diversified supply base.[36] *** also stated that in prior years, US Magnesium had "take it or leave it offers" in which US Magnesium said it would supply 100 percent of the firm's magnesium requirements or "nothing at all." Purchaser Alcoa also reported that US Magnesium has committed "commercial extortion" and has proposed take it or leave it agreements.[37] US Magnesium stated that it does not make "take it or leave it" or "all or nothing" offers.[38]

U.S. demand

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

[33] Purchasers *** did not identify with whom they had a sole supplier arrangement. *** noted that its purchases related to ***.

[34] Purchaser *** reported that Luxfer, Almamet, and Non-Ferrum attempted sole supplier arrangements and all were unsuccessful.

[35] *** reported that US Magnesium reduced the 2019 volume "because they did not have the sufficient capacity to satisfy our full expected volume needs given their allocations to other customers." It also reported that US Magnesium bid on "100 percent" of its business in 2016, 2017, and 2018.

[36] Purchaser *** did not indicate whether it accepted US Magnesium's bid to be its sole supplier, and *** did not indicate why it did not accept US Magnesium's bid to be its sole supplier in 2016.

[37] Alcoa's prehearing brief, p. 6.

[38] US Magnesium denied the "all or nothing" offers, and added that ***. Hearing transcript, pp.28 and 75 (Tissington), and Petitioner's posthearing brief, Exhibit 1 p. 47.

End uses and cost share

U.S. demand for magnesium is derived from demand for U.S.-produced downstream products. Magnesium is principally used in die casting for auto parts and aluminum alloying.[39] Purchasers' reported end uses relate to automobile parts included car beams, suspension components, and automobile sheet stock.[40] Other end uses include aluminum products such as aluminum billets, sheets, flat rolled products, rods, alloys, and extrusions.[41]

Magnesium accounts for a relatively small share of the cost of most of the end-use products in which it is used. Reported cost shares for most aluminum products were 1 to 4 percent for alloys, sheets, and billets, and 27 percent for aluminum rod. The most frequently reported cost shares ranged from 1 to 8 percent, with higher cost shares reported for ground and atomized powder (75 percent), magnesium alloys (91 percent), and magnesium castings (92 percent).[42]

Business cycles

Three of five U.S. producers, three of 13 importers, and 9 of 35 purchasers indicated that the market was subject to business cycles or conditions of competition. Specifically, U.S. producers cited the demand for downstream products, military spending, and volatile magnesium prices as distinct conditions of competition.[43] One of the three importers reported that the market was subject to business cycles,[44] and two importers reported that the market was subject to distinct conditions of competition including the effect of Chinese manganese prices on U.S. prices (***), and end use demand (***). Five purchasers reported that business cycles affected the demand for magnesium, with purchaser *** stating that

---

[39] Petition, pps. 5-6; Respondent DSM's postconference brief, p.2 and p. 22; Conference transcript, p.34 (Lutz), hearing transcript p. 44 (Lutz).

[40] Some reported end uses also related to zirconium products such as bar, coil and tubeshell, titanium ingots and sponges, and other magnesium products such as alloys, castings, and ferrosilicon.

[41] Large purchasers *** and *** reported end uses of aluminum alloys and aluminum sheets, billets, and rod.

[42] Some firms reported a cost share of zero and these cost shares have not been included. The automotive sectors' reported end uses were generally between 1 and 45 percent. Purchaser *** did not estimate cost shares.

[43] *** also reported that the magnesium market was subject to business cycles based on the demand for downstream products, "mainly aluminum alloys and cast magnesium parts". *** was *** U.S. producer to report that the market was subject to business cycles, it also reported that the market was subject to distinct conditions of competition.

[44] Importer *** noted that business cycles "are a function of supply and demand."

pricing and supply agreements are set between October and December for the following year.[45] Other firms reported that the demand is influenced by car sales (***), and Department of Defense requirements (***). Two purchasers reported conditions of competition distinct to the magnesium market including a market dominant producer with *** noting a "magnesium market that is manipulated and is artificially inflated."[46] The remaining two purchasers that reported distinct conditions of competition cited "new mines" (***) and limited domestic supply of magnesium (***).

Firms were also asked to report whether there had been changes to the business cycles or conditions of competition since January 1, 2016. One U.S. producer noted that there was more volatile pricing, and three importers reported increased prices, Russian product re-entering the market, and increased demand for magnesium. Six purchasers also noted changes since January 1, 2016, including changes in end-use products including lightweight cars and "business interruptions" by flare producers. [47]

Closure of ATI titanium sponge facility

Firms were also asked whether the closure of ATI's titanium sponge facility[48] had an impact on the market for magnesium.[49] Two U.S. producers and three of 21 purchasers reported that ATI's closure did not have an impact.[50] [51] Three of eight importers and one

[45] No other responding purchasers described how the market is subject to business cycles.

[46] Purchasers *** and *** both noted that there is only one U.S. producer of primary/pure magnesium. *** stated that US Magnesium "use tactics to manipulate pricing and supply/demand dynamics" including using "all or nothing offers" and withholding capacity in order to increase the price of magnesium. *** also reported that magnesium prices increased by "60 percent or more" due to the filing of these investigations.

[47] Three of these purchasers (***) reported limited supply of magnesium.

[48] Pure magnesium can be used to produce titanium sponge, a precursor metal product for titanium products for use in aerospace, medical, and industrial applications.

[49] ATI closed its titanium sponge plant in December 2016. The plant, located adjacent to US Magnesium's plant, removed *** metric tons of demand for pure magnesium metal when it closed. Prior to the closure, ATI had a tolling agreement with, and exclusively supplied, US Magnesium. Preliminary views of the Commission, p. 18.

[50] According to US Magnesium, ***. US Magnesium reported that ATI's closure impacted ***.

[51] US Magnesium stated its business with ATI involved "a unique chloride recycling process that operated separately" from its merchant magnesium business. US Magnesium also stated that ATI's closure had an impact on "overall revenues and profitability" but it was not responsible for the price declines in the merchant market nor US Magnesium's declining profitability in 2017 and 2018. Hearing transcript, p. 35 (Slade).

purchaser indicated that the ATI closure had an impact on the U.S. magnesium market.[52] Importers stated that ATI's closure reduced magnesium demand within the U.S. market (***) and that US Magnesium's now-available capacity has "forced" US Magnesium to "take advantage of their dominant U.S. market position by forcing customers" to enter into exclusivity agreements (***). The one purchaser that indicated ATI's closure had an impact on the market noted that as US Magnesium lost a "major customer," which resulted in higher prices for primary magnesium, as US Magnesium has tried to "recoup losses" (***).[53]

Demand trends

As stated above, demand for magnesium is derived from the demand for its end-use products, such as aluminum alloys and die castings used for auto parts.[54] From 2016-18, domestic auto production decreased by 24.6 percent.[55] However, there has been a shift in the automotive industry to produce lighter-weight cars,[56] especially electric vehicles.[57] [58]

[52] Five importers and 17 purchasers indicated that they did not know the effect of ATI's closure.

[53] ***, one of the three purchasers that reported that ATI's closure did not have an impact on the magnesium market, noted that there was less domestic magnesium production which "may have increased price."

[54] Magnesium and aluminum alloys can be used to replace cast iron and traditional steel components in automobiles to create lightweight cars with increased efficiency. U.S. Department of Energy, "Lightweight Materials for Cars and Trucks," https://www.energy.gov/eere/vehicles/lightweight-materials-cars-and-trucks, retrieved October 17, 2019.

[55] Domestic auto production, seasonally adjusted, was 337,600 units in January 2016 and 254,400 units in December 2018. Bureau of Economic Analysis, Auto and Truck Seasonal Adjustment Sales Data, Table 7 – Domestic Auto Unit Production, October 2, 2019, https://www.bea.gov/national/xls/gap_hist.xlsx, retrieved October 17, 2019.

[56] Soichi Takano, Nikkei Asian Review, "Magnesium gains luster as electric cars take hold," July 6, 2018, https://asia.nikkei.com/Business/Markets/Commodities/Magnesium-gains-luster-as-electric-cars-take-hold, retrieved October 17, 2019.

[57] Rhoda Miel, Rubber and Plastic News, "Experts say electric vehicles put greater emphasis on lightweight parts", January 16,2019, https://www.rubbernews.com/article/20190116/NEWS/190119943/experts-say-electric-vehicles-put-greater-emphasis-on-lightweight-parts, retrieved October 17, 2019.

[58] DSM also stated that "light-weighting in the U.S. auto industry, particularly for electric vehicles, is driving growth and demand for magnesium. Magnesium is often the best light-weight metal for these emerging applications." Hearing transcript, p.156 (Wanless).

Respondent DSM stated that total demand in the merchant market decreased from 2016 to 2017, and increased "a healthy amount" in 2018. DSM attributed the increase in demand to overall growth in the economy, a strengthening primary aluminum industry due to the Section 232 tariffs, and increasing capacity of die-cast magnesium parts for the U.S. auto industry.[59] [60]

Most purchasers and two U.S. producers reported an increase in U.S. demand for magnesium, while most importers and two U.S. producers reported fluctuating demand since January 1, 2016 (table II-4). Reasons for the increase in magnesium demand included increased aluminum production for light-weighting vehicles and airplanes, and general economic growth.[61] Reasons for fluctuating demand included the effect of global magnesium prices on U.S. prices.[62] Purchasers also indicated that demand for end-use products increased since January 1, 2016.

Table II-4
Magnesium: Firms' responses regarding U.S. demand and demand outside the United States

Item	Number of firms reporting			
	Increase	No change	Decrease	Fluctuate
Demand inside the United States:				
U.S. producers	2	---	1	2
Importers	3	3	---	6
Purchasers	14	10	1	3
Demand outside the United States:				
U.S. producers	3	---	---	---
Importers	3	2	---	7
Purchasers	5	10	1	2
Demand for end use product(s):				
Purchasers	17	7	2	5

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

[59] Hearing transcript, pp. 155-156 (Wanless).

[60] DSM also stated that "the {U.S.} aluminum industry is booming in a post-232 world," adding that die-casting and light-weighting of vehicles has contributed to increased demand for magnesium in 2018. Hearing transcript, p. 169 (Levy).

[61] U.S. producer *** and purchasers *** reported increased automobile production, and purchasers *** reported overall growth in the economy.

[62] Most firms indicating that magnesium demand fluctuated since January 1, 2016, did not provide an explanation. Importer *** reported that demand for magnesium fluctuated, but explained that in the most recent period demand had increased due to growing GDP and increased primarily aluminum production.

Substitute products

Substitutes for magnesium are limited. Most U.S. producers, importers, and purchasers reported that there were no substitutes. U.S. producer ***, *** listed aluminum, calcium carbonate, and sodium as substitutes.[63] ***, the only importer to report a substitute for magnesium, listed aluminum as a substitute.[64] Seven of 35 responding purchasers reported substitutes for magnesium, with most reporting aluminum or aluminum scrap as substitutes for magnesium.

Substitutability issues

The degree of substitution between domestic and imported magnesium depends upon such factors as relative prices, quality (e.g., grade standards, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery dates, reliability of supply, product services, etc.). Based on available data, staff believes that there is a moderate-to-high degree of substitutability between domestically produced magnesium and magnesium imported from Israel. While the majority of purchasers reported that domestic and subject magnesium are comparable on all factors, there may be limited substitutability between domestic and Israeli magnesium due to availability/reliability of supply, exclusivity agreements, quality differences, and the limited substitutability between primary and secondary magnesium.

Lead times

Magnesium is primarily sold from inventory. U.S. producers reported that 92.0 percent of their commercial shipments were sold from inventory, with lead times ranging from 5 to 30 days. The remaining 8.0 percent of commercial shipments were produced to order, with lead times averaging 20 days.[65] DSM reported *** percent of its shipments of magnesium

[63] Aluminum was listed as a substitute in casting parts, calcium carbonate was listed as a substitute in steel desulfurization, and sodium was listed as a substitute in titanium sponge production.

[64] Importer *** reported that there were no substitutes, but listed aluminum scrap as a substitutable product.

[65] Non-grinding producer *** and *** reported producing to order. *** reported that *** of its commercial shipments were produced to order but did not provide lead times for these orders, and *** reported that *** percent of its commercial shipments were produced to order. ***.

imported from Israel were sold from inventory, with a lead time of *** days. Produced-to-order magnesium accounted for *** percent of DSM's shipments with a lead time of *** days.

Knowledge of country sources

Thirty-one purchasers indicated they had marketing/pricing knowledge of domestic product, 21 of Israeli product, and fewer reported knowledge of nonsubject product.[66]

As shown in table II-5, most purchasers and their customers never make purchasing decisions based on the producer or country of origin. Of the six purchasers that reported that they always make decisions based the manufacturer, *** cited maintaining diversity of supply, and *** reported that DSM is the only producer that can meet its specifications.[67]

Table II-5
Magnesium: Purchasing decisions based on producer and country of origin

Purchaser/customer decision	Always	Usually	Sometimes	Never
Purchases based on producer:				
Purchaser's decision	6	5	5	18
Purchaser's customer's decision	2	1	4	17
Purchases based on country of origin:				
Purchaser's decision	---	4	5	24
Purchaser's customer's decision	---	---	5	19

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

Factors affecting purchasing decisions

The most often cited top three factors firms consider in their purchasing decisions for magnesium were price/cost (30 firms), quality (25 firms), and availability/supply (25 firms) as shown in table II-6. Quality was the most frequently cited first-most important factor (cited by 17 firms), followed by other factors (7 firms); availability/supply was the most frequently reported second-most important factor (13 firms); and price was the most frequently reported third-most important factor (14 firms).

[66] Seventeen purchasers had knowledge of Russian product, 10 of Turkish product, 6 of Taiwanese product, 4 of Canadian product, and 10 reported knowledge of product from other countries including Germany (7),China (5), Japan (2), Austria (1), Czech Republic (1), Kazakhstan (1), Laos (1), Malaysia (1), and Slovakia (1). Multiple firms reported knowledge of product from more than one country.

[67] *** did not provide explanations for why their firms always purchase based on the producer.

Table II-6
Magnesium: Ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor

Item	1st	2nd	3rd	Total
	Number of firms (number)			
Price / Cost	6	10	14	30
Quality	17	6	2	25
Availability / Supply	5	13	7	25
Delivery / Lead time	---	3	4	7
All other factors	7	3	6	NA

Note: All other factors include meeting firm specifications, supplier diversity, customer service, and reliability.

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

The majority of purchasers (20 of 35) reported that they usually purchase the lowest-priced product. Nine purchasers indicated that they sometimes purchase the lowest-priced product, 3 purchasers reported that they always purchase the lowest-priced product, while 3 purchasers never purchase the lowest-priced product.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 16 factors in their purchasing decisions (table II-7). The factors rated as very important by more than half of responding purchasers were availability (35 firms), product consistency (34), reliability of supply (33), delivery time (30), quality meets industry standards (30), price (29), delivery terms (19), and supplier diversity/dual-sourcing (18).

Table II-7
Magnesium: Importance of purchase factors, as reported by U.S. purchasers, by factor

Factor	Number of firms reporting		
	Very	Somewhat	Not
Availability	35	---	---
Delivery terms	19	14	2
Delivery time	30	4	1
Discounts offered	13	12	10
Minimum quantity requirements	11	12	12
Packaging	12	18	5
Payment terms	17	16	2
Price	29	5	---
Product consistency	34	1	---
Product range	5	13	15
Quality meets industry standards	30	5	---
Quality exceeds industry standards	14	13	8
Reliability of supply	33	2	---
Supplier diversity/dual-sourcing	18	9	8
Technical support/service	9	17	9
U.S. transportation costs	16	12	7

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

Supplier certification

Thirty of 34 responding purchasers require their suppliers to become certified or qualified to sell magnesium to their firm. Purchasers reported that the time to qualify a new supplier ranged from 14 to 365 days, and most purchasers reported 30 to 90 days to qualify. Purchasers' qualification process involved testing the material for quality, including testing it to meet either ASTM standards, ISO certification, or firm specific standards.[68] Four purchasers reported that domestic and foreign suppliers had failed in their attempt to qualify magnesium, or had lost approved status since 2016. Two of the four purchasers indicated that a domestic supplier had failed in their attempt to qualify; *** listed US Magnesium and *** listed Magpro and Magretech.[69] Two purchasers reported that DSM was unable to

[68] Reported trial sizes for qualification included: 2,000 pounds (***); 20,000 to 40,000 pounds (***); 40,000 to 50,000 pounds (***).

[69] *** stated that Magretech was able to qualify once it ***. *** also listed importer Greenwich Metals.

qualify or lost its qualification status.[70] [71] US Magnesium stated that it is unaware of accounts where it failed to meet qualifications or certification.[72]

Purchaser Westinghouse also indicated that US Magnesium had failed its qualification to produce magnesium for Westinghouse's zirconium alloyed metal products.[73] Westinghouse indicated that from 2002 to 2018 US Magnesium provided samples in five different engagements that failed its specifications in every case except one.[74] Westinghouse believes that the acceptable delivery in 2018 was "a result of deliberate investment of time and expenses" for "one lot of material" to meet its specifications.[75] US Magnesium reported that ***.[76]

Purchaser ATI also reported that US Magnesium cannot meet its specification, and ATI has attempted to qualify US Magnesium "on several occasions" but has been unable to do so.[77]

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since 2016 (table II-8); reasons reported for decreasing purchases from Israel included quality issues (***), price (***), and ensuring diversity of supply (***). Most firms reported no change in their purchases from the United States, however some firms reported decreasing purchases from the United States due to pricing and availability (***), unfavorable payment terms (***), and decreased demand for magnesium (***). *** noted that US Magnesium was ***.[78] Explanations for

[70] *** noted that DSM ***.

[71] *** also listed nonsubject producers Esan (Turkey), Magontec (Germany), Magnesium Elektron (Czech Republic), and Japan Material Co. (Japan) as unable to qualify.

[72] Hearing transcript, p. 74 (Tissington).

[73] Westinghouse supplies the zirconium used to manufacture nuclear fuel assembles for commercial nuclear reactors. Hearing transcript, p. 178 (Francis).

[74] Hearing transcript, p. 182 (Francis).

[75] Westinghouse's posthearing brief at 6. Westinghouse added that it purchased from DSM due to DSM's purity and consistency, not price. Hearing transcript, pp.182-183 (Francis).

[76] Petitioner's posthearing brief, Exhibit 1 pp. 51-53.

[77] ATI added that *** ATI's prehearing brief, pp 3-4.

[78] *** also added that ***.

increasing purchases of domestic product included increasing sales of the end-use product (***), ensuring diversity of supply and increasing volumes to mitigate the risk of these antidumping and countervailing duty investigations (***), economic factors (***), and "retoll {quantity} increase"(***).

Fourteen of 34 responding purchasers reported that they had changed suppliers since January 1, 2016. Specifically, firms dropped or reduced purchases from DSM due to "market factors" (***) and quality issues (***). *** reported dropping US Magnesium due to availability, payment terms, and pricing, and *** dropped nonsubject producer Magnesium Elektron CZ due to price. Firms added or increased purchases from DSM, Magretech, Advanced Magnesium, and MagPro because of price.[79] Firms also reported changes to ensure magnesium supply.[80] Eleven of 34 purchasers reported new suppliers, eight of which listed Turkish suppliers ESAN and Kar Minerals, or more generally "Turkish suppliers."[81]

[79] *** added Magretech, MagPro, and DSM, *** reported adding Magretech, and *** added Advanced Magnesium and MagPro. *** also noted that DSM and MagPro were added for "physical form" reasons.

