

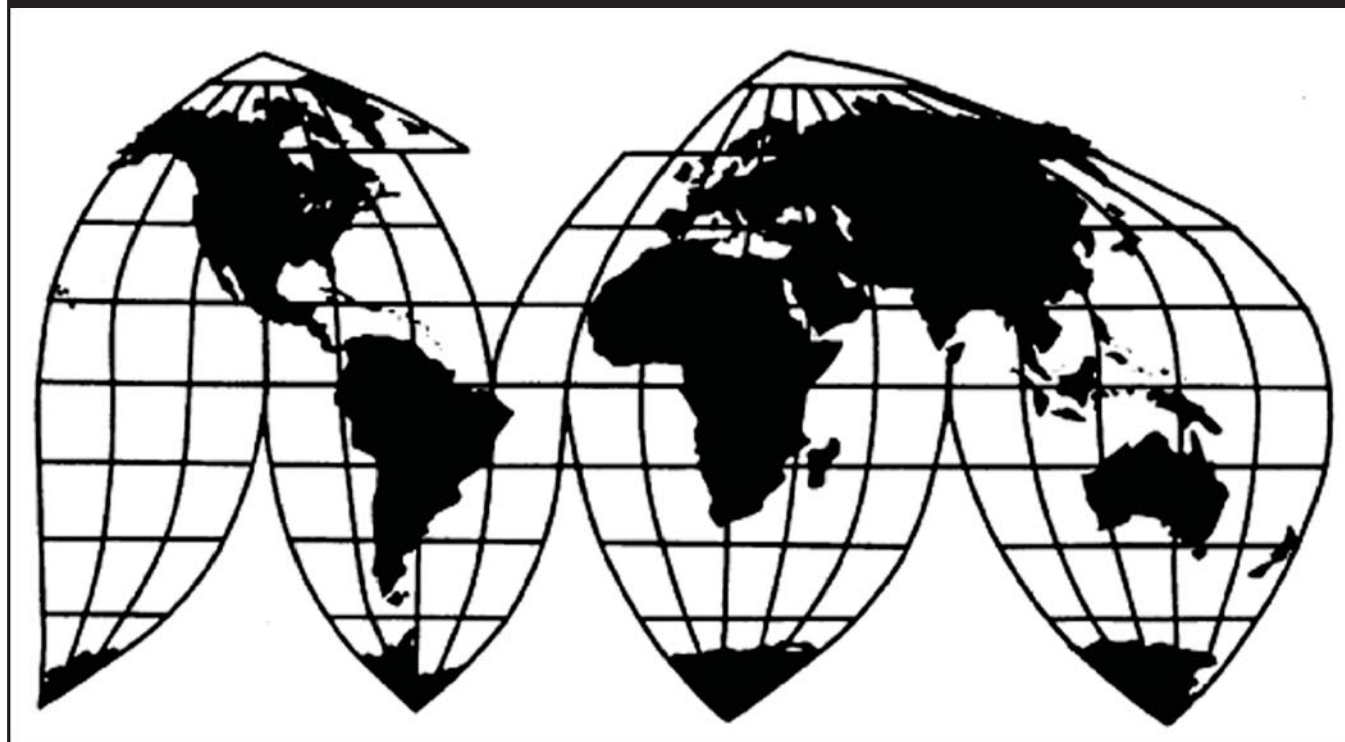
1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China

Investigation Nos. 701-TA-558 and 731-TA-1316 (Final)

Publication 4686

May 2017

U.S. International Trade Commission



Washington, DC 20436

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CONTENTS

	Page
Determinations	1
Views of the Commission	3
Part I: Introduction	I-1
Background.....	I-1
Statutory criteria and organization of the report	I-2
Statutory criteria	I-2
Organization of report.....	I-3
Market summary	I-3
Summary data and data sources.....	I-4
Previous and related investigations	I-4
Nature and extent of subsidies and sales at LTFV	I-5
Subsidies	I-5
Alleged sales at LTFV	I-7
The subject merchandise	I-7
Commerce’s scope	I-7
Tariff treatment	I-8
The product	I-8
Description and applications	I-8
Manufacturing processes	I-10
Domestic like product issues.....	I-13
Domestic industry	I-14
Part II: Conditions of competition in the U.S. market	II-1
U.S. market characteristics.....	II-1
U.S. purchasers.....	II-1
Channels of distribution	II-1
Geographic distribution	II-2
Supply and demand considerations	II-2
U.S. supply	II-2

CONTENTS

	Page
U.S. demand	II-6
Substitutability issues.....	II-7
Lead times	II-8
Knowledge of country sources	II-8
Factors affecting purchasing decisions.....	II-8
Comparisons of domestic products, subject imports, and nonsubject imports	II-11
Comparison of U.S.-produced and imported HEDP	II-13
Elasticity estimates.....	II-15
U.S. supply elasticity	II-15
U.S. demand elasticity	II-16
Substitution elasticity	II-16
Part III: U.S. producer’s production, shipments, and employment	III-1
U.S. producer.....	III-1
U.S. production, capacity, and capacity utilization	III-2
Potential product shifting in U.S. production facilities	III-3
U.S. producer’s U.S. shipments and exports.....	III-3
U.S. producer’s inventories	III-4
U.S. employment, wages, and productivity	III-5
Part IV: U.S. imports, apparent U.S. consumption, and market shares.....	IV-1
U.S. importers.....	IV-1
U.S. imports.....	IV-3
Negligibility.....	IV-4
Apparent U.S. consumption	IV-4
Part V: Pricing data	V-1
Factors affecting prices	V-1
Raw material costs	V-1
U.S. inland transportation costs	V-1

CONTENTS

	Page
Pricing practices	V-2
Pricing methods.....	V-2
Sales terms and discounts.....	V-3
Price leadership	V-3
Price data.....	V-3
Price trends.....	V-5
Price comparisons	V-5
Lost sales and lost revenue	V-6
Part VI: Financial experience of U.S. producers.....	VI-1
Background.....	VI-1
Operations on HEDP	VI-1
Revenue	VI-2
Cost of goods sold	VI-2
Gross profit	VI-3
SG&A expenses and operating income or loss.....	VI-4
Interest expense, other expenses, and net income or loss	VI-4
Capital expenditures and research and development expenses	VI-4
Assets and return on investment.....	VI-5
Capital and investment	VI-5
Part VII: Threat considerations and information on nonsubject countries	VII-1
The industry in china	VII-3
U.S. inventories of imported merchandise	VII-6
U.S. importers' outstanding orders.....	VII-7
Antidumping or countervailing duty orders in third-country markets.....	VII-7
Information on nonsubject countries	VII-7
Nonsubject source information.....	VII-7

CONTENTS

	Page
The Industry in india	VII-8
The Industry in the united kingdom	VII-9
Appendixes	
A. <i>Federal Register</i> notices	A-1
B. List of hearing witnesses	B-1
C. Summary data	C-1
D. Nonsubject country price data	D-1
E. Summary o chinese industry datat fro the preliminary phase.....	E-1

Note.—Information that would reveal confidential operations of individual concerns may not be published and therefore has been deleted. Such deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION

Investigation Nos. 701-TA-558 and 731-TA-1316 (Final)

1-Hydroxyethylidene-1, 1-Diphosphonic acid (“HEDP”) from China

DETERMINATIONS

On the basis of the record¹ developed in the subject investigations, the United States International Trade Commission (“Commission”) determines, pursuant to the Tariff Act of 1930 (“the Act”), that an industry in the United States is materially injured by reason of imports of 1-Hydroxyethylidene-1, 1-diphosphonic acid (“HEDP”) from China, provided for in subheading 2931.90.90 of the Harmonized Tariff Schedule of the United States, that have been found by the Department of Commerce (“Commerce”) to be sold in the United States at less than fair value (“LTFV”), and to be subsidized by the government(s) of China.

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 March 31, 2016, following receipt of a petition filed with the Commission and Commerce by Compass Chemical International LLC, Smyrna, Georgia. The final phase of the investigations was scheduled by the Commission following notification of preliminary determinations by Commerce that imports HEDP from China 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 November 18, 2016 (81 FR 81805). The hearing was held in Washington, DC, on March 23, 2017, and all persons who requested the opportunity were permitted to appear in person or by counsel.

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

PART I: INTRODUCTION

BACKGROUND

These investigations result from a petition filed with the U.S. Department of Commerce (“Commerce”) and the U.S. International Trade Commission (“USITC” or “Commission”) by Compass Chemical International, LLC (“Compass”), Smyrna, GA, on March 31, 2016 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 1-Hydroxyethylidene-1, 1-Diphosphonic acid (“HEDP”) ¹ from China. The following tabulation provides information relating to the background of these investigations. ^{2 3}

Effective date	Action
March 31, 2016	Petition filed with Commerce and the Commission; institution of Commission investigation (81 FR 20416, April 7, 2016)
April 20, 2016	Commerce’s notice of initiation of AD investigation (81 FR 25377, April 28, 2016) Commerce’s notice of initiation of CVD investigation (81 FR 25383, April 28, 2016)
May 16, 2016	Commission’s preliminary determinations (81 FR 31958, May 20, 2016)
September 8, 2016	Commerce’s preliminary CVD determination and alignment of final determination with AD determination (81 FR 62084)
November 4, 2016	Commerce’s preliminary AD determination and postponement of final determination; (81 FR 76916); scheduling of final phase of Commission investigations (81 FR 81805, November 18, 2016)
March 23, 2017	Commission’s hearing
March 23, 2017	Commerce’s final AD determination (82 FR 14876); Commerce’s final CVD determination (82 FR 14872)
April 21, 2017	Commission’s vote
May 8, 2017	Commission’s views

¹ See the section entitled “The Subject Merchandise” in Part I of this report for a complete description of the merchandise subject to these investigations.

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

³ A list of hearing witnesses is presented in app B.

STATUTORY CRITERIA AND ORGANIZATION OF THE 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

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

advanced version of the domestic like product, and (V) in {an antidumping investigation}, the magnitude of the margin of dumping.

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 the U.S. producer. *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

HEDP is an odorless, colorless or yellowish liquid that belongs to a class of chemicals known as phosphonates. HEDP is generally added to water to increase solubility of certain ions and to inhibit the precipitation of certain mineral compounds. Compass is the only known producer of HEDP in the United States, while leading producers of HEDP in China include: Henan Qingshuiyuan Technology Co., Ltd. (“Henan Qingshuiyuan”); Nantong Uniphos Chemicals Co., Ltd. (“Nantong Uniphos”); Nanjing University of Chemical Technology Changzhou Wujin Water Quality Stabilizer Factory (“Wujin Water”); and Shandong Taihe Water Treatment Technologies Co., Ltd. (“Shandong Taihe”). The leading U.S. importers of HEDP from China include: ***. Leading importers of HEDP from nonsubject countries (primarily India and the United Kingdom) include: ***. U.S. purchasers of HEDP are typically firms that specialize in water treatment solutions.

Apparent U.S. consumption of HEDP totaled approximately *** pounds (\$***) in 2016. Compass’ U.S. shipments of HEDP totaled *** pounds (\$***) in 2016, and accounted for *** percent of apparent U.S. consumption by quantity and value. U.S. shipments of imports from China totaled *** pounds (\$***) in 2016 and accounted for *** percent of apparent U.S. consumption by quantity and *** percent by value. U.S. shipments of imports from nonsubject

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

sources totaled *** pounds (\$***) in 2016 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. Except as noted, U.S. industry data are based on the questionnaire response of the sole U.S. producer, Compass, which accounted for all known U.S. production of HEDP during 2014-16. U.S. import data are based on questionnaire responses of 11 U.S. importers,⁶ and foreign industry data are based on the questionnaire response of one foreign producer.⁷

Previous and related investigations

On December 31, 2007, Compass filed a petition alleging that an industry in the United States was materially injured or threatened with material injury by reason of less-than-fair-value (“LTFV”) imports from China and India of HEDP and Aminotrimethylenephosphonic Acid (“ATMP”). Effective December 31, 2007, the Commission instituted preliminary phase antidumping duty investigations Nos. 731–TA–1138 and 1139.⁸ On January 17, 2008, before Commerce had initiated its investigations, Commerce and the Commission received a letter from Compass withdrawing its petition. Subsequently, the Commission discontinued its antidumping investigations concerning HEDP and ATMP from China and India.⁹

On March 19, 2008, Compass filed a petition alleging that an industry in the United States was materially injured and threatened with material injury by reason of less-than-fair-value (“LTFV”) imports of HEDP from China and India.¹⁰ In April 2009, the Commission

⁶ The Commission received U.S. importers’ questionnaire responses from the same 10 firms that provided responses in the preliminary phase of these investigations plus one additional firm, ***. Commission staff issued importers’ questionnaires to firms identified in the petition and to firms that were identified through a review of *** provided by ***.

⁷ In the preliminary phase, the Commission received foreign producer questionnaire responses from four firms: Shandong Taihe, Wujin Water, Henan Qingshuiyuan, and Nantong Uniphos. Shandong Taihe was the only Chinese firm to submit a questionnaire response to the Commission in the final phase. The other companies elected not to participate.

⁸ *Notice of institution of antidumping duty investigations and scheduling of preliminary phase investigations: Aminotrimethylenephosphonic Acid (ATMP) and 1-Hydroxyethylidene-1, 1- Diphosphonic Acid (HEDP) From China and India*, 73 FR 1366, January 8, 2008.

⁹ *Notice of withdrawal of petition in antidumping investigations: Aminotrimethylenephosphonic Acid (ATMP) and 1-Hydroxyethylidene-1, 1- Diphosphonic Acid (HEDP) From China and India*, 73 FR 5211, January 29, 2008.