[80] *** reported adding AMACOR, Magretech, Magontec, and DSM to ensure diverse supply after US Magnesium, its sole supplier, "put {***} on allocation." *** added US Magnesium to ensure supply for the remainder of 2019, after preliminary duties were placed on DSM in these investigations. *** added US Magnesium to diversify its supply chain, while *** added Esan Magnesium from Turkey for the same reason.

[81] The remaining three purchasers listed Magretech (***), NTALX (country unknown) (***), and a "new foreign supplier" (***).

Table II-8
Magnesium: Changes in purchase patterns from U.S., subject, and nonsubject countries

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	3	4	7	13	6
Israel	6	9	3	5	3
Canada	19	---	---	1	---
Russia	11	3	1	4	3
Taiwan	15	1	---	2	2
Turkey	16	---	1	1	2
All other sources	13	4	5	2	2
Sources unknown	16	1	---	1	2

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

Importance of purchasing domestic product

Thirty-three of 35 purchasers reported that most or all of their purchases did not require purchasing U.S.-produced product. *** reported that domestic product was required by law (for 45 percent of their purchases), *** reported it was required by their customers (for 85 percent of their purchases), and two (***) reported other preferences for domestic product. Reasons cited for preferring domestic product included finding another domestic supplier after US Magnesium began allocating supply.[82]

Comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing magnesium produced in the United States, Israel, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on 15 of the 16 factors (table II-9) for which they were asked to rate the importance.[83]

Most purchasers reported that U.S. and Israeli-produced magnesium were comparable on all factors. Similarly, U.S.-produced and magnesium produced in nonsubject countries were comparable on all factors. Twelve purchasers compared magnesium from Israel with that with nonsubject sources, and most reported that Israeli-produced product was superior regarding availability, and comparable on all other factors. Availability was considered a "very important" factor (table II-7).

[82] Purchaser *** stated that it "only purchased domestic magnesium in 2018," but did not provide further explanation. Staff reached out to the firm for further clarification but did not receive a response.

[83] Firms were asked to rate the importance of supplier diversity/dual-sourcing, but were not asked to compare this factor between countries.

Table II-9
Magnesium: Purchasers' comparisons between U.S.-produced and imported product

Factor	U.S. vs. Israel			U.S. vs. Nonsubject			Israel vs. Nonsubject		
	S	C	I	S	C	I	S	C	I
Availability	3	15	2	6	13	---	6	5	1
Delivery terms	---	19	1	2	17	---	3	9	---
Delivery time	3	15	2	6	12	1	5	7	---
Discounts offered	3	14	1	2	11	3	1	8	1
Minimum quantity requirements	---	18	1	---	16	1	1	10	1
Packaging	---	20	---	1	18	---	---	10	---
Payment terms	---	15	5	2	16	1	2	9	---
Price	1	15	4	---	14	5	1	6	3
Product consistency	1	17	1	1	16	1	4	7	---
Product range	---	19	---	2	15	---	3	7	---
Quality meets industry standards	1	17	2	2	16	1	3	7	1
Quality exceeds industry standards	1	16	1	1	16	---	2	7	1
Reliability of supply	3	15	2	5	14	---	5	6	1
Technical support/service	3	16	1	4	13	1	4	8	---
U.S. transportation costs	1	17	---	2	17	---	---	10	1

Note.--A rating of superior means that price/U.S. transportation cost is generally lower. For example, if a firm reported "U.S. superior," it meant that the U.S. product was generally priced lower than the imported product.
S=first listed country's product is superior; C=both countries' products are comparable; I=first list country's product is inferior.

Source: Compiled from data submitted in response to Commission questionnaires

Comparison of U.S.-produced and imported magnesium

In order to determine whether U.S.-produced magnesium can generally be used in the same applications as imports from Israel, U.S. producers, importers, and purchasers were asked whether the products can always, frequently, sometimes, or never be used interchangeably. As shown in table II-10, U.S. producers had mixed responses regarding the interchangeability of U.S.- and Israeli-produced magnesium. Three U.S. producers reported that the products are always or frequently interchangeable, while two producers reported that they were only sometimes interchangeable.[84] Most importers and purchasers reported that domestic and Israeli product are always interchangeable. The most common response regarding U.S.-produced magnesium and magnesium from nonsubject countries was that they are always or frequently interchangeable. Similarly, most firms reported that magnesium from Israel and

[84] U.S. producer Spartan, which reported that domestic magnesium and magnesium from Israel is *** interchangeable stated it ***.

magnesium from nonsubject countries were always or frequently interchangeable. Purchaser/importers *** reported that interchangeability depends upon whether the product is primary or secondary magnesium, and that secondary magnesium is not always comparable with primary.[85]

Table II-10
Magnesium: Interchangeability between magnesium produced in the United States and in other countries, by country pair

	U.S. producers				U.S. importers				U.S. purchasers			
Country pair	A	F	S	N	A	F	S	N	A	F	S	N
United States vs. Israel	2	1	2	---	5	4	---	1	15	4	1	2
United States vs. Canada	1	1	1	---	3	1	1	1	3	1	---	---
United States vs. Russia	1	2	1	---	6	4	---	1	8	3	2	---
United States vs. Taiwan	1	1	1	---	2	1	4	1	---	3	2	---
United States vs. Turkey	1	1	---	---	3	2	3	1	1	4	1	---
United States vs. Other	2	1	1	---	3	3	2	1	7	2	3	1
Israel vs. Canada	1	1	1	---	3	1	1	1	1	1	---	---
Israel vs. Russia	1	2	---	---	6	4	---	1	6	3	2	---
Israel vs. Taiwan	1	1	1	---	2	1	4	1	---	3	2	---
Israel vs. Turkey	1	1	---	---	3	2	3	1	1	2	2	1
Israel vs. Other	2	1	1	---	2	2	2	1	2	2	3	1

Note.—A=Always, F=Frequently, S=Sometimes, N=Never.
Source: Compiled from data submitted in response to Commission questionnaires.

As can be seen from table II-11, 27 responding purchasers reported that domestically produced product always met minimum quality specifications. Sixteen responding purchasers reported that the Israeli magnesium always met minimum quality specifications.

Table II-11
Magnesium: Ability to meet minimum quality specifications, by source[1]

Source	Always	Usually	Sometimes	Rarely or never
United States	27	4	---	2
Israel	16	4	1	---

[1] Purchasers were asked how often domestically produced or imported magnesium meets minimum quality specifications for their own or their customers' uses.

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

In addition, U.S. producers, importers, and purchasers were asked to assess how often differences other than price were significant in sales of magnesium from the United States, subject, or nonsubject countries. As seen in table II-12, most U.S. producers reported that

[85] Importer *** stated that Canadian and Taiwanese producers are not primary magnesium producers.

factors other than price were sometimes important in comparing magnesium produced in the United States with magnesium produced in Israel. In contrast, most importers reported that non-price factors were frequently significant, and most purchasers reported that non-price factors were always significant.

Most firms did not report a specific country-pair comparison and instead listed important non-price differences. The most frequently reported significant non-price differences included quality,[86] delivery terms/lead times,[87] and availability/reliability of supply.[88] [89] Among purchasers that reported specific country-pair comparisons, purchaser *** noted that when comparing U.S.-produced and Israeli-produced product, US Magnesium has limited capacity in T-bar forms, and limited capacity overall.[90] U.S. producer *** stated that in comparisons with Canadian-produced product, Canadian-product has limited distribution, is a secondary alloy, and has specific policies related to its sole customer Meridian, a die caster. It similarly noted that with respect to U.S.-Taiwanese product, Taiwanese product is limited to secondary alloy, and there are potential issues with its quality. Importers citing specific country-pair comparisons noted that Turkish magnesium is of lower quality (***). Purchaser *** also listed quality, availability, lead times, packaging, delivery terms, payment terms, and supplier diversity/dual sourcing as significant non-price factors in all country comparisons.[91]

[86] As reported by importers *** and purchasers ***.

[87] As reported by importers *** and purchaser ***.

[88] As reported by importer *** and purchaser ***.

[89] Other non-price factors included technical support and alloy development (importer ***), and the availability of different sizes (importer ***).

[90] *** continued that in comparing domestic magnesium with Israeli, Russian, and Turkish-produced magnesium, US Magnesium employs "bullying tactics during negotiations" in all-or-nothing exclusivity agreements.

[91] With the exception of Canada and other nonsubject countries, as *** had no knowledge of Canadian magnesium or magnesium produced in other countries.

Table II-12
Magnesium: Significance of differences other than price between magnesium produced in the United States and in other countries, by country pair

Country pair	Number of U.S. producers reporting				Number of U.S. importers reporting				Number of purchasers reporting			
	A	F	S	N	A	F	S	N	A	F	S	N
U.S. vs. subject countries:												
U.S. vs. Israel	---	---	3	2	---	6	1	2	8	5	5	3
Nonsubject countries comparisons:												
United States vs. Canada	1	---	1	1	1	2	1	---	---	---	2	---
United States vs. Russia	---	---	3	1	---	4	4	1	2	4	5	2
United States vs. Taiwan	---	1	1	1	1	3	2	---	---	2	3	---
United States vs. Turkey	---	---	1	1	---	6	1	---	---	2	4	---
United States vs. Other	---	---	1	2	---	4	2	1	2	1	7	2
Israel vs. Canada	1	---	1	1	1	2	1	---	---	---	1	---
Israel vs. Russia	---	---	2	1	---	3	4	2	2	2	3	3
Israel vs. Taiwan	---	1	1	1	1	2	2	1	---	1	3	1
Israel vs. Turkey	---	---	1	1	---	6	1	---	1	1	4	---
Israel vs. Other	---	---	1	2	---	2	1	2	1	---	4	2

Note.--A = Always, F = Frequently, S = Sometimes, N = Never.

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

Elasticity estimates

This section discusses elasticity estimates.[92]

U.S. supply elasticity

The domestic supply elasticity[93] for magnesium measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of magnesium. The elasticity of domestic supply depends on several factors including the level of excess capacity, the ease with which producers can alter capacity, producers' ability to shift to production of other products, the existence of inventories, and the availability of alternate markets for U.S.-produced magnesium. Analysis of these factors above indicates that the U.S. industry has the ability to moderately-to-greatly increase or decrease shipments to the U.S. market; an estimate in the range of 3 to 5 is suggested.

[92] No party commented on these estimates.
[93] A supply function is not defined in the case of a non-competitive market.

U.S. demand elasticity

The U.S. demand elasticity for magnesium measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of magnesium. This estimate depends on factors discussed above such as the existence, availability, and commercial viability of substitute products, as well as the component share of the magnesium in the production of any downstream products. Based on the available information, the aggregate demand for magnesium is likely to be moderately inelastic; a range of -0.5 to -1.5 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.[94] Product differentiation, in turn, depends upon such factors as quality (e.g., chemistry, appearance, etc.) and conditions of sale (e.g., availability, sales terms/ discounts/ promotions, etc.). Based on available information, the elasticity of substitution between U.S.-produced magnesium and imported magnesium is likely to be in the range of 4 to 6, considering that primary magnesium cannot easily be substituted with secondary magnesium.

[94] The substitution elasticity measures the responsiveness of the relative U.S. consumption levels of the subject imports and the domestic like products to changes in their relative prices. This reflects how easily purchasers switch from the U.S. product to the subject products (or vice versa) when prices change.

Part III: U.S. producers' production, shipments, and employment

The Commission analyzes a number of factors in making injury determinations (see 19 U.S.C. §§ 1677(7)(B) and 1677(7)(C)). Information on the subsidies and dumping margins was presented in *Part I* of this report and information on the volume and pricing of imports of the subject merchandise is presented in *Part IV* and *Part V*. Information on the other factors specified is presented in this section and/or *Part VI* and (except as noted) is based on the questionnaire responses of five firms that accounted for over 80 percent of U.S. production of magnesium during 2017.

U.S. producers

The Commission issued a U.S. producer questionnaire to nine firms based on information contained in the petition.[1] Five firms – US Magnesium, Advanced Magnesium Alloys Corporation ("AMACOR"), MagPro LLC ("MagPro"), Spartan Light Metal Products ("Spartan"), and Luxfer Magtech ("Luxfer") – provided usable data on their productive operations. Staff believes that these responses represent over 80 percent of U.S. production of magnesium.

Table III-1 lists U.S. producers of magnesium, their production locations, positions on the petition, and shares of total production.

[1] Two firms, Opta Minerals and its subsidiary, ESM, stated ***. ***.

Meridian Lightweight Technologies did not provide a response to the U.S. producers' questionnaire. Based on publicly available information, staff believes Meridian Lightweight Technologies primarily sells magnesium die cast products which are not within the scope of these investigations. *Meridian Lightweight Technologies' webpage*, http://www.meridian-mag.com/about-meridian/capabilities/, retrieved October 25, 2019.

MagReTech, LLC did not provide a U.S. producer's questionnaire response, but stated ***. ***.

Table III-1
Magnesium: U.S. producers, their position on the petition, location of production, share of reported production and production type, 2018

Firm	Position on petition	Production location(s)	Share of production (percent)			
			Non-grinder own production	Non-grinder toll production	Non-grinder production	Grinder production
AMACOR	***	Anderson, IN	***	***	***	***
Luxfer	***	Manchester, NJ Tamaqua, PA Saxonburg, PA	***	***	***	***
Magpro	***	Camden, TN Waverly, TN	***	***	***	***
Spartan	***	Sparta, IL Mexico, MO	***	***	***	***
US Magnesium	Petitioner	Salt Lake City, UT Rowley, UT	***	***	***	***
Total			100.0	100.0	100.0	100.0

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

Table III-2 presents information on U.S. producers' ownership, related and/or affiliated firms of magnesium. As indicated in table III-2, no U.S. producers are related to foreign producers of the subject merchandise or are related to U.S. importers of the subject merchandise.

Table III-2
Magnesium: U.S. producers' ownership, related and/or affiliated firms, 2018

Item / Firm	Firm Name	Affiliated/Ownership
Ownership:		
***	***	***
***	***	***
***	***	***
Related producers:		
	***	***
	***	***
***	***	***
***	***	***

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

Table III-3 presents U.S. producers' reported changes in operations since January 1, 2016.

Table III-3
Magnesium: U.S. producers' reported changes in operations, since January 1, 2016

Item / Firm	Reported changed in operations
Expansions:	
***	***
Acquisitions:	
***	***
Prolonged shutdowns or curtailments:	
***	***
***	***
Revised labor agreements:	
***	***
***	***
Other:	
***	***

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

Production related activities

In the preliminary phase of these investigations, consistent with the definition of domestic like product, the Commission defined the domestic industry as consisting of all domestic producers of magnesium.[2] In deciding whether a firm qualifies as a domestic producer, the Commission generally considers six factors: (1) source and extent of the firm's capital investment; (2) technical expertise involved in U.S. production activities; (3) value added to the product in the United States; (4) employment levels; (5) quantity and type of parts sourced in the United States; and (6) any other costs and activities in the United States directly leading to production of the like product.

Table III-4 presents the nature and extent of U.S. grinding producer's manufacturing of granular magnesium. Table III-5 shows the source of magnesium inputs used by the U.S. grinding producer, ***, to produce granular magnesium.

[2] Magnesium from Israel, Investigation Nos. 70-TA-614 and 731-TA-1431 (Preliminary), USITC Publication 4860, December 2018, pg. 8.

Table III-4
Magnesium: U.S. grinder's rating of complexity and importance of grinding activities, since January 1, 2016; and data relating to sufficiency of production-related operations

Item	Complexity rating				
	1 Not at all complex	2	3	4	5 Very complex
***	***	***	***	***	***
	*** narrative responses to sufficient production activities question				
Capital investments	***				
Technical expertise	***				
Value added	***				
Employment	***				
Quantity, type and source of parts	***				
	Data relating to sufficient production activities factors				
	Non-grinding production			Grinding production	
Capital investments	***			***	
Technical expertise	None reported			***	
Value added	***			***	
Employment	***			***	
Quantity and type of parts sourced in the United States	***			***	

Note: Capital investments – Based on net assets (range 2016-18).
Note: Technical expertise – Based on research and development expenses (range 2016-18)
Note: None reported – Research and development expenses data was not provided in any of the responding non-grinding producers' questionnaires. US Magnesium stated in its producer questionnaire response ***
Note: Value added – Based on total conversion costs / total COGS (range 2016-18)
Note: Employment – Based on aggregate production and related workers (PRW) for 2018.
Note: Quantity and type of parts sourced in the United States – Based on aggregate raw material values for non-grinding producers and aggregate raw material values using domestically manufactured magnesium for grinding producers.

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

Table III-5
Magnesium: U.S. grinder's production by source, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Production (metric tons)				
Domestic magnesium	***	***	***	***	***
Magnesium from Israel	***	***	***	***	***
Magnesium from nonsubject sources	***	***	***	***	***
All sources	***	***	***	***	***
	Share of production (percent)				
Domestic magnesium	***	***	***	***	***
Magnesium from Israel	***	***	***	***	***
Magnesium from nonsubject sources	***	***	***	***	***
All sources	***	***	***	***	***

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

U.S. producers' tolling operations

***, conducted tolling operations between January 2016 and June 2019. In 2018, *** *** reported tolling on behalf of *** firms, most of which are ***.[3] While US Magnesium has not tolled since ATI ceased its titanium operations in late 2016, in 2016, US Magnesium's toll operations, pursuant to a recycling agreement with ATI, represented *** percent of its commercial shipments.[4] Under the agreement, US Magnesium received magnesium chloride from ATI's adjoining titanium plant, processed and then produced magnesium for ATI for use in titanium production.[5]

U.S. production, capacity, and capacity utilization

Table III-6, figure III-1, and figure III-2 present U.S. producers' production, capacity, and capacity utilization. Non-grinding producers' production capacity decreased by *** percent between 2016 and 2017, driven by ***, but remained stable between 2017 and 2018, and in January-June 2018 and January-June 2019. The capacity decrease between 2016 and 2017 was largely driven by

[3] *** email message to USITC staff, October 24, 2019.
[4] US Magnesium, postconference brief, exhibit 9 and conference transcript, p. 13 (Cannon).
[5] Conference transcript, p. 43 (Tissington).

***.[6] The grinding producer *** capacity was unchanged between 2016 and 2017, but increased by *** percent between 2017 and 2018, as a result of ***.[7] The grinding producer's capacity was the same during January-June 2018 and January-June 2019.

Non-grinding producers' production decreased by *** percent between 2016 and 2017, and then decreased by *** percent between 2017 and 2018. Non-grinding producers' production was *** percent higher during January-June 2019 compared to January-June 2018. Non-grinding producers' production decrease between 2016 and 2017 was *** driven by declines in both US Magnesium and AMACOR's production. Between 2016 and 2017, US Magnesium's production decreased by *** percent and AMACOR's tolling production decreased by *** percent. US Magnesium noted in its questionnaire this decline was in part due to ***.[8] As part of a toll agreement with ATI,[9] US Magnesium would pick up molten magnesium chloride, process the material in its electrolytic cells and then send back the finished product to ATI.[10] AMACOR stated the decline in its tolling production ***.[11] The grinding producer's production increased by *** percent between 2016 and 2017, increased by *** percent between 2017 and 2018, and was *** percent lower during January-June 2019 compared to January-June 2018.