¹⁰ *Notice of institution of antidumping duty investigations and scheduling of preliminary phase investigations: Aminotrimethylenephosphonic Acid (ATMP) and 1-Hydroxyethylidene-1, 1- Diphosphonic Acid (HEDP) From China and India*, 73 FR 1366, January 8, 2008. 1–Hydroxyethylidene–1, 1–Diphosphonic
(continued...)

determined that an industry in the United States was threatened with material injury by reason of less-than-fair-value imports of HEDP from China and India. In addition, the Commission determined that it would not have found material injury but for the suspension of liquidation.¹¹ On April 28, 2009, Commerce issued antidumping duty orders on HEDP from China and India.¹²

On March 3, 2014, Commerce initiated five-year reviews of the antidumping duty orders to determine whether revocation of the antidumping duty orders on HEDP from China and India would be likely to lead to continuation or recurrence of material injury.¹³ On June 2, 2014, Commerce published a notice stating that it did not receive a notice of intent to participate from domestic interested parties.¹⁴ Effective April 28, 2014, the antidumping duty orders on HEDP from China and India were revoked.¹⁵

NATURE AND EXTENT OF SUBSIDIES AND SALES AT LTFV

Subsidies

On March 23, 2017, Commerce published a notice in the *Federal Register* of its final determination of countervailable subsidies for producers and exporters of HEDP from China.¹⁶ Commerce calculated a final subsidy rate of 2.40 percent for mandatory respondents Shandong Taihe Chemicals Co., Ltd. and Shandong Taihe Water Treatment Technologies Co., Ltd., (collectively, the “Taihe Companies”) and a final subsidy rate of 0.75 percent for mandatory respondent Nanjing University of Chemical Technology Changzhou Wujin Water Quality

(...continued)

Acid from the Republic of India and the People's Republic of China: Initiation of Antidumping Duty Investigations; 73 FR 20023, April 14, 2008.

¹¹ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) From China and India: Determination*, 74 FR 18593, April 23, 2009. *1-Hydroxyethylidene-1, 1-Diphosphonic Acid from China and India, Investigation Nos. 731-TA-1146 and 731-TA-1147 (Final)*, USITC Publication 4072, April 2009.

¹² *1-Hydroxyethylidene-1, 1-Diphosphonic Acid from India and the People's Republic of China: Antidumping Duty Orders*, 74 FR 19197, April 28, 2009.

¹³ *Initiation of Five-Year (“Sunset”) Review*, 79 FR 11762, March 3, 2014.

¹⁴ According to the Petitioner, Compass, the antidumping duty orders did provide some benefit in the earlier years that followed the imposition of the orders. However, the exclusion of a major producer (Wujin Water) from the orders was an important consideration in the petitioner’s decision not to expend resources on the five-year sunset review to preserve the orders. Compass stated that the emergence of Shandong Taihe as a major Chinese producer and Wujin Water combining with two other Chinese manufacturers to form Nantong Uniphos were factors that led it to refile the case in 2016. Details on the formation of Nantong Uniphos are discussed in Part VII. Hearing transcript, pp. 41-43 (Levin). Hearing transcript, p. 27 (McCaul).

¹⁵ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid from India and the People's Republic of China: Final Results of Sunset Reviews and Revocation of Antidumping Duty Orders*, 79 FR 31301, June 2, 2014. The Commission terminated its reviews effective June 4, 2014. *1-Hydroxyethylidene-1, 1-Diphosphonic Acid (Hedp) From China and India*, 79 FR 33595, June 11, 2014.

¹⁶ *Countervailing Duty Investigation of 1-Hydroxyethylidene-1, 1-Diphosphonic Acid from the People's Republic of China: Final Affirmative Determination*, 82 FR 14872, March 23, 2017.

Stabilizer Factory (“Wujin Water”). Seven companies, which did not respond to Commerce’s request for quantity and value information, have been assigned a rate of 54.11 percent, based on total adverse facts available. All other producers/exporters in China have been assigned a final subsidy rate of 2.40 percent. Table I-1 presents Commerce’s findings.

Commerce determined the following programs in China to be countervailable.¹⁷

1. Electricity for Less-Than-Adequate-Remuneration (“LTAR”)
2. Income Tax Reduction for High and New Technology Enterprises
3. Self-Reported Grant Programs

Commerce also made adverse inferences that the seven nonresponsive companies benefited from 48 other countervailable subsidy programs.¹⁸

Table I-1
HEDP: Commerce’s final subsidy determination with respect to imports from China

Entity	Final subsidy rates (percent)
Nanjing University of Chemical Technology Changzhou Wujin Water Quality Stabilizer Factory (“Wujin Water”)	0.75 (<i>de minimis</i>)
Shandong Taihe Chemicals Co., Ltd. (“Taihe Chemicals”) and Shandong Taihe Water Treatment Technologies Co., Ltd. (“Taihe Technologies”)	2.40
Changzhou Kewei Fine Chemicals Co., Ltd.	54.11
Hebei Longke Water Treatment Co., Ltd.	54.11
Shandong Huayou Chemistry Co., Ltd.	54.11
Shandong Xintai Water Treatment Technology	54.11
Zaozhuang Fuxing Water Treatment Technology	54.11
Zaozhuang YouBang Chemicals Co., Ltd.	54.11
Zouping Dongfang Chemical Industry Co., Ltd.	54.11
All Others	2.40

Source: 82 FR 14872, March 23, 2017.

¹⁷ DOC, ITA, *Countervailing Duty Investigation of 1-Hydroxyethylidene-1, 1-Diphosphonic Acid from the People’s Republic of China: Decision Memorandum for the Final Affirmative Determination*, March 20, 2017.

¹⁸ DOC, ITA, *Countervailing Duty Investigation of 1-Hydroxyethylidene-1, 1-Diphosphonic Acid from the People’s Republic of China: Decision Memorandum for the Final Affirmative Determination*, March 20, 2017.

Alleged sales at LTFV

On March 23, 2017, Commerce published a notice in the *Federal Register* of its final determination of sales at LTFV.¹⁹ Commerce calculated a final dumping margin of 167.58 percent for Shandong Taihe Chemical Co., Ltd. (part of the “Taihe Companies”), 184.01 percent for Wujin Water Group, and 179.76 percent for Henan Qingshuiyuan Technology Co., Ltd and Jianghai Environmental Protection Co., Ltd. The final dumping margin for all other producers/exporters in China is 184.01 percent. Table I-2 presents Commerce’s findings.

Table I-2

HEDP: Commerce’s final weighted-average LTFV margins with respect to imports from China

Producer	Exporter	Final dumping margin (percent)
Shandong Taihe Water Treatment Technologies Co, Ltd.	Shandong Taihe Chemicals Co, Ltd.	167.58
Nanjing University of Chemical Technology Changzhou Wujin Water Quality Stabilizer Factory	Nanjing University of Chemical Technology Changzhou Wujin Water Quality Stabilizer Factory and Nantong Uniphos Chemicals Co., Ltd. (collectively “WW Group”)	184.01
Henan Qingshuiyuan Technology Co., Ltd.	Henan Qingshuiyuan Technology Co., Ltd.	179.76
Jianghai Environmental Protection Co., Ltd.	Jianghai Environmental Protection Co., Ltd.	179.76
All Others		184.01

Source: 82 FR 14876, March 23, 2017.