U.S. non-grinding producers' capacity utilization decreased by *** percentage points between 2016 and 2017, and by an additional *** percentage points between 2017 and 2018. Non-grinding producers' capacity utilization was *** percentage points higher during January to June 2019 compared to January to June 2018. The grinding producer's capacity utilization increased by *** percentage points between 2016 and 2017, decreased by *** percentage points between 2017 and 2018 was *** percentage points lower during January-June 2019 compared to January-June 2018.

[6] *** U.S. producer questionnaire response, section II-2.

[7] ***. ***, email message to USITC staff, October 24, 2019.

[8] U.S. Magnesium's producer questionnaire response, section II-2

[9] ATI's production resulted in byproduct in the form of magnesium chloride. Conference transcript, p. 43 (Tissington).

[10] Conference transcript, p. 43 (Tissington).

[11] *** email message to USITC staff, November 20, 2019.

Table III-6
Magnesium: U.S. producers' production, capacity, and capacity utilization, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Capacity (metric tons)				
Non-grinding producers: ***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Non-grinding producers	***	***	***	***	***
Grinding producer: ***	***	***	***	***	***
Grinding producer	***	***	***	***	***
	Production (metric tons)				
Non-grinding producers: ***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Non-grinding producers	***	***	***	***	***
Grinding producer: ***	***	***	***	***	***
Grinding producer	***	***	***	***	***
	Capacity utilization (percent)				
Non-grinding producers: ***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Non-grinding producers	***	***	***	***	***
Grinding producer: ***	***	***	***	***	***
Grinding producer	***	***	***	***	***

Note: US Magnesium ***

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

Figure III-1
Magnesium: Non-grinding U.S. producers' capacity, production, and capacity utilization, 2016-18, January to June 2018, and January to June 2019

* * * * * * *

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

Figure III-2
Magnesium: Grinding U.S. producer's capacity, production, and capacity utilization, 2016-18, January to June 2018, and January to June 2019

* * * * * * *

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

Alternative products

U.S. producers did not produce any out-of-scope products on the same equipment, machinery, or employees used to produce magnesium.

U.S. producers' U.S. shipments and exports

Table III-7 presents U.S. producers' U.S. shipments by firm type. Figure III-3 presents the share of U.S. producers' U.S. shipments by type. Non-grinding producers' internal consumption and transfers to related firms were reported by *** and accounted for less than *** percent of total U.S. shipments in any year during 2016-18.[12] Non-grinding producers' U.S. shipments fluctuated during 2016-18. Between 2016 and 2017, total U.S. shipments for non-grinding producers decreased by ***, *** was due to the change in US Magnesium's toll production shipments to ATI which ceased in 2017. The *** of the *** percent increase in non-grinding producers' U.S. shipments between 2017 and 2018 was

[12] ***. *** U.S. producer questionnaire, section I-8a.

due to an increase in ***.

The grinding producer's total U.S. shipments increased by *** percent between 2016 and 2017, and then increased by *** percent between 2017 and 2018, for an overall increase of *** percent during 2016-18. The grinding producer's internal consumption by quantity also increased, by *** percent, during 2016-18.

Table III-7
Magnesium: U.S. producers' U.S. shipments by firm type, 2016-18, January to June 2018, January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Non-grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Toll producers' shipments to tollees	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Non-grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Toll producers' shipments to tollees	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	***	***	***	***	***

Table continued on next page.

Table III-7--Continued
Magnesium: U.S. producers' U.S. shipments by firm type, 2016-18, January to June 2018, January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Unit value by type of firm (dollars per metric ton)				
Non-grinding own production producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Toll producers' shipments to tollees	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	***	***	***	***	***
	Share of quantity by type of firm (percent)				
Non-grinding own production producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Toll producers' shipments to tollees	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	***	***	***	***	***
	Share of value by type of firm (percent)				
Non-grinding producers: Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
Toll producers' shipments to tollees	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Grinding producers': Commercial U.S. shipments	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
U.S. shipments	***	***	***	***	***

Note: Data for *** have been removed from toll producers' shipments to tollees and are included in Commercial U.S. shipments.

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

Figure III-3
Magnesium: Share of U.S. producers' U.S. shipments by type, 2018

* * * * * * *

Source: Compiled from data submitted in response to Commission questionnaires. Data can be found in Appendix D.

Table III-8 presents U.S. producers' U.S. shipments, export shipments and total shipments for use in apparent consumption. Total shipments for all reporting U.S. producers decreased by *** percent between 2016 and 2017, and increased by *** percent between 2017 and 2018, for an overall decrease of *** percent during 2016-18. The decline in total shipments during 2016-18 was largely driven by a *** percent decrease in U.S. shipments during the same time period. During 2016-18, unit values for U.S. shipments increased by *** percent while unit values for export shipments increased by *** percent, although remaining below those of U.S. shipments. While the unit value of both U.S. shipments and exports were higher in January-June 2019 compared to January-June 2018, the unit value of exports in January-June 2019 were higher than that of U.S. shipments for the first time in the period of for which data were collected.

Table III-8
Magnesium: U.S. producers' U.S. shipments, export shipments, and total shipments for use in apparent consumption, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
U.S. shipments	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
	Value (1,000 dollars)				
U.S. shipments.-- Fully domestic value	***	***	***	***	***
Value added to imported magnesium	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
	Unit value (dollars per metric ton)				
U.S. shipments	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
	Share of quantity (percent)				
U.S. shipments	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
	Share of value (percent)				
U.S. shipments.-- Fully domestic value	***	***	***	***	***
Value added to imported magnesium	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Export shipments	***	***	***	***	***
Total shipments	***	***	***	***	***

Note.--The quantity for U.S. producers' U.S. shipments reflects the quantity of magnesium sold in the United States from non-grinding producers (including both tollers and non-tollers); the value for U.S. producers' U.S. shipments reflects the value of magnesium sold in the United States from non-grinding producers plus the additional value added to either domestic or imported magnesium from grinding only producers. The average unit values presented for U.S. producers' U.S. shipments excludes the value added to imported magnesium. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once either by a domestic non-grinding producer or as an import.

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

U.S. producers' inventories

Table III-9 presents U.S. producers' end-of-period inventories and the ratio of these inventories to U.S. producers' production, U.S. shipments, and total shipments. Non-grinding producers' end-of-period inventories increased by *** percent between 2016 and 2017, and then decreased by *** percent between 2017 and 2018. The decline in end-of-period inventories between 2017 and 2018 was largely driven by ***, whose end-of-period inventories decreased from *** metric tons in 2017 to *** metric tons in 2018. End-of-period inventories for grinding producers increased by *** percent between 2016 and 2018. The ratios of inventories to U.S. production and U.S. shipment for non-grinding producers were lower in January-June 2019 than in January-June 2018 while only the ratio of inventories to U.S. shipments for grinding producers were lower in January-June 2019 than in January-June 2018.

Table III-9
Magnesium: U.S. producers' inventories, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
U.S. producers' end-of-period inventories:					
Non-grinders	***	***	***	***	***
Grinders	***	***	***	***	***
Total end-of-period inventories	***	***	***	***	***
	Ratio (percent)				
Non-grinders' ratio of inventories to.--					
U.S. production	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Total shipments	***	***	***	***	***
Grinding producers' ratio of inventories to.--					
U.S. production	***	***	***	***	***
U.S. shipments	***	***	***	***	***
Total shipments	***	***	***	***	***

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

U.S. producers' imports and purchases

*** U.S. producers imported magnesium from nonsubject countries and *** purchased magnesium from Israel. Between January 2016 and June 2019, *** imported ***.[13] *** also reported importing *** metric tons in 2016 and *** metric tons in 2017 from affiliated companies *** and ***.[14] *** purchased from *** *** metric tons and *** metric tons of magnesium from Israel in 2016 and 2017, respectively.

*** imported *** of magnesium from Taiwan in 2017 and during January-June 2019, as well as from the Czech Republic during January-June 2019.[15] *** also reported purchasing *** metric tons of magnesium from Russia between January 2016 and December 2017 and *** metric tons of magnesium from Turkey in 2018.

U.S. employment, wages, and productivity

Table III-10 shows U.S. producers' employment-related data. Between 2016 and 2018, the number of production and related workers ("PRWs"), total hours worked, and hours worked per PRW, for non-grinding producers' own production and the grinding producer fluctuated slightly. For non-grinding producers' toll production, the number of PRWs, total hours worked and total wages paid decreased during 2016-18. During 2016-18, the number of PRWs and total hours worked across all reporting producers decreased by *** percent and *** percent respectively, while the number of hours worked, wages paid, and average hourly wage rate increased by *** percent, *** percent, and *** percent respectively.

[13] *** ***.

[14] ***. ***, email message to USITC staff, August 29, 2019.

[15] Reported imports from Taiwan were *** metric tons in 2017 and *** metric tons during January-June 2019. Reported imports from the Czech Republic were *** metric tons during January-June 2019. See *** Purchasers' Questionnaire.

Table III-10
Magnesium: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
Non-grinding producers' own production: Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (metric tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per metric ton)	***	***	***	***	***
Non-grinding producers' toll production: Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (metric tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per metric ton)	***	***	***	***	***
Grinding producers: Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***
Productivity (metric tons per 1,000 hours)	***	***	***	***	***
Unit labor costs (dollars per metric ton)	***	***	***	***	***
All producers: Production and related workers (PRWs) (number)	***	***	***	***	***
Total hours worked (1,000 hours)	***	***	***	***	***
Hours worked per PRW (hours)	***	***	***	***	***
Wages paid ($1,000)	***	***	***	***	***
Hourly wages (dollars per hour)	***	***	***	***	***

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

Part IV: U.S. imports, apparent U.S. consumption, and market shares

U.S. importers

The Commission issued importer questionnaires to 34 firms believed to be importers of magnesium, as well as to all U.S. producers of magnesium.[1] Usable questionnaire responses were received from 14 companies[2] [3] [4], representing over 80 percent of U.S. imports in 2018 under HTS subheadings 8104.11.00, 8104.19.00, and 8104.30.00, a "basket" category.[5] Table IV-1 lists all responding U.S. importers of magnesium from Israel and other sources, their locations, and their shares of U.S. imports, in 2018.

[1] The Commission issued questionnaires to those firms identified in the petition, along with firms that, based on a review of data provided by U.S. Customs and Border Protection ("Customs"), may have accounted for more than one percent of total imports under HTS subheading 8104.11.00, 8104.19.00, and 8104.30.00 in 2018.

[2] Two firms reported temporary imports under bond. ***.

[3] *** did not submit an importer questionnaire after verifying ***. The only other known U.S. importer of magnesium from ***, did not submit an importer questionnaire.

[4] Traxys Cometals USA LLC ("Traxys") and Traxys North America LLC ("Traxys NA") provided separate questionnaire data but are affiliated companies.

[5] Seven firms, ***, responded to the Commission's questionnaire certifying that they had not imported subject magnesium since January 1, 2016.

Table IV-1
Magnesium: U.S. importers, their headquarters, and share of total imports by source, 2018

Firm	Headquarters	Share of imports by source (percent)			
		Israel	Russia	Taiwan	Turkey
CCMA	Amherst,	***	***	***	***
DSM	Shelby Township, MI	***	***	***	***
Greenwich Metals	Greenwich, CT	***	***	***	***
Heneken	Bratislava, Slovak Republic, SK	***	***	***	***
Kun Yang	Taipei,	***	***	***	***
Laurand	Great Neck, NY	***	***	***	***
Magontec	Bottrop, Germany,	***	***	***	***
Non Ferrum	North Charleston, SC	***	***	***	***
Novelis	Atlanta, GA	***	***	***	***
Polymet	Birmingham, AL	***	***	***	***
Traxys	New York, NY	***	***	***	***
Traxys NA	New York, NY	***	***	***	***
Trinity	Indianapolis, IN	***	***	***	***
Westlake Chemical	Houston, TX	***	***	***	***
Total		***	***	***	***

Firm	Headquarters	Share of imports by source (percent)		
		All other sources	Nonsubject sources	All import sources
CCMA	Amherst,	***	***	***
DSM	Shelby Township, MI	***	***	***
Greenwich Metals	Greenwich, CT	***	***	***
Heneken	Bratislava, Slovak Republic, SK	***	***	***
Kun Yang	Taipei,	***	***	***
Laurand	Great Neck, NY	***	***	***
Magontec	Bottrop, Germany,	***	***	***
Non Ferrum	North Charleston, SC	***	***	***
Novelis	Atlanta, GA	***	***	***
Polymet	Birmingham, AL	***	***	***
Traxys	New York, NY	***	***	***
Traxys NA	New York, NY	***	***	***
Trinity	Indianapolis, IN	***	***	***
Westlake Chemical	Houston, TX	***	***	***
Total		***	***	***

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

U.S. imports

Table IV-2 and figures IV-1, IV-2, and IV-3 present data for U.S. imports of magnesium from Israel and nonsubject sources. U.S. imports from Israel increased between 2016 and 2017 and then decreased in 2018, while imports from non-subject countries decreased between 2016 and 2017 and then increased in 2018. Imports from Israel were higher in January-June 2019 compared to January-June 2018, while imports from non-subject countries decreased in January-June 2019 compared to January-June 2018.

Between 2016 and 2018, U.S. imports from Israel, by quantity, decreased by *** percent but were *** percent higher in January-June 2019 compared to January-June 2018. U.S. imports from Israel by value decreased by *** percent between 2016 and 2018 but were *** percent higher in January-June 2019 compared to January-June 2018. In 2018, *** percent of U.S. imports from subject sources were pure magnesium solids, *** percent were alloy magnesium solids, and *** percent were granular magnesium.

Between 2016 and 2018, U.S. imports from nonsubject sources increased by *** percent and were *** percent lower in January-June 2019 compared to January-June 2018. U.S. imports from nonsubject sources by value increased by *** percent between 2016 and 2018 and were *** percent higher in January-June 2019 compared to January-June 2018. In 2018, *** percent of U.S. imports from nonsubject sources were pure magnesium solids, *** percent were alloy magnesium solids, and *** percent were granular magnesium.

Average unit values of U.S. imports from Israel, which were higher than those of nonsubject imports between 2016 and 2018, decreased by *** percent between 2016 and 2018, but were *** percent higher in January-June 2019 compared to January-June 2018. Average unit values of U.S. imports from nonsubject sources decreased by *** percent between 2016 and 2018. Average unit values for nonsubject source imports were *** percent higher during January-June 2019 compared to January-June 2018.

During 2016-18, the share of U.S. imports from Israel by quantity declined by *** percent while the share of U.S. imports from Israel by value declined by *** percent.

As shown in figures IV-2 and IV-3, the *** of U.S. imports from Israel and nonsubject sources in 2018 were in the form of solid pure magnesium, followed by solid alloy magnesium.[6]

[6] The remainder was in the form of granular magnesium, imported by ***.

Table IV-2
Magnesium: U.S. imports by source, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	17,946	17,948	19,503	10,330	10,602
	Value (1,000 dollars)				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	69,270	65,242	67,018	35,402	39,098
	Unit value (dollars per metric ton)				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	3,860	3,635	3,436	3,427	3,688
	Share of quantity (percent)				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Share of value (percent)				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Ratio to U.S. production				
U.S. imports from.--					
Israel	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Figure IV-I
Magnesium: U.S. import volumes and prices, 2016-18, January to June 2018, and January to June 2019

* * * * * * *

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

Figure IV-2
Magnesium: Share of U.S. imports from subject sources, by type, 2018

* * * * * * *

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

Figure IV-3
Magnesium: Share of U.S. imports from nonsubject sources, by type, 2018

* * * * * * *

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

Table IV-3 presents U.S. imports from non-subject sources. Between 2016 and 2018, Russia was the largest nonsubject source of U.S. imports of magnesium followed by Taiwan. During 2016-18, imports from Russia and Turkey increased by *** and *** percent respectively, while imports from Taiwan decreased by *** percent. Combined imports from all other sources decreased by *** percent between 2016 and 2017, and then increased by *** percent between 2017 and 2018.

During 2016-18, Taiwan had the lowest average unit values, ranging from $*** to $*** while Turkey had the highest average unit values, ranging from $*** to $***.

Table IV-3
Magnesium: U.S. imports, by nonsubject source, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
U.S. imports from.--					
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	6,703	6,531	8,839	5,466	5,395
	Value (1,000 dollars)				
U.S. imports from.--					
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	21,987	20,657	26,955	16,760	17,439
	Unit value (dollars per metric ton)				
U.S. imports from.--					
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	3,280	3,163	3,050	3,066	3,232
	Quantity share of total U.S. imports (percent)				
U.S. imports from.--					
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***

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

Negligibility

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.[7] Negligible imports are generally defined in the Act, as amended, as imports from a country of merchandise corresponding to a domestic like product where such imports account for less than 3 percent of the volume of all such merchandise imported into the United States in the most recent 12-month period for which data are available that precedes the filing of the petition or the initiation of the investigation. However, if there are imports of such merchandise from a number of countries subject to investigations initiated on the same day that individually account for less than 3 percent of the total volume of the subject merchandise, and if the imports from those countries collectively account for more than 7 percent of the volume of all such merchandise imported into the United States during the applicable 12-month period, then imports from such countries are deemed not to be negligible.[8] Imports from Israel accounted for *** percent of total imports of magnesium by quantity during October 2017-September 2018. Volume data for U.S. imports from Israel in the 12-month period preceding the filing of the petition are shown in table IV-4.

Table IV-4
Magnesium: U.S. imports in the twelve month period preceding the filing of the petition, October 2017 through September 2018

Item	October 2017 through September 2018	
	Quantity (metric tons)	Share quantity (percent)
U.S. imports from.--		
Israel	***	***
Russia	***	***
Taiwan	***	***
Turkey	***	***
All other sources	***	***
Nonsubject sources	***	***
All import sources	***	***

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

[7] Sections 703(a)(1), 705(b)(1), 733(a)(1), and 735(b)(1) of the Act (19 U.S.C. §§ 1671b(a)(1), 1671d(b)(1), 1673b(a)(1), and 1673d(b)(1)).

[8] Section 771 (24) of the Act (19 U.S.C § 1677(24)).

Apparent U.S. consumption

Table IV-5 and figure IV-4 present data on apparent U.S. consumption. Apparent U.S. consumption, by quantity, fluctuated between 2016 and 2018, decreasing by *** percent between 2016 and 2017, and increasing by *** percent between 2017 and 2018. Apparent U.S. consumption, by value, decreased by *** percent between 2016 and 2017, and increased by *** percent between 2017 and 2018. Apparent U.S. consumption remained mostly unchanged in terms of quantity and higher in terms of value by *** percent during January-June 2019 compared to January-June 2018.