THE SUBJECT MERCHANDISE

Commerce’s scope

Commerce has defined the scope of these investigations as follows:

The merchandise covered by this investigation includes all grades of aqueous acidic (non-neutralized) concentrations of 1-hydroxyethylidene-1, 1-diphosphonic acid (HEDP), also referred to as hydroxyethylidenediphosphonic acid, hydroxyethanediphosphonic acid, acetodiphosphonic acid, and etidronic acid. The CAS (Chemical Abstract Service) registry number for HEDP is 2809-21-4.²⁰

¹⁹ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid From the People's Republic of China: Final Determination of Sales at Less Than Fair Value*, 82 FR 14876, March 23, 2017.

²⁰ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid From the People's Republic of China: Final Determination of Sales at Less Than Fair Value*, 82 FR 14876, March 23, 2017.

Tariff treatment

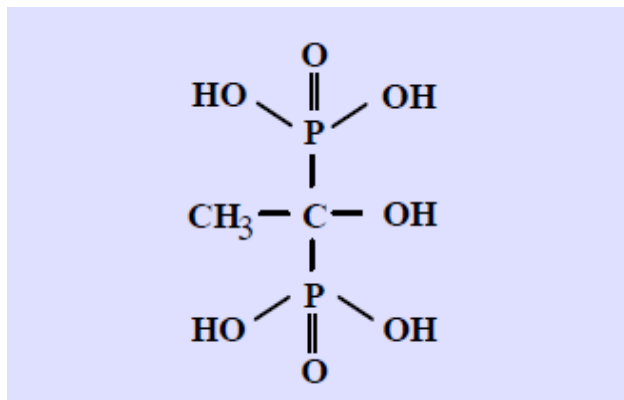
Based upon the scope set forth by Commerce, information available to the Commission indicates that the merchandise subject to these investigations is provided for in HTS subheading 2931.90.90 (statistical reporting number 2931.90.9043), a residual or “basket” tariff line for nonenumerated organo-inorganic compounds.²¹ HEDP may be imported under HTS subheadings 2811.19.6090 and 2931.90.9041. While HTS subheadings and the CAS registry number are provided for convenience and customs purposes only, the written description of the scope of this investigation is dispositive. 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

HEDP is an acidic organic industrial grade water treatment product having the phosphonate chemical structure as illustrated in figure I-1. The chemical nomenclature of HEDP is defined by the American Chemical Society under the Chemical Abstracts Registry Service CAS Number 2809-21-4 as 1-Hydroxyethylidene-1, 1-diphosphonic acid.

Figure I-1
HEDP: Chemical Structure



Source: Petitioner's postconference brief, Exhibit 7, April 26, 2016.

The HEDP molecule contains two phosphonate groups and four reactive hydroxyl (OH) sites as shown at the top and bottom of the structure, designated by the classical phosphonic acid group PO_3H_2 linkage signatures, phosphorus, oxygen and hydrogen. This acidic

²¹ HTSUS statistical reporting number 2931.90.9043 includes other organo-phosphorus compounds in addition to HEDP. Petition, p. 8. U.S. imports under HTS subheading 2931.90.90 produced in China are subject to a 3.7 percent ad valorem duty rate under column 1-general (normal trade relations).

phosphonate chemical is typically produced and sold as a 60-percent aqueous commodity grade industrial solution predominately for use as a cooling water stabilizing agent and rust preventative that serves as a chelating or sequestration chemical to inhibit scale formation in industrial equipment, and it acts as a stabilizing agent in industrial and household cleaners and other applications.²² When compared to other phosphonates and polyphosphate families, HEDP may be differentiated by its end-use properties, colorless appearance, its particular iron, calcium and other heavy metal sequestration properties, and its chlorine stability.^{23 24} Chelating agents, also known as chelants, complexing or sequestering agents, are compounds which are able to form stable complexes with metal ions. This is achieved through solubilization and inactivating the metal ions that would otherwise produce adverse effects in the system on which they are used.^{25 26}

Compass describes its 60-percent aqueous HEDP product, Mayoquest 1500 technical grade, as a clear, colorless to pale yellow liquid, which may have a slight odor, freely miscible with water, and miscible with alcohols and organic solvents.²⁷ The aqueous product is strongly acidic with a pH value of less than 1, and also contains about 2 to 3 percent phosphorous acid (H₃PO₃), CAS No. 13598-36-2. Mayoquest 1500 is described as a very effective calcium carbonate scale inhibitor in industrial water treatment, industrial and institutional cleaning, personal care products and general purpose metal ion control. It is fairly stable to chlorine and is suited to the swimming pool stain prevention application. The product is also described as extremely stable as a sequestering agent over a wide range of temperatures and pH levels, e.g., for the prevention of precipitation and scaling of calcium carbonate and other metal compounds.²⁸

Compass further describes the HEDP product as a technical grade which is not further purified to become food grade or U.S. Pharmacopoeia (USP) Grade. It is characterized as a chelating agent with a long shelf life often added to multi-purpose formulations, and very stable at high temperatures (above 300 degrees Fahrenheit). HEDP as a chelating agent is said to be the only phosphonate product that can perform three critical functional applications principally in commercial water treatment, the largest application for HEDP.²⁹ First, it can

²² Petition, pp. 15-16. Hearing transcript, pp. 13-14 (Allen).

²³ Conference transcript, p. 17 (Allen). Hearing transcript, pp. 13-14 (Allen).

²⁴ HEDP is the largest volume product manufactured by Compass, which is the only full-line phosphonate products manufacturer remaining in the United States. Hearing transcript, p. 21 (McCaul).

²⁵ ***.

²⁶ "Phosphonates," *Human & Environmental Risk Assessment on ingredients of European household cleaning products*, HERA, June 9, 2004.

²⁷ HEDP is generally produced and sold as 60-percent nominal aqueous solution, the maximum practical upper limit of solubility. Hearing transcript. P. 13 (Allen).

²⁸ Compass Chemical International LLC website, "Technical and Safety Data Sheets," <http://compasschemical.com>, retrieved March 28, 2017. Compass was acquired by Italmatch Chemicals in 2016, a manufacturer based in Italy. Hearing transcript, p. 20 (McCaul).

²⁹ Industrial cooling water treatment accounts for Compass' largest consumer end-use demand for HEDP. Hearing transcript, p. 14 (Allen).

sequester heavy metal ions such as iron and manganese oxides to prevent precipitation that would color water supplies, or heavy metals that interfere with the cleaning function of laundry soap or body soap. Second, it can act as a scale inhibiting agent that prevents scale formation in commercial heating/cooling systems such as steam boilers, air conditioners, and cooling towers. And third, it can prevent the breakdown of oxidizing agents such as peroxide bleach.³⁰ Also, HEDP is reported to be the only phosphonate used in municipal water treatment and for personal care products, specifically bar soap preservation. HEDP in appropriate purity is certified by the National Sanitation Foundation (“NSF”) under its Standard 60 as a potable or drinking water additive.³¹

Compass and U.S. importers of HEDP reportedly sell HEDP to distributors, formulators and large end users in bulk containers, e.g. ISO containers, bulk tank trucks, rail cars, drums, or intermediate bulk import containers (IBC’s). Petitioner describes HEDP as a commodity-type product, in which Chinese product is believed to be fully interchangeable with domestically manufactured HEDP.^{32 33}

MANUFACTURING PROCESSES³⁴

Compass is a leading manufacturer and marketer of a wide variety of phosphorus derivatives, the only producer of HEDP and full line manufacturer of phosphonates in the United States.³⁵ The petitioner maintains two plants in the United States, one at Smyrna, Georgia, and the other at Huntsville, Texas. HEDP is produced at the Smyrna plant, while the Huntsville plant serves as a blending facility and large warehouse for products produced at the Smyrna plant that are shipped to Texas for distribution.³⁶ Compass is the only known U.S. manufacturer of HEDP, and was the only domestic producer during the period of investigation, 2014-16.³⁷ HEDP is the largest volume product manufactured by Compass, and the most widely used phosphonate worldwide.³⁸

There are generally two commercial methods for producing HEDP. One method involves reacting phosphorus trichloride (PCl₃) with acetic acid (CH₃COOH), while the second method involves reacting phosphorous acid (H₃PO₃) with acetic anhydride, (CH₃CO)₂O. Compass

³⁰ Hearing transcript, p. 13 (Allen).

³¹ Petition, pp. 5-7; 15-16.

³² Hearing transcript, p. 16 (Allen).

³³ Aminotrimethylene phosphonic acid (ATMP), and 2-phosphobutane-1,2,4-tricarboxylic acid (PBTC), are ***. Compass’ producer questionnaire response, part IV.

³⁴ Unless otherwise indicated, information reported in this section is based on *1-Hydroxyethylidene-1,1-Diphosphonic Acid (HEDP) from China, Investigation Nos. 701-TA-558 and 731-TA-1316 (Preliminary)*, USITC Publication 4612, May 2016.

³⁵ Hearing transcript, p. 21 (McCaul).

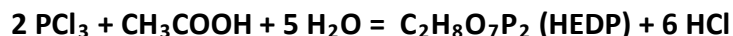
³⁶ Hearing transcript, p. 20 (McCaul).

³⁷ Petitioner’s prehearing brief, pp. 5-6. Hearing transcript, p. 21 (McCaul).

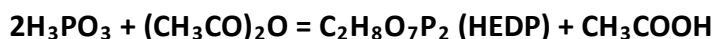
³⁸ Petitioner’s prehearing brief p. 22. Hearing transcript, p. 21 (McCaul).

reported that most Chinese producers of HEDP employ the phosphorus trichloride route, while Compass employs the phosphorous acid production method.³⁹

The phosphorus trichloride/acetic acid method results in hydrochloric acid (HCl) as a byproduct, as shown by the balanced equation below.⁴⁰



Alternately, the phosphorous acid/acetic anhydride method employed for HEDP production by Compass produces acetic acid (CH₃COOH) as an important salable byproduct,⁴¹ as shown in the balanced equation below.⁴²



Compass favors the use of phosphorous acid as a reactant compared to phosphorus trichloride owing to handling, storage, and overall economic considerations.⁴³ Compass employs imported phosphorous acid reactant sourced ***, while acetic anhydride liquid is sourced from ***.⁴⁴ Both production methods are said to result in identical HEDP products with the same chemical formulation and end uses. At the point of first sale, domestically manufactured and imported HEDP are said to be chemically identical, and products that have the same level of purity can reportedly be comingled and sold as one product.⁴⁵

Compass generally manufactures HEDP at high temperatures using anhydrous phosphorous acid (devoid of water) and acetic anhydride reactants in glass-lined batch reactors owing to the corrosive nature of the reaction mixture, and a two-reactor system is employed

³⁹ Petition, pp. 6-7. Hearing transcript, pp. 14-15 (Allen).

⁴⁰ Respondent Shandong Taihe Water Treatment Technologies Co., Ltd. uses a continuous process technology employing the same reactants, but which results in HEDP product together with what it terms a byproduct of acetyl chloride (CH₃COCl) and hydrochloric acid (HCl). Before fully understanding the production process, Shandong Taihe's counsel incorrectly referred to acetyl chloride as a coproduct. It is a byproduct of Shandong Taihe's unique HEDP production process. Respondent Shandong Taihe's prehearing brief, pp. 5-6. Conference transcript, pp. 104-106; 131-135 (McGrath; Cheng). Hearing transcript, pp. 86-87 (Cheng).

⁴¹ Hearing transcript, p. 17 (Allen); p. 25 (McCaul).

⁴² Petition, p. 7. Hearing transcript, pp. 14-15 (McCaul).

⁴³ Petition, p. 4. Petition, vol. II, Exhibit, ***. Prior to its acquisition of the Smyrna, GA facility in July 2006, Compass had produced HEDP using a process that began with phosphorus trichloride (PCl₃) that was used to make phosphorus acid, which was then reacted with acetic anhydride. Towards the end of 2006, Compass decided to change its production method and began with phosphorus acid instead of phosphorus trichloride. The cost of the raw materials and the byproducts produced were important considerations in Compass' decision to alter its production process. Hearing transcript, p. 15 (Allen).

⁴⁴ Petitioner's postconference brief, responses to Commission questions, Exhibit 7 (Cantrell).

⁴⁵ Petition, pp. 7 and 18. Hearing transcript, pp. 15-16 (Allen).

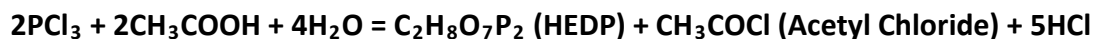
whereas other phosphonates reportedly require only one reactor.⁴⁶ Two of the plant's reactors are ***. Time required in the reactors has ***.⁴⁷ In theory, ***.⁴⁸ The plant has a *** which vary in size from ***. Different product families ***.⁴⁹

A generalized HEDP process flow diagram is illustrated in figure I-2 on the following page.

**Figure I-2
HEDP: Process Flow Diagram**

* * * * *

The basic fundamentals of Compass' HEDP production process start with the preparation of the raw materials, phosphorous acid and acetic anhydride, ***. This is accomplished by ***.⁵⁰ ***.⁵¹ Respondent Shandong Taihe employs a process for producing HEDP, which is somewhat different from the two processes previously described, as shown in the following balanced chemical equation.⁵²



The reactants consist of phosphorus trichloride and glacial acetic acid (concentrated acetic acid). The products, in addition to commercial grade HEDP, however, include what Shandong Taihe describes as salable high-margin acetyl chloride byproduct and salable hydrochloric acid byproduct. This type of manufacturing process is also reportedly likely to be used by other foreign producers.⁵³

Shandong Taihe reports that its automated, high pressure continuous commercial process is the only one in use in China,⁵⁴ and is more efficient than batch processes, owing to larger throughput volumes, economies of scale, energy savings, lower labor requirements, and the salable aspects of byproduct acetyl chloride. Throughput volumes (4 hours reaction time) are reported to be significantly higher than that of batch processes, and indigenous phosphorus raw materials' reactants costs are reported to be lower in China, all of which results in an estimated competitive unit production cost that is roughly *** that of batch processes.

⁴⁶ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China and India, Inv. Nos. 731-TA-1146-1147 (Final)*, USITC Publication 4072, April 2009, pp. I-8-9.

⁴⁷ Compass' production, production capacity, and capacity utilization data is presented in part III. The data is compiled from Compass' questionnaire response.