Table IV-5
Magnesium: Apparent U.S. consumption, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
U.S. producers' U.S. shipments	***	***	***	***	***
U.S. shipments from.--					
Israel	***	***	***	***	***
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
Apparent U.S. consumption	***	***	***	***	***
	Value (1,000 dollars)				
U.S. producers' U.S. shipments.--					
Fully domestic value	***	***	***	***	***
Value added to imports	***	***	***	***	***
Total	***	***	***	***	***
U.S. shipments from.--					
Israel	***	***	***	***	***
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
Apparent U.S. consumption	***	***	***	***	***

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

Figure IV-4
Magnesium: Apparent U.S. consumption, 2016-18, January to June 2018, January to June 2019

* * * * * * *

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

U.S. market shares

U.S. market share data are presented in table IV-6. U.S. producers' share of apparent consumption, by quantity, decreased by *** percentage points during 2016-18. U.S. producers' share of apparent consumption, by quantity, declined between 2016 and 2017, while the share of U.S. imports from both Israel and from nonsubject increased. In 2018, both U.S. producers' share and the share of U.S. imports from Israel decreased, while the share of U.S. imports from nonsubject sources increased.

U.S. producers' share of apparent consumption, by quantity, remained largely unchanged during January-June 2019 compared to January-June 2018.

U.S. imports from Israel's share of apparent U.S. consumption, by quantity, decreased by *** percent during 2016-18. U.S. imports from Israel's share of apparent U.S. consumption, by quantity, increased by *** percentage points between 2016 and 2017, decreased by *** percentage points between 2017 and 2018, and were *** percentage points higher during January-June 2019 compared to January-June 2018.

The share of U.S. apparent consumption, by quantity, for nonsubject source imports increased by *** percentage points between 2016 and 2018, and was *** percentage points higher during January-June 2019 compared to January-June 2018.

Table IV-6
Magnesium: Market shares, 2016-18, January to June 2018, January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Apparent U.S. consumption	***	***	***	***	***
	Share of quantity (percent)				
U.S. producers' U.S. shipments	***	***	***	***	***
U.S. imports from.--					
Israel	***	***	***	***	***
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***
	Value (1,000 dollars)				
Apparent U.S. consumption	***	***	***	***	***
	Share of value (percent)				
U.S. producers' U.S. shipments.--					
Fully domestic value	***	***	***	***	***
Value added to imports	***	***	***	***	***
Total	***	***	***	***	***
U.S. imports from.--					
Israel	***	***	***	***	***
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Part V: Pricing data

Factors affecting prices

Raw material costs

The principle raw materials used in the production of primary magnesium are magnesium chloride derived from brines or magnesium oxide derived from mineral deposits.[1] Raw materials as a ratio to the cost of goods sold (COGS) increased over the period, from *** percent in 2016 to *** percent in 2018.[2] Other factory costs decreased slightly over the period and accounted for over *** percent of COGS.[3] U.S. producer US Magnesium reported that raw material prices had *** since 2016 and that it was unable to pass on the increased costs to customers because of competitive market pricing, while another U.S. producer, ***, reported no change in raw material prices.[4] The remaining U.S. producers reported that raw material prices fluctuated over the period, and *** reported raw material prices were initially higher, but have decreased in the "last few months." Nine of 12 responding importers reported that raw material prices fluctuated since 2016.

Purchasers were also asked whether they were familiar with raw material prices and how raw material costs affected negotiations or contracts to purchase magnesium, since January 1, 2016. Nine purchasers reported that they were familiar with the prices for raw materials,[5] and five of those nine indicated that raw material prices had affected negotiations or contracts. *** noted that there has been an "increase in raw

[1] Conference transcript, p. 17 (Tissington).

[2] For non-grinding producers only.

[3] For non-grinding producers only.

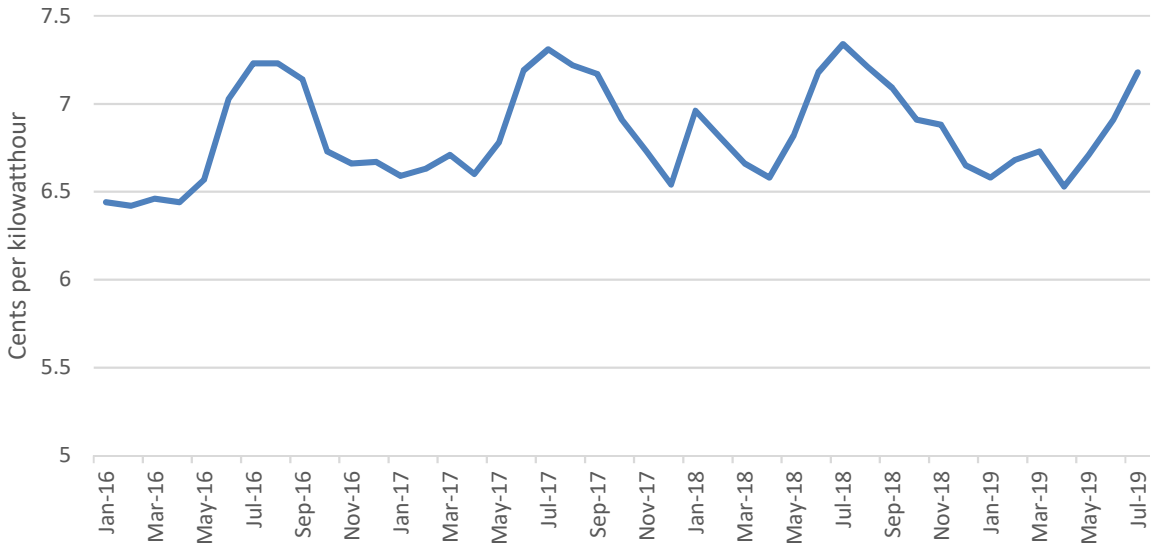
[4] The main raw material for US Magnesium is lake brine from the Great Salt Lake in Utah. Other raw materials include ***. US Magnesium added that its raw material costs are *** than other U.S. producers. Hearing transcript, p. 22 (Tissington), and Petitioner's posthearing brief, Exhibit 1 p. 72.

[5] Purchasers *** answered that they were not familiar with raw material prices, but indicated that information on raw material prices affected their contracts/negotiations with suppliers. *** stated that increased raw material prices caused higher magnesium prices, while *** gave responses unrelated to raw material costs. *** noted that market trends are used for better pricing. *** reported that these investigations have led to US Magnesium increasing prices by 66 percent and have also limited DSM's supply in the United States. *** noted that it considers performance and price when choosing suppliers.

material," *** reported that price is a factor, and *** reported that raw material prices impact the price of the end-use product. *** stated that it has used its visibility on raw material costs and the cost of magnesium production in negotiations with suppliers; the firm has challenged suppliers' offers based on *** understanding of raw material prices and production costs.[6]

The domestic industry's COGS was influenced by the cost of electricity and the fixed costs of maintaining the electrolytic cells. The cost of electricity is seasonal and has fluctuated since 2016 (figure V-1). From January 2016 to January 2019, the average retail price of electricity for industrial users increased by 3.3 percent. US Magnesium stated that it has seen an increase in the cost of its production due to increases in the costs of electricity, labor, and raw materials, and noted that its unit cost of production also increased as its electrolysis cells have been extended past their useful life.[7]

Figure V-1
Electricity: Average retail price of electricity, industrial sector, monthly, January 2016-July 2019



Source: U.S. Energy Information Administration, Average retail price of electricity, https://www.eia.gov/electricity/data/, accessed October 17, 2019.

[6] *** response was unrelated to raw material prices. *** reported that its perception of pricing was based on prices from 2017 to Q3 2018, and that at the end of 2018 it was put on allocation by US Magnesium, and "faced challenges of limited capacity" as well as price increases.

[7] Conference transcript, p. 61 (Slade).

Transportation costs to the U.S. market

Transportation costs for magnesium shipped from Israel to the United States averaged 3.0 percent during 2018. These estimates were derived from official import data and represent the transportation and other charges on imports.[8]

U.S. inland transportation costs

Most responding U.S. producers and importers reported that they typically arrange transportation to their customers.[9] U.S. producers reported that their U.S. inland transportation costs ranged from *** to *** percent[10] while the subject importer reported costs of *** percent.

Pricing practices

Pricing methods

U.S. producers and importers reported using transaction-by-transaction negotiations and contracts to set prices. US Magnesium stated that annual contracts are negotiated in the fall for the following year and negotiations can last a number of weeks.[11] [12] Similarly, DSM reported that its annual contracts are negotiated in the fourth quarter.[13] As presented in table V-1, U.S. producers had mixed responses regarding their price setting methods. One U.S. producer sells only by transaction-by-transaction negotiations, one use contracts, and the rest used both transaction-by-transaction negotiations and contracts.[14] Most responding importers

[8] The estimated transportation costs were obtained by subtracting the customs value from the c.i.f. value of the imports for 2018 and then dividing by the customs value based on the HTS subheadings 8104.11.0000. 8104.19.0000. and 8104.30.0000.

[9] U.S. producer Magpro ***.

[10] *** reported transportation costs of *** percent, the responding non-grinding producers reported transportation costs of *** percent.

[11] Petitioner's prehearing brief, p. 13.

[12] US Magnesium also reported that "if US Magnesium does not sell magnesium in the contract market in the fall, it will not be able to sell it in the U.S. market in the following year." Petitioner's prehearing brief, p. 13.

[13] Hearing transcript, p. 156 (Wanless).

[14] U.S. producers *** reported both transaction-by transaction negotiations and contracts to set prices.

sell primarily on a transaction-by-transaction negotiation basis, but a large number also used contracts.[15]

Table V-1
Magnesium: U.S. producers' and importers' reported price setting methods, by number of responding firms[1]

Method	U.S. producers	Importers
Transaction-by-transaction	4	10
Contract	4	6
Set price list	---	---
Other	---	---
Responding firms	5	12

[1] The sum of responses down may not add up to the total number of responding firms as each firm was instructed to check all applicable price setting methods employed.

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

U.S. producers reported selling the vast majority of their magnesium under annual contract. The subject importer sold most of its magnesium under ***, however, *** accounted for over *** percent of its U.S. commercial shipments. US Magnesium reported that short term sales can occur when a purchaser "underbuys" during the contract negotiation phase.[16] Purchaser and U.S. producer Luxfer noted that there is effectively no spot market for magnesium, with contracts made in the fourth quarter for the entirety of the following year.[17] As shown in table V-2, U.S. producers and the subject importer reported their 2018 U.S. commercial shipments of magnesium by type of sale.

Table V-2
Magnesium: U.S. producers' and importers' shares of U.S. commercial shipments by type of sale, 2018

Type of sale	U.S. producers	Subject importer
Long-term contracts	***	***
Annual contracts	***	***
Short-term contracts	***	***
Spot sales	***	***
Total	100.0	100.0

Note.--Because of rounding, figures may not add to the totals shown.

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

U.S. producers using annual contracts indicated that prices could not be renegotiated and prices were not indexed to raw materials. Most responding U.S. producers that used

[15] Importers *** reported both transaction-by transaction negotiations and contracts to set prices.
[16] Hearing transcript, p. 95 (Tissington).
[17] Hearing transcript, p. 41 (Gardella).

annual contracts reported fixed quantity and price provisions, while one producer reported ***. DSM's ***.

Purchasers most frequently reported that they purchase magnesium annually (13 firms), 12 purchase monthly, and 5 purchase quarterly.[18] [19] Twenty-six of 35 responding purchasers reported that their purchasing frequency had not changed since 2016.[20] All responding purchasers contacted more than one supplier before making a purchase, with a plurality of purchasers (12 of 33) contacting up to three suppliers before making a purchase.[21]

Sales terms and discounts

Most U.S. producers typically quote prices on an f.o.b. basis. Subject importer DSM quotes price ***.[22] Most U.S. producers offer no discounts; one U.S. producer provides a quantity and total volume discount (***).[23] No responding importers offered discounts.[24]

[18] Two purchasers also indicated that they purchase daily, one purchases weekly, and three purchase on an "other" frequency. Those reporting "other" stated an annual pricing contract with "vendor managed inventory on-site" (***), a ***), and a mixture of annual contracts and spot purchases (***.

[19] Purchaser *** reported both annual and monthly purchases. It noted that it buys the majority of its purchases on annual contract and will supplement additional purchases on a monthly "as needed" basis.

[20] Those reporting changes to their purchases indicated increased demand resulting in purchasing with greater frequency. *** noted that its purchasing frequency has not changed, yet it is having "difficulties meeting its purchasing demands as a result of this anti-dumping investigation."

[21] Six purchasers reported contacting up to 2 suppliers, 4 purchasers reported contacting up to 4 suppliers, 3 purchasers reported contacting up to 5 suppliers, and the remaining 8 purchasers reported contacting more than 5 suppliers.

[22] Importer *** reported quoting on a delivered basis, however, this firm did not import magnesium from Israel over the period of investigation and reported ***.

[23] *** reported that it does not offer a discount, but that it "may negotiate a rebate for sales above a certain volume." It added that this is not a set policy but is done to improve forecasting accuracy.

[24] Importer *** reported that it offered "other" discounts, however, ***. This firm's response has not been included.

Price leadership

Most responding purchasers reported that US Magnesium was a price leader, with fewer purchasers reporting DSM as a price leader.[25]

Price data

The Commission requested U.S. producers and importers to provide quarterly data for the total quantity and f.o.b. value of the following magnesium products shipped to unrelated U.S. customers during January 2016 to June 2019.

Product 1.-- Pure magnesium ingots containing at least 99.95 percent magnesium ("high purity magnesium").

Product 2.-- Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ("pure magnesium").

Product 3.-- Alloy magnesium ingots containing less than 99.8 percent magnesium, meeting ASTM specifications for alloy magnesium.

Two U.S. producers and five importers provided usable pricing data for sales of the requested products,[26] although not all firms reported pricing for all products for all quarters.[27] Pricing data reported by these firms accounted for approximately *** percent of U.S. producers' U.S. commercial shipments of magnesium and *** percent of U.S. commercial shipments of subject imports from Israel in 2018.

Price data for products 1-3 are presented in tables V-3 to V-5 and figures V-2 to V-4. Nonsubject country prices are presented in Appendix F.

[25] Fourteen purchasers listed US Magnesium, one listed DSM, and four listed both US Magnesium and DSM. One purchaser listed Magpro, one listed ESAN (Turkey), and one listed importer Greenwich Metals.

[26] DSM ***. Importers Traxys NA ***, Traxys ***, Laurand ***, and Greenwich Metals *** during January 2016 - June 2019.

[27] Per-unit pricing data are calculated from total quantity and total value data provided by U.S. producers and importers. The precision and variation of these figures may be affected by rounding, limited quantities, and producer or importer estimates.

Table V-3
Magnesium: Weighted-average f.o.b. prices and quantities of domestic and imported product 1[1] and margins of underselling/(overselling), by quarters, January 2016-June 2019

Period	United States		Israel		
	Price (dollars per metric ton)	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)	Margin (percent)
2016: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2017: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2018: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2019: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***

[1] Product 1: Pure magnesium ingots containing at least 99.95 percent magnesium ("high purity magnesium").

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

Table V-4
Magnesium: Weighted-average f.o.b. prices and quantities of domestic and imported product 2[1] and margins of underselling/(overselling), by quarters, January 2016-June 2019

Period	United States		Israel		
	Price (dollars per metric ton)	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)	Margin (percent)
2016: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2017: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2018: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2019: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***

[1] Product 2: Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ("pure magnesium").

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

Table V-5
Magnesium: Weighted-average f.o.b. prices and quantities of domestic and imported product 3[1] and margins of underselling/(overselling), by quarters, January 2016-June 2019

Period	United States		Israel		
	Price (dollars per metric ton)	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)	Margin (percent)
2016: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2017: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2018: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***
July-Sept.	***	***	***	***	***
Oct.-Dec.	***	***	***	***	***
2019: Jan.-Mar.	***	***	***	***	***
Apr.-June	***	***	***	***	***

[1] Product 3: Alloy magnesium ingots containing less than 99.8 percent magnesium, meeting ASTM specifications for alloy magnesium.

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

Figure V-2
Magnesium: Weighted-average prices and quantities of domestic and imported product 1,[1] by quarters, January 2016-June 2019

* * * * * * *

* * * * * * *

[1]Product 1: Pure magnesium ingots containing at least 99.95 percent magnesium ("high purity magnesium").

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

Figure V-3
Magnesium: Weighted-average prices and quantities of domestic and imported product 2,[1] by quarters, January 2016-June 2019

* * * * * * *

* * * * * * *

[1]Product 2: Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ("pure magnesium").

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

Figure V-4
Magnesium: Weighted-average prices and quantities of domestic and imported product 3[1] by quarters, January 2016-June 2019

* * * * * * *

* * * * * * *

[1]Product 3: Alloy magnesium ingots containing less than 99.8 percent magnesium, meeting ASTM specifications for alloy magnesium.

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

Price trends

In general, prices increased during January 2016- June 2019. Table V-6 summarizes the price trends, by country and by product. As shown in the table, domestic price increases ranged from *** to *** percent during January 2016-June 2019 while import prices of product 2 increased by *** percent and product 3 prices deceased ***.

Indexed price data compares how prices of products 2 and 3 trended for U.S. producers (figure V-5) and the subject importer (figure V-6).[28] As shown in the figure, most of the increase in domestic prices of products 2 and 3 occurred in the last quarter of 2018 through the first half of 2019.[29] Prices of subject imports decreased until about the third quarter of 2018 at which point they increased throughout the rest of the year and into the first half of 2019.

Table V-6
Magnesium: Summary of weighted-average f.o.b. prices for products 1-3 from the United States and Israel

Item	Number of quarters	Low price (dollars per metric ton)	High price (dollars per metric ton)	Change in price over period[1] (percent)
Product 1: United States	***	***	***	***
Israel	***	***	***	***
Product 2: United States	***	***	***	***
Israel	***	***	***	***
Product 3: United States	***	***	***	***
Israel	***	***	***	***

[1] Percentage change from the first quarter in which data were available to the last quarter in which price data were available.
Source: Compiled from data submitted in response to Commission questionnaires.

[28] Product 1 is not included as there was ***.

[29] US Magnesium explained that the price increase in the fourth quarter of 2018 was due to a "large consumer" that had not contracted enough for the calendar year, and entered into a short term contract with "significantly higher prices than their current contract price." US Magnesium stated it was "one of those rare cases" where it had enough product in inventory to supply the purchaser's needs. Hearing transcript, pp. 95-96 (Tissington).

Figure V-5
Magnesium: Indexed U.S. producer prices, January 2016 through June 2019

* * * * * * *

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

Figure V-6
Magnesium: Indexed subject U.S. importer prices, January 2016 through June 2019

* * * * * * *

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

Price comparisons

As shown in table V-7, prices for product imported from Israel were below those for U.S.-produced product in 6 of 29 instances (*** metric tons); margins of underselling ranged from *** to *** percent.[30] In most quarters, the remaining 23 instances (*** metric tons), prices for product from Israel were between *** and *** percent above prices for the domestic product.[31]

[30] US Magnesium argued that there are "significant problems" with the pricing data. These problems include product mix issues, as ***, ***, and DSM ***. US Magnesium stated that DSM's sales to ***. Petitioner's posthearing brief, Exhibit 1 pp. 25-26 and 28-29. *** reported in its questionnaire that it purchased ***. A magnesium content of ***. *** reported buying ***. A magnesium content of ***. *** email to USITC Staff, December 4, 2019. DSM also reported ***. Respondent's posthearing brief, Exhibit G pp.1-2. US Magnesium also contended that DSM ***. Petitioner's prehearing brief, pp. 37-38. DSM reported that ***. Respondent's posthearing brief, pp. II-31-II-32, and *** email message to USITC Staff, November 18, 2019. Based on this correction, US Magnesium stated that DSM ***. Petitioner's posthearing brief, Exhibit 1 pp.28-29.