⁴⁸ Petition, Vol 1, p. 28, March 31, 2016. Production capacity data is presented in Part III.

⁴⁹ Compass' producers' questionnaire response, part II.

⁵⁰ Byproduct 56-percent acetic acid is characterized as a high quality product used in a large variety of end use applications such as printing inks, textiles, and other large volume industrial sectors. Hearing transcript, p. 70 (McCaul).

⁵¹ Petitioner's postconference brief, exh. 7.

⁵² Respondent Shandong Taihe's prehearing brief, p. 7.

⁵³ Respondent Shandong Taihe's prehearing brief, pp. 5-7.

⁵⁴ Respondent Shandong Taihe's posthearing brief, "Commission Questions" p. 11.

Shandong Taihe reported that acetyl chloride is valuable as a pharmaceutical and pesticide intermediate with a higher price than byproduct acetic acid.⁵⁵

Shandong Taihe reported its current annual production capability as *** and byproduct acetyl chloride output as ***.⁵⁶ A detailed process flow diagram of Taihe's unique process was provided in its posthearing brief.⁵⁷ The firm also reported its global presence as a supplier of a large range of phosphonate products.⁵⁸

In general, major global manufacturers of HEDP in China, India, and Europe favor phosphorus trichloride and glacial acetic acid as starting point reactants.⁵⁹ Shandong Taihe reported that phosphorus trichloride and glacial acetic acid reactants are significantly lower in price and more cost effective considering that phosphorous acid and acetyl anhydride reactants must be further processed, regardless of whether HEDP is produced by batch or continuous processes.⁶⁰

According to respondent Shandong Taihe, Aquapharm Chemicals Pvt. Ltd. of India employs two processes for producing HEDP in India, each with starting point reactants phosphorus trichloride and glacial acetic acid. One process, in addition to HEDP product, also produces 32-percent byproduct hydrochloric acid for internal use and commercial sales and certain amounts of byproduct acetic acid, while the other process in addition to HEDP product also reportedly produces a combination of both 32-percent salable byproduct hydrochloric acid and significant amounts of acetyl chloride byproduct. Aquapharm, in 2014, was reportedly planning capacity expansions in these processes.⁶¹

DOMESTIC LIKE PRODUCT ISSUES

In the preliminary phase of these investigations, the Commission considered whether a specialty high purity grade of HEDP within the scope of the investigations should be considered a separate like product from the general technical grade of HEDP.⁶² In its Views, the

⁵⁵ Respondent Shandong Taihe's prehearing brief, pp. 5-9. Hearing transcript, pp. 86-92 (Cheng); p. 93 (McGrath).

⁵⁶ Respondent Shandong Taihe's posthearing brief, "Comments on the Hearing," p. 6.

⁵⁷ Respondent Shandong Taihe's posthearing brief, exh. 3.

⁵⁸ Respondent Shandong Taihe's posthearing brief, "Response to Commissioner Questions," p. 7, and exh. 2.

⁵⁹ Petitioner Compass stated that both Chinese and Indian producers use this method, while respondent Taihe believes producers in China, India, and Europe all directly use these reactants. Hearing transcript, p. 45 (McCaul), and Petitioner posthearing brief, "Answers to Commissioners' and Investigation Staff Questions," p. 11. Respondent Shandong Taihe's posthearing brief, "Response to Commissioner Questions," p. 10.

⁶⁰ Respondent Shandong Taihe's posthearing brief, "Response to Commissioner Questions," pp. 7-8.

⁶¹ Respondent Shandong Taihe's posthearing brief, exh. 1.

⁶² Enviro Tech, which purchased imported higher purity HEDP and used it to manufacture downstream products, argued during the preliminary phase that the Commission should find that high purity HEDP is a separate domestic like product from standard technical grade HEDP. Compass argued

(continued...)

Commission defined a single domestic like product coextensive with the scope, consisting of HEDP.⁶³

DOMESTIC INDUSTRY

In the preliminary phase of these investigations, the Commission defined the domestic industry as all domestic producers of HEDP, with Compass as the only known domestic producer of HEDP.⁶⁴

(...continued)

that the Commission should define the domestic like product as HEDP, which is co-extensive with the scope of investigation as defined by the Department of Commerce. Shandong Taihe did not contest the Commission's like product definition in the final phase of these investigations.

⁶³ *1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China, Inv. Nos. 701-TA-558 and 731-TA-1316 (Preliminary)*, USITC Publication 4612, May 2016, p. 7.

⁶⁴ There were no related parties in the preliminary phase of these investigations. *1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China, Inv. Nos. 701-TA-558 and 731-TA-1316 (Preliminary)*, USITC Publication 4612, May 2016, p. 10.

PART II: CONDITIONS OF COMPETITION IN THE U.S. MARKET

U.S. MARKET CHARACTERISTICS

HEDP is mainly used to treat water including: inhibiting scaling that interferes with commercial heating and cooling systems and in reverse osmosis desalination processing; sequestering metal ions that color water or reduce the functioning of soaps; and preventing the breakdown of oxidization agents such as peroxide bleach.¹ Typically HEDP is used by water treatment service companies that manage water systems.² The water treatment companies often combine HEDP with other chemicals to keep water systems operational and clean. HEDP is sold in variety of sizes including bulk tank trucks, ISO bulk import containers, 275 gallon totes, and 55 gallon drums.³ According to petitioner, purchasers will combine domestic and imported HEDP in their bulk tanks.⁴

Apparent U.S. consumption of HEDP fluctuated during 2014-2016. Overall, apparent U.S. consumption in 2016 was *** percent higher than in 2014.

U.S. PURCHASERS

The Commission received 26 usable questionnaire responses from firms that bought HEDP during 2014-16.⁵ Seventeen responding purchasers are compounders/formulators, eight are distributors, and seven are end users. In general, responding U.S. purchasers were located in the Midwest, Pacific Coast, and Mountain regions. The responding purchasers represented firms in industrial, commercial, and municipal water treatment services and pool and spa chemical distributors. The four largest purchasers of HEDP accounted for 80 percent of total reported purchases of HEDP during the period of investigation. These purchasers are ***.

CHANNELS OF DISTRIBUTION

U.S. producer Compass sold mainly to ***. U.S. importers of HEDP from China sold mainly to ***, as shown in table II-1. The share of U.S. importers' U.S. commercial shipments of HEDP from nonsubject country India and from all other sources were sold mostly to ***.

¹ Conference transcript, pp. 11-13 (Allen). It is also used in oil and gas production, industrial and institutional compounding for cleaners and sanitizers, and recreational water treatment such as swimming pool chemicals. Hearing transcript, p. 20 (McCaul).

² Conference transcript, pp. 65-67 (McCaul).

³ Hearing transcript, p. 16 (Allen).

⁴ Hearing transcript, p. 17 (Allen).

⁵ Of the 25 purchasers that provided purchase data, 11 purchased the domestic HEDP, 18 purchased imports of HEDP from China, and 10 purchased imports of HEDP from other sources. One purchaser did not report purchase data.

Table II-1
HEDP: U.S. producer's and importers' U.S. commercial shipments, by sources and channels of distribution, 2014-16

* * * * *

GEOGRAPHIC DISTRIBUTION

U.S. producer Compass reported selling HEDP to *** (table II-2). Importers of HEDP from China reported selling to all regions in the contiguous United States. For Compass, *** percent of sales were within 100 miles of its production facility, *** percent were between 101 and 1,000 miles, and *** percent were over 1,000 miles. Importers of HEDP from China sold *** percent within 100 miles of their U.S. point of shipment, *** percent between 101 and 1,000 miles, and *** percent over 1,000 miles.

Table II-2
HEDP: Geographic market areas in the United States served by U.S. producer and importers

Region	U.S. producer	Importers of HEDP from China
Northeast	***	7
Midwest	***	8
Southeast	***	7
Central Southwest	***	7
Mountain	***	5
Pacific Coast	***	8
Other ¹	***	0
All regions (except Other)	***	4
Reporting firms	1	9

¹ 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

Domestic production

Based on available information, the U.S. HEDP producer has the ability to respond to changes in demand with moderate-to-large changes in the quantity of shipments of U.S.-produced HEDP 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 produce alternative products, constrained by a limited ability to divert shipments from alternate markets and a limited ability to use inventories to increase shipments to the U.S. market.

Industry capacity

Domestic capacity *** from 2014 to 2016. Domestic capacity utilization decreased from *** percent in 2014 to *** percent in 2016, reflecting decreasing production. This relatively low level of capacity utilization suggests that Compass may have substantial ability to increase production of HEDP in response to an increase in prices.

Alternative markets

Compass' exports, as a percentage of total shipments, increased from *** percent in 2014 to *** percent in 2016. Compass' export markets include ***. These export levels indicate that Compass has a relatively limited ability to shift shipments between the U.S. market and other markets in response to price changes.

Inventory levels

Compass' inventories declined between 2014 and 2016. Relative to total shipments, its inventory levels decreased from *** percent in 2014 to *** percent in 2016. These inventory levels suggest that the U.S. producer may have a limited ability to respond to changes in demand with changes in the quantity shipped from inventories.

Production alternatives

Compass stated that ***. Production of other products decreased from *** percent of all products produced on the same machinery in 2014 to *** percent in 2016.

Supply constraints

Compass reported that ***. Eighteen of 22 responding purchasers reported that the availability of U.S. produced HEDP has not changed since January 2014. One purchaser, *** stated that the U.S. demand for HEDP is larger than domestic capacity.⁶ Two purchasers reported instances where Compass has not been able to supply their firms with HEDP since January 2014. Purchaser *** stated that "Compass had been out of stock several times during the last two years." Purchaser *** stated that Compass failed to meet its delivery deadlines.

⁶ ***.

Subject imports from China⁷

Based on available information, producers of HEDP from China have the ability to respond to changes in demand with large changes in the quantity of shipments of HEDP to the U.S. market. The main factors contributing to the high degree of responsiveness of supply for Chinese producers are the demonstrated ability to quickly expand capacity, the ability to divert shipments from alternate markets, and an ability to produce a wide assortment of alternate products.

Industry capacity

Reported Chinese capacity and production *** between 2014 and 2016. Shandong Taihe's capacity utilization decreased from *** percent in 2014 to *** percent in 2016. Despite the relatively high level of capacity utilization, the demonstrated ability to quickly expand production capacity suggests that Chinese producers may have moderate ability to increase production of HEDP in response to an increase in prices.⁸

Alternative markets

Shandong Taihe's shipments to markets other than the United States, as a percentage of total shipments, increased. Shipments to domestic markets increased from *** percent in 2014 to *** percent in 2016, and shipments to export markets other than the United States decreased from *** percent in 2014 to *** percent in 2016. These export levels indicate that Chinese producers may have a substantial ability to shift shipments between domestic or other markets and the U.S. market in response to price changes.

Inventory levels

Relative to total shipments, Shandong Taihe's inventory levels remained unchanged at *** percent between 2014 and 2016. These inventory levels suggest that responding foreign

⁷ The Commission received questionnaire responses from one Chinese producer, Shandong Taihe. Shandong Taihe estimated that it accounted for *** percent of China's total production of HEDP in 2016. See Appendix E for a summary of Chinese industry data from the preliminary phase of these investigations.

⁸ However, due to an absence of comprehensive foreign producers' questionnaire responses, data for the Chinese industry is understated. In the preliminary phase, the Commission also collected production and shipments data from Nantong Uniphos, Wujin Water and Henan Qingshuiyuan. The combined production capacity of these firms and Shandong Taihe in 2015 was *** pounds, combined production was *** pounds, and capacity utilization was *** percent. See Appendix E for a summary of Chinese industry data from the preliminary phase of these investigations. *Investigation Nos. 701-TA-558 and 731-TA-1316 (Preliminary): 1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China—Staff Report*, INV-OO-039, May 9, 2016, p. VII-9.

firms may have limited ability to respond to changes in demand with changes in the quantity shipped from inventories.⁹

Production alternatives

Shandong Taihe stated that it ***. In the preliminary phase, the four other responding subject Chinese producers indicated that they produce products other than HEDP on the same equipment and machinery used in the production of HEDP. Other products listed included CH₃Cl, acetyl chloride, ATMP, PBTC, DTPMPA, DDBAC, HPMA, AA/AMPS, PAA, PESA, PAAS, HPAA, and DTPMP. The share of production of these other products increased from 61.0 percent of production on the same equipment to 63.0 percent. The capability of at least some firms to shift production from HEDP to other products indicates that Chinese producers may have some ability to respond to changes in demand by altering their production.

Supply constraints

Most importers (8 of 10) reported that they have not refused, declined, or been unable to supply HEDP since January 1, 2014. Two importers reported that, because of the announcement of these AD/CVD investigations, their import levels have decreased.

Most purchasers (18 of 20) reported that the availability of imports of HEDP from China has not changed since 2014. No purchaser identified supply constraints with any firm that supplied imported HEDP.

Nonsubject imports

The largest source of nonsubject imports during 2014-16 was India. U.S. imports of HEDP from India accounted for *** percent of nonsubject imports and *** percent of total U.S. imports in 2016.

New suppliers

Two of 25 purchasers reported new suppliers, citing Italmatch (United Kingdom) and Ecolab. Purchaser *** reported that Ecolab, a large purchaser of water treatment phosphonates, acquired a controlling interest in Jianghai Environmental Protection Co., a Chinese phosphonate producer in June 2015.

⁹ In the preliminary phase of these investigations, Chinese producers' inventories, as a share of their total shipments, increased from *** percent in 2013 to *** percent in 2015.

U.S. demand

Based on the available information, it is likely that changes in the price level of HEDP will result in a small change in the quantity of HEDP demanded. The main factors contributing to the small degree of responsiveness of demand to changes in the price of HEDP are the limited availability of substitute products and the low cost share of HEDP in most of its end uses.

End uses and cost share

HEDP is used in water treatment applications such as boiler water treatment, municipal water treatment, desalination, and swimming pool applications; industrial and institutional detergents and cleaners; peroxide bleach stabilization; and personal care products such as bar soaps and shampoos (in which HEDP is used as a preservative). Its single largest application is in commercial water treatment.¹⁰ In water treatment applications, HEDP is added for scale control and chelation. Compass reported that in a water treatment application, HEDP is one of a number of chemicals that are used..