[31] US Magnesium stated that there are price effects that do not show in the pricing data as the data do not take into account Israeli offers that purchasers use as leverage to drive down US Magnesium's prices during contract negotiations. Hearing transcript, pp. 25-26 (Tissington) and 249-250 (Vaughn).

Table V-7
Magnesium: Instances of underselling/overselling and the range and average of margins, by product, January 2016-June 2019

Source	Underselling				
	Number of quarters	Quantity (metric tons)	Average margin (percent)	Margin Range (percent)	
				Min	Max
Product 1	***	***	***	***	***
Product 2	***	***	***	***	***
Product 3	***	***	***	***	***
Total, underselling	***	***	***	***	***
Source	(Overselling)				
	Number of quarters	Quantity (metric tons)	Average margin (percent)	Margin Range (percent)	
				Min	Max
Product 1	***	***	***	***	***
Product 2	***	***	***	***	***
Product 3	***	***	***	***	***
Total, overselling	***	***	***	***	***

[1] These data include only quarters in which there is a comparison between the U.S. and subject product. As shown in the tables above, there was ***.

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

Lost sales and lost revenue

In the preliminary phase of these investigations, the Commission requested that U.S. producers of magnesium report purchasers where they experienced instances of lost sales or revenue due to competition from imports of magnesium from Israel during 2016-2018. Petitioner U.S. Magnesium submitted lost sales and lost revenue allegations; it identified *** firms where it lost sales or revenue (***).

In the final phase of these investigations, of the five responding U.S. producers, three reported that they had to either reduce prices, and three firms reported that they had lost sales.[32]

Staff contacted 72 purchasers and received responses from 35 purchasers.[33] Responding purchasers reported purchasing and importing 193,972 metric tons of magnesium during

[32] No responding U.S. producer reported having to roll back announced price increases.

[33] Two purchasers (***) submitted lost sales lost revenue survey responses in the preliminary phase, but did not submit purchaser questionnaire responses in the final phase.

January 2016-June 2019 (table V-8).[34] During 2018, responding purchasers purchased 76.2 percent from U.S. producers, 12.1 percent from Israel, 11.0 percent from nonsubject countries, and 0.4 percent from "unknown source" countries.

Of the 35 responding purchasers, 17 reported that they had purchased imported magnesium from Israel instead of U.S.-produced product since 2016. Six of these purchasers reported that subject import prices were lower than U.S.-produced product, and three of these purchasers reported that price was a primary reason for the decision to purchase imported product rather than U.S.-produced product. Three purchasers estimated the quantity of magnesium from Israel purchased instead of domestic product; quantities ranged from *** metric tons to *** metric tons (table V-9).[35] DSM reported that these lost sales should be rejected, as the subject imports were priced higher than the domestic or *** won the business.[36] US Magnesium disagreed, arguing that an average higher price for Israeli product does not indicate that these particular sales of Israeli product were higher priced.[37] Purchasers identified maintaining diversity of supply as the most common non-price factor for purchasing Israeli magnesium rather than U.S.-produced magnesium. Purchasers also listed availability, services and terms, and U.S. producers' limited capacity. Westinghouse and ATI noted that US Magnesium is unable to meet the firms' specifications, and both firms primarily purchased magnesium from Israel.[38]

Of the 35 responding purchasers, 2 reported that U.S. producers had reduced prices in order to compete with lower-priced imports from Israel (table V-10; 17 reported that they did not know).[39] The reported estimated price reduction ranged from 5 to 10 percent.[40] In describing the price reductions, one purchaser indicated that U.S. producers reduced prices due to annualized contracts.

---

[34] Purchasers were also asked to provide their purchase values. These are presented in Appendix G.

[35] US Magnesium indicated it had specific examples not included in the purchaser's lost sales and lost revenue responses in which it lost sales to DSM in 2016 and 2017, but was able to regain these sales in 2018 by lowering its price, specifically referencing sales to ***. Petitioner's prehearing brief, pp. 31-34.

[36] Respondent's posthearing brief, p. II-33.

[37] Petitioner's posthearing brief, Exhibit 1 pp. 42-44

[38] ATI prehearing brief, pp. 2-3 and hearing transcript, pp.182-183 (Francis).

[39] ***, one of the two purchasers that indicated U.S. producers had reduced prices, ***. It indicated it changed its supplier to ensure a magnesium supply throughout 2019 in response to these investigations.

[40] *** reported purchasing from US Magnesium.

Table V-8
Magnesium: Purchasers’ responses regarding purchasing patterns

Purchaser	Purchases and imports in January 2016 through June 2019			Change in domestic share (pp, 2016-18)	Change in subject country share (pp, 2016-18)
	Domestic	Subject	All other		
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	***	***	***	***	***

Notes: “All other” includes all other sources and unknown sources.
Change in domestic and subject country share percentage points (pp): Change in the share of the firm’s total purchases of domestic and/or subject country imports between first and last years.
***.

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

Table V-9
Magnesium: Purchasers' responses to purchasing subject imports instead of domestic product

Purchaser	Subject imports purchased instead of domestic (Y/N)	Imports priced lower (Y/N)	If purchased subject imports instead of domestic, was price a primary reason		
			Y/N	If Yes, quantity (metric tons)	If No, non-price reason
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***

Table continued on next page.

Table V-9--Continued.
Magnesium: Purchasers' responses to purchasing subject imports instead of domestic product

Purchaser	Subject imports purchased instead of domestic (Y/N)	Imports priced lower (Y/N)	If purchased subject imports instead of domestic, was price a primary reason		
			Y/N	If Yes, quantity (metric tons)	If No, non-price reason
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total	**Yes--17; No--18**	**Yes--6; No--11**	**Yes--3; No--14**	***	

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

Table V-10
Magnesium: Purchasers' responses to U.S. producer price reductions

Purchaser	Producers reduced price (Y/N)	If produced reduced prices: Estimated U.S. price reduction (percent)	If produced reduced prices: Additional information, if available
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Total / average	**Yes--2; No--16**	***	

Note:--***. ***.

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

Part VI: Financial experience of U.S. producers

Background

Five U.S. producers provided usable financial data on their operations on magnesium. *** reported financial results on non-grinding production. *** reported financial results on grinding production.[1] [2] US Magnesium accounted for the majority of total combined net sales value in 2018 (*** percent), followed by *** (*** percent), *** (*** percent), *** (*** percent), and *** (*** percent). The combined net sales value of magnesium consisted of commercial sales (*** percent) and internal consumption (*** percent) in 2018. *** reported transfers to related firms in 2016 and 2017 which accounted for *** percent and *** percent of total combined net sales value of magnesium, respectively.[3] Internal consumption and transfers to related firms are included but not shown separately in this section of the report. All U.S. producers reported their financial results on the basis of U.S. generally accepted accounting principles. All U.S. producers except *** used a calendar year to report their financial results.[4] ***.[5] The tollee provides the magnesium scraps and other materials to the toller which then processes it and charges a conversion charge/tolling fee for the services. The financial data

[1] "Non-grinding production" refers to the production of magnesium by decomposing raw materials or recycling magnesium-based scrap into magnesium material. "Grinding production" refers to grinding magnesium ingots or atomizing molten magnesium.

[2] ***. Emails from ***, October 7 and 9, 2019. ***.

[3] ***. Email from ***, October 11, 2019.

[4] ***.

[5] ***. U.S. producers' questionnaire responses of ***, question II-4.

presented in this part excluded tolling operations to avoid double counting of production and to minimize distortions for this analysis.[6]

Staff conducted a verification of ***'s U.S. producer questionnaire. The verification adjustments were incorporated into this report. ***.[7]

Operations on magnesium

Income-and-loss data for non-grinding production by U.S. producers are presented in table VI-1. Table VI-2 presents corresponding changes in average per metric ton values. Income-and-loss data for grinding production are presented in table VI-3. Table VI-4 presents corresponding changes in average per metric ton values. Income-and-loss data for U.S. producers' combined operations are presented in table VI-5. Table VI-6 presents corresponding changes in average per metric ton values. Table VI-7 presents company-specific financial information.

[6] Appendix E-1 presents financial results of US Magnesium's non-grinding toll production for ATI, appendix E-2 presents financial results of AMACOR's non-grinding toll production for US Magnesium and other firms, appendix E-3 presents financial results of non-grinding U.S. producers including operations of tollers, and appendix E-4 presents financial results of combined operations of non-grinding and grinding U.S. producers, and tollers.

[7] Staff verification report, ***, November25, 2019.

Table VI-1
Magnesium: Results of operations of non-grinding U.S. producers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Net sales quantity	***	***	***	***	***
	Value (1,000 dollars)				
Net sales Value	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

Table continued on next page.

Table VI-1–Continued
Magnesium: Results of operations of non-grinding U.S. producers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Ratio to total COGS (percent)				
Cost of goods sold before by-product offset.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Net sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Number of firms reporting				
Operating losses	***	***	***	***	***
Net losses	***	***	***	***	***
Data	***	***	***	***	***

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

Table VI-2
Magnesium: Changes in AUVs for non-grinding producers, between fiscal years and between partial year periods

Item	Between fiscal years			Between partial year period
	2016-18	2016-17	2017-18	2018-19
	Change in AUVs (dollars per metric ton)			
Net sales	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***
Direct labor	***	***	***	***
Other factory costs	***	***	***	***
By-product revenue	***	***	***	***
Average COGS	***	***	***	***
Gross profit	***	***	***	***
SG&A expense	***	***	***	***
Operating income or (loss)	***	***	***	***
Net income or (loss)	***	***	***	***

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

Table VI-3
Magnesium grinder: Results of operations of *, 2016-18, January to June 2018, and January to June 2019**

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Net sales quantity	***	***	***	***	***
	Value (1,000 dollars)				
Net sales value	***	***	***	***	***
Cost of goods sold.-- Raw materials from: United States	***	***	***	***	***
Israel	***	***	***	***	***
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials from: United States	***	***	***	***	***
Israel	***	***	***	***	***
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

Table continued on next page.

Table VI-3–Continued
Magnesium grinder: Results of operations of *, 2016-18, January to June 2018, and January to June 2019**

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Ratio to total COGS (percent)				
Cost of goods sold.--					
Raw materials from:					
United States	***	***	***	***	***
Israel	***	***	***	***	***
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Net sales	***	***	***	***	***
Cost of goods sold.--					
Raw materials from:					
United States	***	***	***	***	***
Israel	***	***	***	***	***
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Number of firms reporting				
Operating losses	***	***	***	***	***
Net losses	***	***	***	***	***
Data	***	***	***	***	***

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

Table VI-4
Magnesium grinder: Changes in AUVs, between fiscal years and between partial year periods

Item	Between fiscal years			Between partial year period
	2016-18	2016-17	2017-18	2018-19
	Change in AUVs (dollars per metric ton)			
Net sales	***	***	***	***
Cost of goods sold.--				
Raw materials	***	***	***	***
Direct labor	***	***	***	***
Other factory costs	***	***	***	***
Average COGS	***	***	***	***
Gross profit	***	***	***	***
SG&A expense	***	***	***	***
Operating income or (loss)	***	***	***	***
Net income or (loss)	***	***	***	***

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

Table VI-5
Magnesium: Results of combined operations of U.S non-grinding producers and grinder, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Net sales quantity	***	***	***	***	***
	Value (1,000 dollars)				
Net sales value	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Ratio to total COGS (percent)				
Cost of goods sold before by-product offset.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***

Table continued on next page.

Table VI-5–Continued
Magnesium: Results of combined operations of U.S. non-grinding producers and grinder, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Unit value (dollars per metric ton)				
Total net sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
	Number of firms reporting				
Operating losses	***	***	***	***	***
Net losses	***	***	***	***	***
Data	***	***	***	***	***

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

Note: ***.

Table VI-6
Magnesium: Results of combined operations of U.S. non-grinding producers and grinder, changes in AUVs between fiscal years and between partial year periods

Item	Between fiscal years			Between partial year period
	2016-18	2016-17	2017-18	2018-19
	Change in AUVs (dollars per metric ton)			
Total net sales	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***
Direct labor	***	***	***	***
Other factory costs	***	***	***	***
Average COGS	***	***	***	***
Gross profit	***	***	***	***
SG&A expense	***	***	***	***
Operating income or (loss)	***	***	***	***
Net income or (loss)	***	***	***	***

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

Table VI-7
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Total net sales (metric tons)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total net sales quantity	***	***	***	***	***
	Total net sales (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total net sales value	***	***	***	***	***
	Cost of goods sold (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total COGS	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Gross profit or (loss) (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total gross profit or (loss)	***	***	***	***	***
	SG&A expenses (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total SG&A expenses	***	***	***	***	***
	Operating income or (loss) (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total operating income or (loss)	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Net income or (loss) (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total net income or (loss)	***	***	***	***	***
	COGS to net sales ratio (percent)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average COGS to net sales ratio	***	***	***	***	***
	Gross profit or (loss) to net sales ratio (percent)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average gross profit or (loss) to net sales ratio	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	SG&A expense to net sales ratio (percent)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average SG&A expense to net sales ratio	***	***	***	***	***
	Operating income or (loss) to net sales ratio (percent)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average operating income or (loss) to net sales ratio	***	***	***	***	***
	Net income or (loss) to net sales ratio (percent)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average net income or (loss) to net sales ratio	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Unit net sales value (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit net sales value	***	***	***	***	***
	Unit raw materials (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit raw materials	***	***	***	***	***
	Unit direct labor (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit direct labor	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Unit other factory costs (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit other factory costs	***	***	***	***	***
	Unit COGS (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit COGS	***	***	***	***	***
	Unit gross profit or (loss) (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit gross profit or (loss)	***	***	***	***	***

Table continued on next page.

Table VI-7–Continued
Magnesium: Select results of operations of U.S. producers, by company, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Unit SG&A expenses (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit SG&A expense	***	***	***	***	***
	Unit operating income or (loss) (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit operating income or (loss)	***	***	***	***	***
	Unit net income or (loss) (dollars per metric ton)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Average non-grinding producers	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Average unit net income or (loss)	***	***	***	***	***

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

Note: ***.

Net sales

Based on table VI-7, non-grinding producers reported irregularly declining net sales, by quantity and value from 2016 to 2018, and lower net sales quantity and higher net sales value in January-June 2019 than in January-June 2018. The magnesium grinder reported overall increasing and higher net sales, by quantity and value, from 2016 to 2018 and between the comparable interim periods, respectively. U.S. producers reported mixed directional trends in terms of volume and value.[8]

Non-grinding producers reported declining unit net sales from $*** in 2016 to $*** in 2018, and higher unit net sales values between the comparable interim periods. The magnesium grinder reported irregularly declining unit net sales from $*** in 2016 to $*** in 2018, and lower unit net sales values between the comparable interim periods. ***.

Costs of goods sold and gross profit or (loss)

With respect to non-grinding producers, the average COGS to net sales ratio ranged from *** percent in interim 2019 to *** percent in 2018. For the magnesium grinder, the average COGS to net sales ratio ranged from *** percent in 2016 to *** percent in interim 2019 (see table VI-7). *** reported by-product revenue which was subtracted from COGS.[9] ***.[10]

[8] ***. Petitioner's postconference brief, exh. 9.
[9] ***. Email from ***, October 17, 2019.
[10] U.S. producers' questionnaire responses of ***, question III-8.

Raw materials

With respect to non-grinding producers, raw materials are the smallest component of COGS, representing between *** percent (in 2016) and *** percent (in January-June 2019) of total COGS (see table VI-1). For the magnesium grinder, raw materials are the largest component of COGS, representing between *** percent (in 2016) and *** percent (in January-June 2018 and January-June 2019) of total COGS (see table VI-3). As shown in table VI-7, the average unit raw material cost for non-grinding producers increased from $*** in 2016 to $*** in 2018 and was higher between the comparable interim periods.[11] The average unit raw material cost for the magnesium grinder irregularly declined from $*** in 2016 to $*** in 2018 and was lower between the comparable interim periods. Raw materials consist of magnesium chloride, magnesium-containing ore, other magnesium containing primary materials, processed magnesium, cover gases, and ***.[12]

***.[13] [14]

[11] ***. Petitioner's posthearing brief, volume I, exhibit 1, p. 72.
[12] ***. Email from ***, October 9, 2019.
[13] ***. Email from ***, October 9, 2019.
[14] ***. Email from ***, October 10, 2019.

Direct Labor

With respect to non-grinding producers, direct labor costs accounted for between *** percent (in 2018) and *** percent (in 2017) of total COGS. The average unit direct labor costs for non-grinding producers irregularly declined from $*** in 2016 to $*** in 2018 and was higher between the comparable interim periods (see table VI-1). For the magnesium grinder, direct labor costs accounted for between *** percent (in interim 2018) and *** percent (in 2016) of total COGS. The average unit direct labor costs for the magnesium grinder irregularly declined from $*** in 2016 to $*** in 2018 and was lower between the comparable interim periods (see table VI-3). As shown in table VI-7, ***.[15]

Other factory costs

With respect to non-grinding producers, other factory costs ("OFC") are the largest component of COGS, representing between *** percent (in January-June 2019) and *** percent (in 2016) of total COGS (see table VI-1). For the magnesium grinder, OFC accounted for between *** percent (in January-June 2019) and *** percent (in 2016 and) of total COGS (see table VI-3). As shown in table VI-7, the average unit OFC for non-grinding producers declined from $*** in 2016 to $ *** in 2018 and was lower between the comparable interim periods. The average unit OFC for the magnesium grinder irregularly declined from $ *** in 2016 to $ *** in 2018 and was lower between the comparable interim periods. ***.[16] [17]

[15] ***. Petitioner's postconference brief, p. A-8.

[16] US Magnesium uses solar energy to increase the concentration of magnesium chloride in brine from the Great Salt Lake. A spokesman for US Magnesium testified that solar energy is not a cost item on the firm's financial statements. Conference transcript, p. 76 (Tissington), and US Magnesium's website, http://usmagnesium.com/environment/solar-energy/.

[17] Estimated value added (total conversion costs (direct labor and OFC) as a share of total COGS) for the magnesium grinder ranged from a low of *** percent in interim 2018 and interim 2019 to a high of *** percent in 2016 (calculated from table VI-3).

Gross profit or loss

With respect to non-grinding producers, gross profit irregularly declined from $*** in 2016 to a gross loss of $*** in 2018, but was higher in January-June 2019 than gross loss in January-June 2018. Declining unit net sales value with increasing unit COGS from 2016 to 2018 led to a decline in the gross profit margin (gross profit as a ratio to net sales). While both unit net sales value and COGS were higher in interim 2019 than in interim 2018, unit net sales value increased more, and led to a higher gross profit margin between the comparable interim periods. ***.

For the magnesium grinder, gross profit irregularly increased from $*** in 2016 to $*** in 2018, but was lower in January-June 2019 than in January-June 2018. Although unit COGS declined from 2016 to 2018, unit net sales value declined to a greater extent which led to a decline in the gross profit margin. While both unit net sales value and COGS were lower in interim 2019 than in interim 2018, unit COGS increased more, and led to a lower gross profit margin between the comparable interim periods.

SG&A expenses and operating income

As shown in table VI-7, the SG&A expense ratio (i.e., total SG&A expenses divided by total net sales value) for non-grinding producers irregularly increased from 2016 to 2018 and stayed unchanged between the comparable interim periods. The SG&A expense ratio for the magnesium grinder irregularly declined from 2016 to 2018 and stayed unchanged between the comparable interim periods.[18]

With respect to non-grinding producers, operating loss increased from $*** in 2016 to $*** in 2018 and operating income ($***) was reported in interim 2019 compared to operating loss ($***) in interim 2018. Operating loss margin (operating

[18] ***. U.S. producers' questionnaire response of ***, questions III-10b. ***. Email from ***, October 18, 2019.

loss as a ratio to net sales) increased from 2016 to 2018 and operating income margin was reported in interim 2019 compared to operating loss margin in interim 2018. The company-specific pattern of operating income/loss margin was also mixed with ***.

Operating income for the magnesium grinder irregularly increased from 2016 to 2018 but was lower between the comparable interim periods. Operating income margin irregularly declined from 2016 to 2018 and was lower between the comparable interim periods.

Other expenses and net income

Classified below the operating income level are interest expense, other expense, and other income, which are usually allocated to the product line from high levels in the corporation.

With respect to non-grinding producers, interest expenses irregularly increased from 2016 to 2018 and were lower in January-June 2019 compared to January-June 2018. Other expenses declined from 2016 to 2018 and were lower in interim 2019 than in interim 2018. ***.[19] ***.[20]

By definition, items classified at this level in the income statement only affect net income or (loss). With respect to non-grinding producers, net loss declined from $*** in 2016 to $*** in 2018 and was lower in interim 2019 than in interim 2018. Net loss margin (net loss as a ratio to net sales) also declined from 2016 to 2018 and was lower in interim 2019 compared to interim 2018. The company-specific pattern of net income/loss margin

[19] U.S. producers' questionnaire response of ***, questions III-10a and 10b. ***. Email from ***, November 25, 2019.

[20] ***. U.S. producers' questionnaire response of ***, question III-10b.

was also mixed with ***.

Net income for the magnesium grinder irregularly increased from 2016 to 2018 but was lower between the comparable interim periods. Net income margin for the magnesium grinder irregularly declined from 2016 to 2018 and was lower between the comparable interim periods.

Variance analysis

Due to the aforementioned differences in product mix and cost structure among reporting firms, a variance analysis is not presented in this report.

Capital expenditures and research and development expenses

Table VI-8 presents capital expenditures and research and development ("R&D") expenses by firm. With respect to non-grinding producers, capital expenditures irregularly declined from $*** in 2016 to $*** in 2018 and were higher in January-June 2019 compared to January-June 2018. None of non-grinding producers reported R&D expenses.

Capital expenditures for the magnesium grinder increased from 2016 to 2018 and were higher in January-June 2019 compared to January-June 2018. R&D expenses for the magnesium grinder declined from 2016 to 2018 and were higher in January-June 2019 compared to January-June 2018. ***.[21]

Table VI-8
Magnesium: Capital expenditures and R&D expenses for U.S. producers, by firm, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Capital expenditures (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers capital expenditures	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total capital expenditures	***	***	***	***	***
	R&D expenses (1,000 dollars)				
Non-grinding producers:					
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
***	***	***	***	***	***
Total non-grinding producers R&D expenses	***	***	***	***	***
Grinder:					
***	***	***	***	***	***
Total grinder R&D expenses	***	***	***	***	***
Total R&D expenses	***	***	***	***	***

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

[21] Email from ***, October 10, 2019.

Assets and return on assets

Table VI-9 presents data on the U.S. producers' total assets and their return on assets ("ROA"). With respect to non-grinding producers, asset values declined from $*** in 2016 to $*** in 2018, whereas the ROA worsened from *** percent to *** percent.

Asset values for the magnesium grinder irregularly increased from 2016 to 2018, and the ROA irregularly declined from *** percent to *** percent during the reporting period.

Table VI-9
Magnesium: Value of assets used in production, warehousing, and sales, and operating return on asset for U.S. producers by firm, 2016-18

Firm	Fiscal years		
	2016	2017	2018
	Total net assets (1,000 dollars)		
Non-grinding producers:			
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Total non-grinding producers assets	***	***	***
Grinder:			
***	***	***	***
Total net assets	***	***	***
	Operating ROA (percent)		
Non-grinding producers:			
***	***	***	***
***	***	***	***
***	***	***	***
***	***	***	***
Average non-grinding producers operating ROA	***	***	***
Grinder:			
***	***	***	***
Average operating ROA	***	***	***

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

Note: ***. Email from ***, October 24, 2019.

Capital and investment

The Commission requested U.S. producers of magnesium to describe any actual or potential negative effects of imports of magnesium from Israel on their firms' growth, investment, ability to raise capital, development and production efforts, or the scale of capital investments. Table VI-10 presents U.S. producers' responses in a tabulated format and table VI-11 provides the narrative responses.

Table VI-10
Magnesium: Actual and anticipated negative effects of imports on investment and growth and development

Item	No	Yes
Negative effects on investment	2	3
Cancellation, postponement, or rejection of expansion projects		2
Denial or rejection of investment proposal		0
Reduction in the size of capital investments		2
Return on specific investments negatively impacted		2
Other		2
Negative effects on growth and development	2	3
Rejection of bank loans		2
Lowering of credit rating		1
Problem related to the issue of stocks or bonds		0
Ability to service debt		0
Other		2
Anticipated negative effects of imports	2	3

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

Table VI-11
Magnesium: Narratives relating to actual and anticipated negative effects of imports on investment and growth and development, since January 1, 2016

Item / Firm	Narrative
Cancellation, postponement, or rejection of expansion projects:	
***	***
***	***
Reduction in the size of capital investments:	
***	***
***	***
Return on specific investments negatively impacted:	
***	***
***	***
Other negative effects on investments:	
***	***
***	***

Table continued on next page.

Table VI-11–Continued
Magnesium: Narratives relating to actual and anticipated negative effects of imports on investment and growth and development, since January 1, 2016

Rejection of bank loans:	
***	***
***	***
Lowering of credit rating:	
***	***
Other effects on growth and development:	
***	***
***	***
Anticipated effects of imports:	
***	***
***	***
***	***

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

Part VII: Threat considerations and information on nonsubject countries

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

> *In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors*[1]*--*
>
> *(I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
>
> *(II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
>
> *(III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
>
> *(IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
>
> *(V) inventories of the subject merchandise,*

[1] Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that "The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition."

(VI) the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,

(VII) in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),

(VIII) the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and

(IX) any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).[2]

Information on the nature of the subsidies was presented earlier in this report; information on the volume and pricing of imports of the subject merchandise is presented in *Parts IV* and *V*; and information on the effects of imports of the subject merchandise on U.S. producers' existing development and production efforts is presented in *Part VI*. Information on inventories of the subject merchandise; foreign producers' operations, including the potential for "product-shifting;" any other threat indicators, if applicable; and any dumping in third-country markets, follows. Also presented in this section of the report is information obtained for consideration by the Commission on nonsubject countries.

[2] Section 771(7)(F)(iii) of the Act (19 U.S.C. § 1677(7)(F)(iii)) further provides that, in antidumping investigations, ". . . the Commission shall consider whether dumping in the markets of foreign countries (as evidenced by dumping findings or antidumping remedies in other WTO member markets against the same class or kind of merchandise manufactured or exported by the same party as under investigation) suggests a threat of material injury to the domestic industry."

The industry in Israel

The Commission issued a foreign producers' questionnaire to one firm believed to produce and export magnesium from Israel, Dead Sea Magnesium LTD ("DSM").[3] DSM's exports to the United States accounted for all known U.S. imports of magnesium from Israel in 2018. According to estimates requested of the responding Israeli producer, the production of magnesium in Israel reported in its questionnaire accounts for all known production of magnesium in Israel in 2018.[4] Table VII-1 presents information on the magnesium operations of the responding producer/exporter in Israel.

Table VII-1
Magnesium: Summary data for producer in Israel, 2018

Firm	Production (metric tons)	Share of reported production (percent)	Exports to the United States (metric tons)	Share of reported exports to the United States (percent)	Total shipments (metric tons)	Share of firm's total shipments exported to the United States (percent)
DSM	***	***	***	***	***	***
Total	***	***	***	***	***	***

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

Changes in operations

DSM did not report any operational or organizational changes since January 1, 2016.

Operations on magnesium

Table VII-2 presents information on the magnesium operations of DSM. DSM's production capacity increased by *** percent between 2016 and 2017, decreased by *** percent between 2017 and 2018, and was *** percent lower during January-June 2019

[3] This firm was identified through a review of information submitted in the petition and contained in *** records.

[4] Hearing transcript, p. 87 (Lerer).

compared to January-June 2018.[5] [6] DSM projects its 2020 production capacity to be *** percent higher compared to 2019. During the period for which data were collected, DSM's capacity utilization rate remained above *** percent with the exception of the January-June 2018 period, when it dropped to *** percent.

DSM's magnesium production increased by *** percent between 2016 and 2017, decreased by *** percent between 2017 and 2018, and was *** percent higher during January-June 2019 compared to January-June 2018. DSM projects to produce *** in 2020 compared to 2019.

DSM had no home market shipments. During 2016-18, DSM's export shipments to the United States, by quantity, increased by *** percent and were *** percent lower during January-June 2019 compared to January-June 2018. DSM projects its 2020 export shipments to the United States to be *** percent (*** metric tons) higher than in 2019, but at the same level as 2018.[7] DSM's export shipments, by quantity, to all other markets increased by *** percent between 2016 and 2017, increased by *** percent between 2017 and 2018, and were *** percent higher during January-June 2019 compared to January-June 2018. DSM projects its export shipments to all other markets to increase by *** percent in 2020 compared to 2019.

[5] In its 2018 20-F filing, DSM's parent company, Israel Chemicals Ltd ("ICL") reported that it had an annual potential capacity of 33,000 metric tons and that it produced 21,000 metric tons in 2018. ICL noted that the capacity is based upon continuous production capacity over the year, 24-hours a day, and that "the actual quantity of the magnesium produced depends on the demand for chlorine (used in the production of bromine) and, therefore, it is possible that the actual production will be lower than the production capacity. Additional factors that can reduce the actual production are unexpected breakdowns, special maintenance operations, non-availability of raw materials and market conditions." ICL 20-F, p. 67 found at https://www.sec.gov/Archives/edgar/data/941221/000117891319000693/zk1922742.htm.

[6] DSM stated that its production capacity is lower than its nameplate capacity because it had, prior to January 2016, "made the business decision to idle several electrolytic cells. Because the cells were allowed to stay idle they can no longer be put back into production without significant new capital expense." Conference transcript, p. 90 (Lerer).

[7] DSM noted that ***.

Table VII-2
Magnesium: Data for producers in Israel, 2016-18, January to June 2018, January to June 2019, and projections for calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to June		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	Quantity (metric tons)						
Capacity	***	***	***	***	***	***	***
Production	***	***	***	***	***	***	***
End-of-period inventories	***	***	***	***	***	***	***
Shipments:							
Home market shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Total home market shipments	***	***	***	***	***	***	***
Export shipments to:							
United States	***	***	***	***	***	***	***
All other markets	***	***	***	***	***	***	***
Total exports	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***
	Ratios and shares (percent)						
Capacity utilization	***	***	***	***	***	***	***
Inventories/production	***	***	***	***	***	***	***
Inventories/total shipments	***	***	***	***	***	***	***
Share of shipments:							
Home market shipments:							
Internal consumption/ transfers	***	***	***	***	***	***	***
Commercial home market shipments	***	***	***	***	***	***	***
Total home market shipments	***	***	***	***	***	***	***
Export shipments to:							
United States	***	***	***	***	***	***	***
All other markets	***	***	***	***	***	***	***
Total exports	***	***	***	***	***	***	***
Total shipments	***	***	***	***	***	***	***

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

Table VII-3 presents DSM's production of magnesium, chlorine, chlorine supplied to DSM's parent company ICL, and ICL's production and consumption of bromine.

Table VII-3
Magnesium: Foreign producers related production and consumption, 2016-18, January to June 2018, and January to June 2019 and projections for calendar years 2019 and 2020

Item	Actual experience					Projections	
	Calendar year			January to June		Calendar year	
	2016	2017	2018	2018	2019	2019	2020
	Quantity (metric tons)						
Production of magnesium	***	***	***	***	***	***	***
Production of chlorine	***	***	***	***	***	***	***
Total production of magnesium and chlorine	***	***	***	***	***	***	***
Chlorine supplied by ICL by DSM	***	***	***	***	***	***	***
Production of bromine (ICL)	***	***	***	***	***	***	***
Chorine consumed during bromine production	***	***	***	***	***	***	***
	Share of production (percent)						
Production of magnesium	***	***	***	***	***	***	***
Production of chlorine	***	***	***	***	***	***	***
Total production of magnesium and chlorine	***	***	***	***	***	***	***
Chlorine supplied by ICL by DSM	***	***	***	***	***	***	***

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

Alternative products

DSM did not report the production of *** out-of-scope products on the same equipment and machinery used to produce magnesium.

Exports

Table VII-4 presents exports from Israel as reported by UN Comtrade data. The leading export markets for magnesium from Israel are the United States, Brazil, and Canada (table VII-4). During 2018, the United States was the top export market for magnesium from Israel, accounting for 50.5 percent of exports, followed by Brazil, accounting for 18.1 percent of exports. The quantity of magnesium exports from Israel to the United States decreased by 18.1 percent between 2016 and 2018. Exports from Israel to Brazil decreased by 26.8 percent between 2016 and 2017, and then increased by 25.0 percent between 2017 and 2018. Exports from Israel to Canada increased from 979 metric tons to 3,983 metric tons, a 306.8 percent increase, between 2016 and 2018.

Between 2016 and 2018, the average unit value of magnesium exports from Israel to the United States increased by 9.4 percent, while the average unit value of all magnesium exports from Israel increased by 11.7 percent.

Table VII-4
Magnesium: Exports from Israel by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Quantity (metric tons)		
United States	18,522	16,795	15,163
Brazil	5,935	4,347	5,432
Canada	979	2,884	3,983
Belgium	337	1,717	1,595
Italy	1,340	1,712	1,082
Turkey	---	---	754
United Kingdom	1,767	1,870	677
Poland	---	---	655
France	1,420	87	293
All other destination markets	492	92	372
Total exports	30,792	29,504	30,008
	Value (1,000 dollars)		
United States	44,309	41,215	39,680
Brazil	14,160	10,498	15,127
Canada	2,601	8,488	11,974
Belgium	780	4,000	4,263
Italy	3,283	4,137	2,670
Turkey	---	---	1,861
United Kingdom	4,685	5,490	2,001
Poland	---	---	1,617
France	3,282	202	723
All other destination markets	1,157	230	945
Total exports	74,257	74,260	80,861

Table continued on next page.

Table VII-4—Continued
Magnesium: Exports from Israel by destination market, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Unit value (dollars per metric ton)		
United States	2,392	2,454	2,617
Brazil	2,386	2,415	2,785
Canada	2,656	2,943	3,006
Belgium	2,311	2,329	2,672
Italy	2,450	2,417	2,467
Turkey	---	---	2,467
United Kingdom	2,652	2,937	2,954
Poland	---	---	2,467
France	2,312	2,324	2,467
All other destination markets	2,353	2,492	2,543
Total exports	2,412	2,517	2,695
	Share of quantity (percent)		
United States	60.2	56.9	50.5
Brazil	19.3	14.7	18.1
Canada	3.2	9.8	13.3
Belgium	1.1	5.8	5.3
Italy	4.4	5.8	3.6
Turkey	---	---	2.5
United Kingdom	5.7	6.3	2.3
Poland	---	---	2.2
France	4.6	0.3	1.0
All other destination markets	1.6	0.3	1.2
Total exports	100.0	100.0	100.0

Source: Official exports statistics under HS subheadings 8104.11, 8104.19, and 8104.30 as reported by UN comtrade in the Global Trade Atlas database, accessed October 11, 2019.

Table VII-5 presents exports from Israel as reported by each destination market's national statistics authority. During 2018, the United States was the top export market for magnesium from Israel, accounting for 42 percent of exports, followed by Canada, accounting for 21.4 percent of exports. The quantity of magnesium exports from Israel to the United States decreased by 5.9 percent between 2016 and 2018. Exports from Israel to Canada increased by over 423 percent between 2016 and 2018. Exports from Israel to Brazil decreased by 24.1 percent between 2016 and 2017, and then increased by 49.3 percent between 2017 and 2018.

Between 2016 and 2018, the average unit value of magnesium exports from Israel to the United States decreased by 11.1 percent, while the average unit value of all magnesium exports from Israel decreased by 13.8 percent.

Table VII-5
Magnesium: Israel exports by exporter, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Quantity (metric tons)		
United States	11,335	11,450	10,664
Canada	1,038	3,002	5,435
Brazil	4,071	3,091	4,616
United Kingdom	1,175	2,066	874
France	875	778	851
Poland	---	---	679
Turkey	4	---	570
Belgium	98	128	513
Switzerland	518	517	473
All other destination markets	614	347	735
Total exports	19,728	21,379	25,409
	Value (1,000 dollars)		
United States	46,520	43,508	38,898
Canada	2,838	8,484	15,349
Brazil	14,967	11,050	14,924
United Kingdom	3,099	5,568	2,399
France	3,638	3,314	3,557
Poland	---	---	1,640
Turkey	3	---	1,460
Belgium	398	560	1,861
Switzerland	1,876	1,855	1,636
All other destination markets	2,603	1,458	2,596
Total exports	75,941	75,797	84,321
	Unit value (dollars per metric ton)		
United States	4,104	3,800	3,648
Canada	2,734	2,826	2,824
Brazil	3,677	3,574	3,233
United Kingdom	2,636	2,695	2,744
France	4,156	4,259	4,181
Poland	---	---	2,415
Turkey	755	---	2,559
Belgium	4,059	4,387	3,629
Switzerland	3,624	3,589	3,461
All other destination markets	4,237	4,201	3,531
Total exports	3,849	3,545	3,318

Table continued on next page.

Table VII-5—Continued
Magnesium: Israel exports by exporter, 2016-18

Destination market	Calendar year		
	2016	2017	2018
	Share of quantity (percent)		
United States	57.5	53.6	42.0
Canada	5.3	14.0	21.4
Brazil	20.6	14.5	18.2
United Kingdom	6.0	9.7	3.4
France	4.4	3.6	3.3
Poland	---	---	2.7
Turkey	0.0	---	2.2
Belgium	0.5	0.6	2.0
Switzerland	2.6	2.4	1.9
All other destination markets	3.1	1.6	2.9
Total exports	100.0	100.0	100.0

Source: Official global imports statistics from Israel (constructed exports) under HS subheading 8104.11, 8104.19, and 8104.30 as reported by various national statistical authorities in the Global Trade Atlas database, accessed November 21, 2019.

U.S. inventories of imported merchandise

Table VII-6 presents data on U.S. importers' reported inventories of magnesium. Inventories of imports from Israel increased by *** percent during 2016-2018, and were *** percent higher during January-June 2019 compared to January-June 2018. Its ratio to U.S. imports, U.S. shipments of imports, and total shipments of imports, all increased between 2016 and 2018, and were higher in January-June 2019 compared to January-June 2018.

Inventories of imports from nonsubject sources increased by *** metric tons, or *** percent, between 2016 and 2017, and then decreased by *** metric tons, or *** percent between 2017 and 2018. Inventories of imports from nonsubject sources were *** metric tons, or *** percent, lower in January-June 2019 compared to January-June 2018.

Table VII-6
Magnesium: U.S. importers' inventories by source, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Inventories (metric tons); Ratios (percent)				
Imports from Israel Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from Russia: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from Taiwan: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from Turkey: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from all other sources: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from nonsubject sources: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***
Imports from all import sources: Inventories	***	***	***	***	***
Ratio to U.S. imports	***	***	***	***	***
Ratio to U.S. shipments of imports	***	***	***	***	***
Ratio to total shipments of imports	***	***	***	***	***

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

U.S. importers' outstanding orders

The Commission requested importers to indicate whether they imported or arranged for the importation of magnesium from Israel and nonsubject sources after June 30, 2019. Table VII-7 presents importers' arranged imports from July 2019 through June 2020. *** arranged imports from Israel and *** arranged imports from nonsubject sources.

Table VII-7
Magnesium: Arranged imports, July 2019 through June 2020

Item	Period				
	Jul-Sept 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Total
	Quantity (metric tons)				
Arranged U.S. imports from.--					
Israel	***	***	***	***	***
Russia	***	***	***	***	***
Taiwan	***	***	***	***	***
Turkey	***	***	***	***	***
All other sources	***	***	***	***	***
Nonsubject sources	***	***	***	***	***
All import sources	***	***	***	***	***

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

Antidumping or countervailing duty orders in third-country markets

There are no known trade remedy actions on magnesium from Israel in third-country markets.[8]

There are duty orders in place for nonsubject countries, namely China.[9] On April 29, 2003, Brazil initiated antidumping investigations on imports from China of magnesium ingot and magnesium powder and on October 11, 2004, imposed antidumping duties of $1.18 per kilogram ($0.535 per pound) on pure magnesium ingot and $0.99 per kilogram ($0.449 per pound) on magnesium granules. In October 2005, Brazil expanded duties to include alloy magnesium from China. On October 7, 2010, Brazil made public its decision to continue the

[8] Based upon importer questionnaire responses and publicly available information from the WTO's dispute web portal.

[9] India reportedly applied definitive antidumping duties on imports of magnesium from China from July 24, 1998 until May 1, 2003. The duties were withdrawn upon a request by the affected domestic industry. Beginning in 1999, the EU had an antidumping duty order on imports of pure magnesium (unwrought unalloyed magnesium) from China. The EU orders on imports of pure magnesium expired in 2003. *Magnesium from China and Russia, Investigation Nos. 731-TA-1071-1072 (Review),* USITC Publication 4214, February 2011, IV-19.

application of antidumping duties for five more years on the imports of magnesium from China. On July 21, 2016, the second review concluded with the decision to continue the antidumping duties for another 5 years.[10]

Information on nonsubject countries

The USGS reported world primary magnesium production capacity of 2,000,000 metric tons in 2016 and world magnesium production of 970,000 metric tons in 2018.[11] The primary sources of U.S. imports of magnesium in 2018, by quantity, were Israel, Russia, Germany, Turkey, Canada, and Taiwan.[12] Cumulatively these countries accounted for 80 percent of U.S. imports of magnesium by quantity in 2018.

ICL stated in its 20-F filling that the "global magnesium markets can be divided into two in terms of price: regulated markets (based on prices of the local producers in the United States and Brazil) and ROW markets (Rest of the World - based on Chinese magnesium prices).[13]" ICL stated that magnesium prices in the regulated markets slightly increased during 2018.

ICL remarked that United States trade actions resulted in higher prices for steel, aluminum, and in the automotive sector.[14] The higher prices resulted in increased domestic production in those sectors, which consequently increased demand for raw materials, such as magnesium. In contrast to the United States, ICL stated that global demand for magnesium was weak.[15]

[10] World Trade Organization (WTO), Committee on Anti-Dumping Practices, *Semi-Annual Report Under Article 16.4 of the Agreement, Brazil,* G/ADP/N/300/BRA, October 2, 2017, p. 11.

[11] The world production estimate excludes U.S. production. Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Minerals Yearbook, August 2018, p. 45.11; and Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Mineral Commodity Summaries, February 2019, p. 103.

[12] See Table IV-3 for more information.

[13] ICL, "Form F-20," February 27, 2019, p. 67.

[14] ICL, "Form F-20," February 27, 2019, p. 135.

[15] ICL, "Form F-20," February 27, 2019, p. 135.

China

According to USGS estimates, China accounted for 82.5 percent of global primary magnesium production in 2018.[16] China also accounted for 67.1 percent of global exports of magnesium in 2018, see Table VII-8. The United States has three separate AD/CVD orders on Chinese magnesium.[17] These duty orders cover primary, secondary, and granular magnesium.

ICL and industry analysts noted that Chinese magnesium prices increased over 2018, which can be somewhat attributed to the implementation of environmental regulations in China.[18] ICL explained that Chinese magnesium prices were "still significantly lower than the prices in the regulated markets.[19]"

Russia

According to USGS estimates, Russia accounted for 6.7 percent of global primary magnesium production in 2018.[20] Russia accounted for 0.8 percent of global exports of magnesium in 2018, see Table VII-8.

Germany

According to USGS estimates, Germany accounted for 13.4 percent of all U.S. imports of alloy magnesium, by quantity, in 2016.[21] Germany accounted for 3.1 percent of global exports of magnesium in 2018, see Table VII-8.

---

[16] Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Mineral Commodity Summaries, February 2019, p. 103.

[17] See Part I, "Previous and related investigations" for more information.

[18] ICL, "Form F-20," February 27, 2019, p. 67; and Ceramic Industry, "Supply Tightness in China Impacts Global Magnesium Compounds Industry," August 15, 2018, https://www.ceramicindustry.com/articles/97270-supply-tightness-in-china-impacts-global-magnesium-compounds-industry.

[19] ICL, "Form F-20," February 27, 2019, p. 67.

[20] Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Mineral Commodity Summaries, February 2019, p. 103.

[21] Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Minerals Yearbook, August 2018, p. 45.10.

Taiwan

According to USGS estimates, Taiwan accounted for 14.8 percent of all U.S. imports of alloy magnesium, by quantity, in 2016.[22]

Turkey

According to the USGS estimates, Turkey accounted for 1.0 percent of global primary magnesium production in 2018.[23] Turkey accounted for 0.6 percent of global exports of magnesium in 2018, see Table VII-8. In 2018, the Turkish magnesium producer, ESAN, allegedly shut down operations.[24] In July 2019, Kar Madencilik entered into an agreement with ESAN to rent its smelter to produce magnesium.[25]

According to GTA, the leading global exporters of magnesium during 2016-2018 were China, the Netherlands, and Israel (table VII-8). Global exports of magnesium, by quantity, increased 18.1 percent between 2016 and 2017, and declined 6.3 percent in 2018.

[22] Taiwan's export quantities were not sufficient to qualify for the top 10 global exporters of the various magnesium products. Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Minerals Yearbook, August 2018, p. 45.10.

[23] Bray, E. Lee, "Magnesium Metal," U.S. Geological Survey, Mineral Commodity Summaries, February 2019, p. 103.

[24] Conference transcript, p. 45 (Ms. Slade).

[25] Fastmarkets, "IN CASE YOU MISSED IT: 5 Key Stories from July 18," July 18, 2019, https://www.fastmarkets.com/article/3884512/in-case-you-missed-it-5-key-stories-from-july-18. https://www.metalbulletin.com/Article/3881958/Kar-Madencilik-4500tpy-magnesium-smelter-targets-sales-in-Turkey-Europe-this-year.html

Table VII-8
Magnesium: Global exports by exporter, 2016-18

Exporter	Calendar year		
	2016	2017	2018
	Quantity (metric tons)		
United States	17,689	12,036	11,608
Israel	30,792	29,504	30,008
China	347,926	442,807	406,493
Netherlands	76,426	78,603	77,582
Germany	19,383	20,452	18,640
Slovenia	9,709	12,569	12,405
Czech Republic	7,855	7,370	7,548
Hungary	5,567	7,834	5,957
Russia	3,770	6,133	5,065
Italy	4,876	4,738	3,759
Turkey	1,742	4,539	3,340
Romania	532	1,993	3,118
All other exporters	21,322	18,076	20,378
Total	547,589	646,655	605,901
	Value (1,000 dollars)		
United States	65,957	52,501	54,255
Israel	74,257	74,260	80,861
China	817,819	1,016,021	1,004,736
Netherlands	168,916	197,162	207,883
Germany	50,938	56,028	51,891
Slovenia	22,322	31,515	31,675
Czech Republic	20,669	20,874	21,880
Hungary	12,159	16,991	13,689
Russia	9,229	15,987	13,800
Italy	10,644	10,767	8,950
Turkey	4,817	11,213	9,312
Romania	1,252	5,286	8,210
All other exporters	70,526	65,488	83,322
Total	1,329,505	1,574,094	1,590,464

Table continued on the next page.

Table VII-8—Continued
Magnesium: Global exports by exporter, 2016-18

Exporter	Calendar year		
	2016	2017	2018
	Unit value (dollars per metric ton)		
United States	3,729	4,362	4,674
Israel	2,412	2,517	2,695
China	2,351	2,295	2,472
Netherlands	2,210	2,508	2,680
Germany	2,628	2,739	2,784
Slovenia	2,299	2,507	2,553
Czech Republic	2,632	2,832	2,899
Hungary	2,184	2,169	2,298
Russia	2,448	2,607	2,725
Italy	2,183	2,273	2,381
Turkey	2,765	2,470	2,788
Romania	2,352	2,652	2,633
All other exporters	3,308	3,623	4,089
Total	2,428	2,434	2,625
	Share of quantity (percent)		
United States	3.2	1.9	1.9
Israel	5.6	4.6	5.0
China	63.5	68.5	67.1
Netherlands	14.0	12.2	12.8
Germany	3.5	3.2	3.1
Slovenia	1.8	1.9	2.0
Czech Republic	1.4	1.1	1.2
Hungary	1.0	1.2	1.0
Russia	0.7	0.9	0.8
Italy	0.9	0.7	0.6
Turkey	0.3	0.7	0.6
Romania	0.1	0.3	0.5
All other exporters	3.9	2.8	3.4
Total	100.0	100.0	100.0

Source: Official exports statistics under HS subheading 8104.11, 8104.19, and 8104.30 reported by various national statistical authorities in the Global Trade Atlas database, accessed October 11, 2019.

APPENDIX A

FEDERAL REGISTER NOTICES

The Commission makes available notices relevant to its investigations and reviews on its website, www.usitc.gov. In addition, the following tabulation presents, in chronological order, *Federal Register* notices issued by the Commission and Commerce during the current proceeding.

Citation	Title	Link
83 FR 54778, October 31, 2018	*Magnesium From Israel; Institution of Anti-Dumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations*	https://www.govinfo.gov/content/pkg/FR-2018-10-31/pdf/2018-23758.pdf
83 FR 58533, November 20, 2018	*Magnesium From Israel; Initiation of Less-Than-Fair-Value Investigation*	https://www.govinfo.gov/content/pkg/FR-2018-11-20/pdf/2018-25300.pdf
83 FR 58529, November 20, 2018	*Magnesium From Israel; Initiation of Countervailing Duty Investigation*	https://www.govinfo.gov/content/pkg/FR-2018-11-20/pdf/2018-25293.pdf
83 FR 64598, December 17, 2018	*Magnesium From Israel; Determinations*	https://www.govinfo.gov/content/pkg/FR-2018-12-17/pdf/2018-27184.pdf
84 FR 32712, July 9, 2019	*Magnesium From Israel; Preliminary Affirmative Determination of Sales at Less Than Fair Value, Postponement of Final Determination, and Extension of Provisional Measures*	https://www.govinfo.gov/content/pkg/FR-2019-07-09/pdf/2019-14557.pdf
84 FR 20092, May 8, 2019	*Magnesium From Israel; Preliminary Affirmative Countervailing Duty Determination, and Alignment of Final Determination With Final Antidumping Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2019-05-08/pdf/2019-09450.pdf
84 FR 38057, July 9, 2019	*Magnesium From Israel; Scheduling of the Final Phase of Countervailing Duty and Anti-Dumping Duty Investigations*	https://www.govinfo.gov/content/pkg/FR-2019-08-05/pdf/2019-16618.pdf
84 FR 65781, November 29, 2019	*Magnesium From Israel; Final Affirmative Determination of Sales at Less Than Fair Value*	https://www.govinfo.gov/content/pkg/FR-2019-11-29/pdf/2019-25887.pdf

84 FR 65785, November 29, 2019	*Magnesium From Israel; Final Affirmative Countervailing Duty Determination*	https://www.govinfo.gov/content/pkg/FR-2019-11-29/pdf/2019-25891.pdf

APPENDIX B

LIST OF HEARING WITNESSES

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject: Magnesium from Israel

Inv. Nos.: 701-TA-614 and 731-TA-1431 (Final)

Date and Time: November 21, 2019 - 9:30 a.m.

Sessions were held in connection with these investigations in the Main Hearing Room (Room 101), 500 E Street, SW., Washington, DC.

EMBASSY APPEARANCE:

Embassy of Israel
Washington, DC

The Honorable Yifat Alon Perel, Minister of Economic & Trade Affairs

OPENING REMARKS:

Petitioner (**Stephen A. Jones**, King & Spalding LLP)
Respondents (**Jack A. Levy**, Cassidy Levy Kent (USA) LLP)

In Support of the Imposition of
Antidumping and Countervailing Duty Orders:

King & Spalding LLP
Washington, DC
on behalf of

US Magnesium LLC ("US Magnesium")

Cameron Tissington, Vice President of Sales, US Magnesium

Susan Slade, Vice President of Marketing, US Magnesium

Christopher Amis, President, Local 8319, United Steelworkers

Jennifer Lutz, Vice President, Economic Consulting Services, LLC

Susannah Perkins, Staff Economist, Economic Consulting Services, LLC

James Gardella, President, Luxfer Magtech, Inc.

Bonnie B. Byers, Senior International Trade Consultant,
King & Spalding LLP

Stephen A. Jones)
Stephen P. Vaughn) – OF COUNSEL
Neal J. Reynolds)

In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders:

Cassidy Levy Kent (USA) LLP
Washington, DC
on behalf of

Dead Sea Magnesium, Ltd. ("DSM")

Noam Goldstein, President, DSM

Eli Lerer, Vice President, DSM

David Wanless, Sales Manager, ICL Americas

Jack A. Levy)
James R. Cannon, Jr.) – OF COUNSEL
Mary Jane Alves)

INTERESTED PARTY IN OPPOSITION:

Eversheds Sutherland (US) LLP
Washington, DC
on behalf of

Westinghouse Electric Company LLC

Timothy Francis, Manager of Product Safety Engineering,
at Western Zirconium, a division of Westinghouse

Mark D. Herlach)
) – OF COUNSEL
Allison E. Speaker)

REBUTTAL/CLOSING REMARKS:

Petitioner (**Stephen P. Vaughn**, King & Spalding LLP)
Respondents (**James R. Cannon, Jr.**, Cassidy Levy Kent (USA) LLP)

APPENDIX C

SUMMARY DATA

Industry including Grinders

Table C-1

Magnesium: Summary data concerning the U.S. market including grinders, 2016-18, *January to June 2018*, *and January to June* 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. consumption quantity:									
Amount	***	***	***	***	***	▼***	▼***	▲***	▲***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Israel	***	***	***	***	***	▼***	▲***	▼***	▼***
Russia	***	***	***	***	***	▲***	▲***	▲***	▼***
Taiwan	***	***	***	***	***	▼***	▼***	▲***	▲***
Turkey	***	***	***	***	***	▲***	▲***	▲***	▲***
All other sources	***	***	***	***	***	▲***	▼***	▲***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▲***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount	***	***	***	***	***	▼***	▼***	▲***	▲***
Producers' share (fn1):									
Fully domestic value	***	***	***	***	***	▼***	▼***	▲***	▼***
Value added to imports	***	***	***	***	***	▼***	▼***	▼***	***
Total	***	***	***	***	***	▼***	▼***	▲***	▼***
Importers' share (fn1):									
Israel	***	***	***	***	***	▼***	▲***	▼***	▼***
Russia	***	***	***	***	***	▲***	▲***	▲***	▼***
Taiwan	***	***	***	***	***	▼***	▼***	▲***	▲***
Turkey	***	***	***	***	***	▲***	▲***	▲***	▼***
All other sources	***	***	***	***	***	▲***	▼***	▲***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▲***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▼***	▲***
U.S. importer' U.S. shipments of imports from:									
Israel:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▲***	▲***	▲***
Russia:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
Taiwan:									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Turkey:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▲***
Value	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▼***	▲***	▼***

Table continued on next page.

Table C-1--Continued

Magnesium: Summary data concerning the U.S. market including grinders, 2016-18, January to June 2018, and January to June 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. shipments from:									
All other sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▲***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Nonsubject sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
All import sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
U.S. producers':									
Non-grinder: Average capacity quantity	***	***	***	***	***	▼***	▼***	***	***
Non-grinder: Production quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Non-grinder: Capacity utilization (fn1)	***	***	***	***	***	▼***	▼***	▼***	▲***
Grinder: Average capacity quantity	***	***	***	***	***	▲***	***	▲***	***
Grinder: Production quantity	***	***	***	***	***	▲***	▲***	▲***	▼***
Grinder: Capacity utilization (fn1)	***	***	***	***	***	▼***	▲***	▼***	▼***
U.S. shipments:									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▼***
Value									
Fully domestic value	***	***	***	***	***	▼***	▼***	▲***	▲***
Value added to imports	***	***	***	***	***	▼***	▼***	▼***	***
Total	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Export shipments:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
Inventories/total shipments (fn1)	***	***	***	***	***	▼***	▲***	▼***	▼***
Production workers	***	***	***	***	***	▼***	▼***	▲***	▲***
Hours worked (1,000s)	***	***	***	***	***	▼***	▼***	▲***	▲***
Wages paid ($1,000)	***	***	***	***	***	▲***	▼***	▲***	▲***
Hourly wages (dollars per hour)	***	***	***	***	***	▲***	▲***	▲***	▲***
Non-grinder: Productivity	***	***	***	***	***	▼***	▼***	▼***	▼***
Non-grinder: Unit labor costs	***	***	***	***	***	▲***	▲***	▲***	▲***
Grinder: Productivity	***	***	***	***	***	▲***	▲***	▲***	▼***
Grinder: Unit labor costs	***	***	***	***	***	▼***	▼***	▼***	▲***

Table continued on next page.

Table C-1--Continued

Magnesium: Summary data concerning the U.S. market including grinders, 2016-18, January to June 2018, and January to June 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. producers':									
Net sales (fn2):									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▼***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Cost of goods sold (COGS)	***	***	***	***	***	▼***	▼***	▲***	▼***
Gross profit or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
SG&A expenses	***	***	***	***	***	▲***	▲***	▼***	▲***
Operating income or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss) (fn3)	***	***	***	***	***	▲***	▲***	▲***	▲***
Capital expenditures	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit SG&A expenses	***	***	***	***	***	▲***	▲***	▼***	▲***
Unit operating income or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit net income or (loss) (fn3)	***	***	***	***	***	▲***	▼***	▲***	▲***
COGS/sales (fn1)	***	***	***	***	***	▲***	▲***	▲***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss)/sales (fn1)	***	***	***	***	***	▲***	▼***	▲***	▲***

Notes:

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "---". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease. The quantity for U.S. producers' U.S. shipments reflects the quantity of magnesium sold in the United States from non-grinding producers plus toll producers' shipments to tollees; The value for U.S. producers' U.S. shipments reflects the value of magnesium sold in the United States from non-grinding and toll producers plus the additional value added to either domestic or imported magnesium from grinding only producers. The average unit values presented for U.S. producers' U.S. shipments excludes the value added to imported magnesium. In measuring consumption and market share this methodology avoids reclassifying and/or double counting merchandise already reported once either by a domestic non-grinding producer or as an import.

fn1.--Reported data are in percent and period changes are in percentage points.
fn2.--The combined financial results reported here include both non-grinding (both tolling and non-tolling producers) and grinding producers operations. Including the results of grinding producers double counts some volume of merchandise. The combined results presented here are equilvalent to those reported in appendix table E-4.
fn3.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

Industry excluding Grinders

Table C-2

Magnesium: Summary data concerning the U.S. market excluding grinders, *2016-18, January to June 2018, and January to June* 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. consumption quantity:									
Amount	***	***	***	***	***	▼***	▼***	▲***	▲***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▼***	▼***
Importers' share (fn1):									
Israel	***	***	***	***	***	▼***	▲***	▼***	▼***
Russia	***	***	***	***	***	▲***	▲***	▲***	▼***
Taiwan	***	***	***	***	***	▼***	▼***	▲***	▲***
Turkey	***	***	***	***	***	▲***	▲***	▲***	▲***
All other sources	***	***	***	***	***	▲***	▼***	▲***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▲***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▲***	▲***
U.S. consumption value:									
Amount	***	***	***	***	***	▼***	▼***	▲***	▲***
Producers' share (fn1)	***	***	***	***	***	▼***	▼***	▲***	▼***
Importers' share (fn1):									
Israel	***	***	***	***	***	▼***	▲***	▼***	▼***
Russia	***	***	***	***	***	▲***	▲***	▲***	▼***
Taiwan	***	***	***	***	***	▼***	▼***	▲***	▲***
Turkey	***	***	***	***	***	▲***	▲***	▲***	▼***
All other sources	***	***	***	***	***	▲***	▼***	▲***	▲***
Nonsubject sources	***	***	***	***	***	▲***	▲***	▲***	▲***
All import sources	***	***	***	***	***	▲***	▲***	▼***	▲***
U.S. importer' U.S. shipments of imports from:									
Israel:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▲***	▲***	▲***
Russia:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▼***
Value	***	***	***	***	***	▲***	▲***	▲***	▼***
Unit value	***	***	***	***	***	▼***	▼***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
Taiwan:									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▲***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Turkey:									
Quantity	***	***	***	***	***	▲***	▲***	▲***	▲***
Value	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▼***	▲***	▼***

Table continues.

Table C-2--Continued

Magnesium: Summary data concerning the U.S. market excluding grinders, 2016-18, January to June 2018, and January to June 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions noted)

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. shipments from:									
All other sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▲***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Nonsubject sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▲***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
All import sources:									
Quantity	***	***	***	***	***	▲***	▼***	▲***	▲***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▼***	▼***	▼***	▲***
Ending inventory quantity	***	***	***	***	***	▲***	▲***	▼***	▼***
U.S. producers':									
Average capacity quantity	***	***	***	***	***	▼***	▼***	***	***
Production quantity	***	***	***	***	***	▼***	▼***	▼***	▲***
Capacity utilization (fn1)	***	***	***	***	***	▼***	▼***	▼***	▲***
U.S. shipments:									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▼***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Export shipments:									
Quantity	***	***	***	***	***	▼***	▼***	▼***	▼***
Value	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Ending inventory quantity	***	***	***	***	***	▼***	▲***	▼***	▼***
Inventories/total shipments (fn1)	***	***	***	***	***	▼***	▲***	▼***	▲***
Production workers	***	***	***	***	***	▼***	▼***	▲***	▲***
Hours worked (1,000s)	***	***	***	***	***	▼***	▼***	▲***	▲***
Wages paid ($1,000)	***	***	***	***	***	▲***	▼***	▲***	▲***
Hourly wages (dollars per hour)	***	***	***	***	***	▲***	▲***	▲***	▲***
Productivity (mt per 1,000 hrs)	***	***	***	***	***	▼***	▼***	▼***	▼***
Unit labor costs	***	***	***	***	***	▲***	▲***	▲***	▲***

Table continues.

Table C-2--Continued

Magnesium: Summary data concerning the U.S. market excluding grinders, 2016-18, January to June 2018, and January to June 2019

(Quantity=metric tons; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per metric ton; Period changes=percent--exceptions

	Reported data					Period changes			
	Calendar year			January to June		Calendar year			Jan-Jun
	2016	2017	2018	2018	2019	2016-18	2016-17	2017-18	2018-19
U.S. producers':									
Net sales (fn2):									
Quantity	***	***	***	***	***	▼***	▼***	▲***	▼***
Value	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit value	***	***	***	***	***	▲***	▲***	▲***	▲***
Cost of goods sold (COGS)	***	***	***	***	***	▼***	▼***	▲***	▼***
Gross profit or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
SG&A expenses	***	***	***	***	***	▲***	▲***	▼***	▲***
Operating income or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss) (fn3)	***	***	***	***	***	▲***	▲***	▲***	▲***
Capital expenditures	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit COGS	***	***	***	***	***	▲***	▲***	▲***	▲***
Unit SG&A expenses	***	***	***	***	***	▲***	▲***	▼***	▲***
Unit operating income or (loss) (fn3)	***	***	***	***	***	▼***	▼***	▲***	▲***
Unit net income or (loss) (fn3)	***	***	***	***	***	▲***	▼***	▲***	▲***
COGS/sales (fn1)	***	***	***	***	***	▲***	▲***	▼***	▼***
Operating income or (loss)/sales (fn1)	***	***	***	***	***	▼***	▼***	▲***	▲***
Net income or (loss)/sales (fn1)	***	***	***	***	***	▲***	▼***	▲***	▲***

Notes:

Note.--Shares and ratios shown as "0.0" percent represent non-zero values less than "0.05" percent (if positive) and greater than "(0.05)" percent (if negative). Zeroes, null values, and undefined calculations are suppressed and shown as "---". Period changes preceded by a "▲" represent an increase, while period changes preceded by a "▼" represent a decrease. The quantity and value for U.S. producers' U.S. shipments reflects the quantity of magnesium sold in the United States from non-grinding producers plus toll producers' shipments to tollees.

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--The combined financial results reported here include all non-grinding producers (including toll producers and non-toll produers) and thus match the combined results presented in appendix table E-3.

fn3.--Percent changes only calculated when both comparison values represent profits; The directional change in profitability provided when one or both comparison values represent a loss.

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

APPENDIX D

U.S. SHIPMENTS BY TYPE

Tables D-1 through D-7 present U.S. producers' and U.S. importers' U.S. shipments by type. There were no reported U.S. importers' shipments of magnesium from Canada.

Appendix D-1
Magnesium: U.S. producers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Non-grinding producers: Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Grinding producer: Granular forms	***	***	***	***	***
All forms	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Non-grinding producers: Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Grinding producer: Granular forms	***	***	***	***	***
All forms	***	***	***	***	***
	Unit value (dollars per metric ton)				
Non-grinding producers: Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Grinding producer: Granular forms	***	***	***	***	***
All forms	***	***	***	***	***
	Share of quantity (percent)				
Non-grinding producers: Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Grinding producer: Granular forms	***	***	***	***	***
All forms	***	***	***	***	***
	Share of value (percent)				
Non-grinding producers: Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Grinding producer: Granular forms	***	***	***	***	***
All forms	***	***	***	***	***

Note: In measuring production quantity, value and unit value for all forms of producers, merchandise is double counted due to the use of domestically produced magnesium within *** production activities.

Note: These data do not reflect tolling operations of select non-grinding producers.

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

Appendix D-2
Magnesium: Israel's U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Israel	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Israel	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Israel	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Israel	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Israel	***	***	***	***	***

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

Appendix D-3
Magnesium: Russia's U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Russia	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Russia	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Russia	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Russia	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Russia	***	***	***	***	***

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

Appendix D-4
Magnesium: Taiwan's U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Taiwan	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Taiwan	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Taiwan	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Taiwan	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Taiwan	***	***	***	***	***

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

Appendix D-5
Magnesium: Turkey's U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Turkey	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Turkey	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Turkey	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Turkey	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, Turkey	***	***	***	***	***

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

Appendix D-6
Magnesium: All other sources U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, all other sources	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, all other sources	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	Missing data	***
All forms, all other sources	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, all other sources	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, all other sources	***	***	***	***	***

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

Appendix D-7
Magnesium: Nonsubject sources U.S. importers' U.S. shipments, by type, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June	
	2016	2017	2018	2018	2019
	Quantity by type of firm (metric tons)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, nonsubject sources	***	***	***	***	***
	Value by type of firm (1,000 dollars)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, nonsubject sources	***	***	***	***	***
	Unit value (dollars per metric ton)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	Missing data	***
All forms, nonsubject sources	***	***	***	***	***
	Share of quantity (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, nonsubject sources	***	***	***	***	***
	Share of value (percent)				
Alloy magnesium solid	***	***	***	***	***
Pure magnesium solid	***	***	***	***	***
Granular forms	***	***	***	***	***
All forms, nonsubject sources	***	***	***	***	***

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

APPENDIX E

DATA ON DOMESTIC TOLLING

Tables E-1 through E-4 present information on domestic tollers' operations.

Appendix E-1
Magnesium: Results of operations of US Magnesium's magnesium toll production for ATI, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Net tolling quantities	***	***	***	***	***
	Value ($1,000)				
Net tolling revenues	***	***	***	***	***
Cost of goods sold:-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/ amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net tolling revenue (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income (loss)	***	***	***	***	***
	Ratio to total COGS (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Net tolling sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit (loss) margin	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income (loss) margin	***	***	***	***	***

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

Appendix E-2

Magnesium: Results of operations of AMACOR's magnesium toll production for US Magnesium and other firms, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Net tolling quantities	***	***	***	***	***
	Value ($1,000)				
Net tolling revenues	***	***	***	***	***
Cost of goods sold:-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit or (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/ amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net tolling revenue (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit (loss)	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income (loss)	***	***	***	***	***
	Ratio to total COGS (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Net tolling sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor cost	***	***	***	***	***
Other factory costs	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit (loss) margin	***	***	***	***	***
SG&A expenses	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income (loss) margin	***	***	***	***	***

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

Appendix E-3

Magnesium: Results of operations of non-grinding U. S. producers including operations of tollers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
	Value (1,000 dollars)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

Table continued on next page.

Appendix E-3--Continued

Magnesium: Results of operations of non-grinding U.S. producers including operations of tollers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Ratio to total COGS (percent)				
Cost of goods sold before offsets.--					
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
Cost of goods sold.--					
Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

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

Note: ***.

Appendix E-4

Magnesium: Results of combined operations of non-grinding, grinding, and toller U.S. producers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Quantity (metric tons)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
	Value (1,000 dollars)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Total COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Interest expense	***	***	***	***	***
All other expenses	***	***	***	***	***
All other income	***	***	***	***	***
Net income or (loss)	***	***	***	***	***
Depreciation/amortization	***	***	***	***	***
Cash flow	***	***	***	***	***
	Ratio to net sales (percent)				
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

Table continued on next page.

Appendix E-4--Continued

Magnesium: Results of combined operations of non-grinding, grinding, and toller U.S. producers, 2016-18, January to June 2018, and January to June 2019

Item	Fiscal year			January to June	
	2016	2017	2018	2018	2019
	Ratio to total COGS (percent)				
Cost of goods sold before offsets.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Average COGS	***	***	***	***	***
	Unit value (dollars per metric ton)				
Commercial sales	***	***	***	***	***
Internal consumption	***	***	***	***	***
Transfers to related firms	***	***	***	***	***
US shipments returned to tollees	***	***	***	***	***
Total net sales	***	***	***	***	***
Cost of goods sold.-- Raw materials	***	***	***	***	***
Direct labor	***	***	***	***	***
Other factory costs	***	***	***	***	***
Less: By-product revenue	***	***	***	***	***
Average COGS	***	***	***	***	***
Gross profit	***	***	***	***	***
SG&A expense	***	***	***	***	***
Operating income or (loss)	***	***	***	***	***
Net income or (loss)	***	***	***	***	***

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

Note: ***.

APPENDIX F

NONSUBJECT COUNTRY PRICE DATA

Four importers reported price data for nonsubject countries.[1] *** reported price data for Russia, *** reported price data for Taiwan, and *** reported price data for Turkey.[2] No importers reported price data from Canada, and no importers reported price data for product 1 from any nonsubject source. Price data reported by these firms accounted for *** percent of U.S. commercial shipments from Russia, *** percent of U.S. commercial shipments from Taiwan, and *** percent of U.S. commercial shipments from Turkey in 2018. These price items and accompanying data are comparable to those presented in tables V-3 to V-5. Price and quantity data for Russia, Taiwan, and Turkey are shown in tables F-1 to F-2 and in figures F-1 to F-2 (with domestic and subject sources).

In comparing nonsubject country pricing data with U.S. producer pricing data (table F-3), prices for product imported from Russia were lower than U.S.-produced product in *** instances and higher in *** instances. Prices of product imported from Taiwan were lower than U.S.-produced product in *** instances and higher in *** instances. Prices of product imported from Turkey were lower than U.S.-produced product in *** instances. In comparing nonsubject country pricing data with subject country pricing data, prices for product imported from Russia were lower than prices for product imported from Israel in *** instances and higher in *** instances. Prices for product imported from Taiwan were lower than prices for product imported from Israel in *** instances and higher in *** instances. Prices for product imported from Turkey were lower than prices for product imported from Israel in *** instances.

[1] Not all firms reported pricing for all products for all quarters.
[2] Importers *** reported price data from ***.

Table F-1
Magnesium: Weighted-average f.o.b. prices and quantities of imported product 2,[1] by quarters, January 2016-June 2019

Period	United States		Russia	
	Price (dollars per metric ton	Quantity (metric tons))	Price (dollars per metric ton)	Quantity (metric tons)
2016:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2017:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2018:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2019:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***

Period	Taiwan		Turkey	
	Price (dollars per metric ton)	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)
2016:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2017:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2018:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2019:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***

[1] Product 2: Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ("pure magnesium").

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

Table F-2
Magnesium: Weighted-average f.o.b. prices and quantities of imported product 3,[1] by quarters, January 2016-June 2019

Period	United States		Russia	
	Price (dollars per metric ton	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)
2016:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2017:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2018:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2019:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***

Period	Taiwan		Turkey	
	Price (dollars per metric ton)	Quantity (metric tons)	Price (dollars per metric ton)	Quantity (metric tons)
2016:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2017:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2018:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***
Jul.-Sep.	***	***	***	***
Oct.-Dec.	***	***	***	***
2019:				
Jan.-Mar.	***	***	***	***
Apr.-Jun.	***	***	***	***

[1] Product 3: Alloy magnesium ingots containing less than 99.8 percent magnesium, meeting ASTM specifications for alloy magnesium.

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

Figure F-1
Magnesium: Weighted-average f.o.b. prices and quantities of domestic and imported product 2,[1] by quarters, January 2016-June 2019

* * * * * * *

* * * * * * *

[1]Product 2: Pure magnesium ingots containing at least 99.8 percent magnesium, but less than 99.95 percent magnesium ("pure magnesium").

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

Figure F-2
Magnesium: Weighted-average f.o.b. prices and quantities of domestic and imported product 3,[1] by quarters, January 2016-June 2019

* * * * * * *

* * * * * * *

[1] Product 3: Alloy magnesium ingots containing less than 99.8 percent magnesium, meeting ASTM specifications for alloy magnesium.

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

Table F-3
Magnesium: Summary of underselling/(overselling), by country, January 2016-June 2019

Comparison	Total number of comparisons	Lower		Higher	
		Number of quarters	Quantity (metric tons)	Number of quarters	Quantity (metric tons)
Nonsubject source vs United States.--					
Russia vs. United States	***	***	***	***	***
Taiwan vs. United States	***	***	***	***	***
Turkey vs. United States	***	***	***	***	***
Nonsubject source vs subject source.--					
Russia vs. Israel	***	***	***	***	***
Taiwan vs. Israel	***	***	***	***	***
Turkey vs. Israel	***	***	***	***	***

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

APPENDIX G

PURCHASER QUANTITIES AND VALUES

Purchasers were asked to report quantities and delivered values of purchases and imports from 2016-18 and January-June 2019. Thirty-five firms responded to the purchasers' questionnaire. Thirty firms reported quantities and values from the United States, 19 from Israel, 11 from Russia, 6 from Taiwan, and 4 from Turkey.[1] No firms reported purchases or imports from Canada. These quantities, values, and calculated unit values are presented in table G-1.

[1] Multiple firms reported purchasing or importing from more than one country.

Table G-1
Magnesium: U.S. purchasers' purchases and imports of magnesium produced in the United States, 2016-18, January to June 2018, and January to June 2019

Item	Calendar year			January to June
	2016	2017	2018	2019
	Quantity (metric tons)			
United States	***	***	***	***
Israel	***	***	***	***
Russia	***	***	***	***
Taiwan	***	***	***	***
Turkey	***	***	***	***
All other countries	***	***	***	***
Nonsubject sources	***	***	***	***
Sources unknown	***	***	***	***
All sources	***	***	***	***
	Delivered value (1,000 dollars)			
United States	***	***	***	***
Israel	***	***	***	***
Russia	***	***	***	***
Taiwan	***	***	***	***
Turkey	***	***	***	***
All other countries	***	***	***	***
Nonsubject sources	***	***	***	***
Sources unknown	***	***	***	***
All sources	***	***	***	***
	Unit value (dollars per metric ton)			
United States	***	***	***	***
Israel	***	***	***	***
Russia	***	***	***	***
Taiwan	***	***	***	***
Turkey	***	***	***	***
All other countries	***	***	***	***
Nonsubject sources	***	***	***	***
Sources unknown	***	***	***	***
All sources	***	***	***	***

Note:--*** reported more expensive imports of product from all other countries, ***. Staff telephone interview with ***.

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