The reported cost share of HEDP is low for most end uses. Compass indicated that HEDP costs as a share of total costs ranged from *** percent of the cost of industrial water treatment, chemical distribution, industrial and institutional use, recreational water, oil and gas production, agriculture, and other end uses.¹¹ Importers reported that HEDP was 3 to 32 percent of the cost of end-use applications including: water treatment (3-32 percent with most importers estimating cost shares of 3 to 5 percent); oil and gas (5 percent); and cleaners (5 percent).¹² Purchasers reported that cost share could range from 1 percent to 90 percent,¹³ with the majority of reported costs shares equal to 15 percent or less.

Business cycles

Compass, most importers, and most purchasers reported that the market was neither subject to business cycles nor conditions of competition. However, four of ten importers and six of 25 purchasers indicated that the market was subject to business cycles or conditions of competition. Specifically, importers and purchasers reported that the business cycle for HEDP was seasonal, with HEDP demand greater in warmer months. Importer *** stated that there is an increase in HEDP consumption during the summer and fall months when power plants use HEDP for their cooling water treatment. The vast majority of responding importers and purchasers reported that there have not been any changes in the business cycles or conditions of competitions for HEDP since January 1, 2014.

¹⁰ Petition, volume 1, p. 5.

¹¹ ***, email correspondence to USITC staff, April 27, 2016.

¹² Some importers also reported that the cost of HEDP in water treatment and “trading” to be 100 percent; these responses are not included in these estimates.

¹³ Two purchasers reported costs shares of 90 percent for proprietary water treatment products.

Demand trends

A plurality of firms reported that U.S. demand for HEDP has not changed since January 2014 (table II-3). Compass reported that there has been an increase in U.S. demand for HEDP since January 2014. *** stated that demand for HEDP is driven by changes in GDP and has increased since 2013. Importer *** and two purchasers (***) stated that demand is decreasing due to environmental regulations that are driving innovation towards more non-phosphate solutions.¹⁴

Table II-3
HEDP: 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. producer	***	***	***	***
Importers	1	4	2	1
Purchasers	2	9	3	7
Demand outside the United States: U.S. producer	***	***	***	***
Importers	0	1	1	0
Purchasers	0	6	5	2
Demand for purchasers' final products: Purchasers	7	7	3	3

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

Substitute products

Substitutes for HEDP are limited. *** three importers, and six purchasers reported that ATMP and PBTC can be a substitute in limited water treatment applications and indicated that these substitutes do not affect the price of HEDP. Three purchasers also listed polyacrylates, DETPMP, and PESA as substitutes in scale control applications and indicated that these substitutes do not affect the price of HEDP.

SUBSTITUTABILITY ISSUES

The degree of substitution between domestic and imported HEDP depends upon such factors as relative prices, quality (e.g., grade standards, reliability of supply, defect rates, etc.), and conditions of sale (e.g., price discounts/rebates, lead times between order and delivery

¹⁴ However, Compass reported that it was unaware of any environmental regulations that have affected the use of HEDP. It stated that detergent manufacturers in the United States chose to eliminate the use of phosphonates in the detergent formulations many years ago because of the regulations on phosphorus content. Hearing transcript, pp. 57-58 (Allen and McCaul) and pp. 75-76 (McCaul).

dates, payment terms, product services, etc.). Based on available data, staff believes that there is high degree of substitutability between domestically produced HEDP and HEDP imported from China.

Lead times

HEDP is primarily sold from inventory. Compass reported that *** percent of its commercial shipments were sold from inventory, with lead times averaging ***. The remaining *** percent were produced-to-order, with lead times averaging ***. U.S. importers of HEDP from China reported that 92.3 percent of their commercial shipments were sold from U.S. inventory, with lead times averaging 4 days and 6.0 percent of their commercial shipments were sold from foreign inventory, with lead times averaging 59 days. The remaining 1.7 percent of their commercial shipments were produced-to-order, with lead times averaging 50 days.

Knowledge of country sources

Seventeen purchasers indicated they had marketing/pricing knowledge of domestic HEDP, 20 of Chinese product, 11 of Indian product, and 6 of HEDP from all other nonsubject sources.

As shown in table II-4, most purchasers and their customers never make purchasing decisions based on the producer or country of origin. One purchaser (***) reported that its customers always make decisions based on the manufacturer, stating that Compass is an approved supplier.

Table II-4
HEDP: Purchasing decisions based on producer and country of origin

Purchaser/Customer Decision	Always	Usually	Sometimes	Never
Purchaser makes decision based on producer	0	3	4	18
Purchaser's customers make decision based on producer	1	1	0	20
Purchaser makes decision based on country	0	1	3	20
Purchaser's customers make decision based on country	0	0	1	20

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 HEDP were price (23 firms), availability (16 firms), and quality (15 firms) as shown in table II-5. Price was the most frequently cited first-most important factor (cited by 10 firms), followed by quality (8 firms); price was also the most frequently reported second-most important factor (8 firms); and availability was the most frequently reported third-most important factor (7 firms).

Table II-5**HEDP: Ranking of factors used in purchasing decisions as reported by U.S. purchasers, by factor**

Item	1st	2nd	3rd	Total
	Number of firms			
Price / Cost	10	8	5	23
Quality	8	5	2	15
Availability / Supply	3	6	7	16
Lead time	0	1	1	2
Approved/Traditional supplier	2	0	1	3
All other factors ¹	3	5	6	NA

¹ Other factors include technical support for the first factor; credit, product consistency, freight costs, product range, and service for the second factor; and shipping, order fulfillment, service, and packaging for third factor.

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

Purchasers reported considering a wide variety of factors when determining the quality of HEDP. These factors included: iron content, the concentration of active phosphonate, lower concentration of metal contaminants (e.g., iron), chemical purity, specific gravity, pH, assay, color, and appearance.

A plurality of purchasers (13 of 26) reported that they “sometimes” purchase the lowest-priced product; twelve purchasers reported that they “usually” purchase the lowest-priced HEDP. One purchaser reported that it “always” purchases the lowest-priced product and one purchaser reported that it “never” does.

When asked if they purchased HEDP from one source although a comparable product was available at a lower price from another source, ten purchasers reported reasons including: customer preference, availability, consistent quality, packaging, product range, global supply chain capabilities, registered with NSF International,¹⁵ and security of supply. In addition, one purchaser reported that it purchased HEDP from China along with other phosphonates for a bulk shipping discount. Two of 23 purchasers reported that certain types of product were only available from a single source. U.S. purchaser *** reported that it uses *** HEDP that is only produced by Italmatch's plant in the United Kingdom. U.S. purchaser *** reported that Chinese HEDP is not registered with NSF International.

Importance of specified purchase factors

Purchasers were asked to rate the importance of 15 factors in their purchasing decisions (table II-6). The factors rated as very important by more than half of responding purchasers were availability (24 firms), reliability of supply (22), quality meets industry standards (21), product consistency (21), price (20), delivery time (18), and U.S. transportation costs (13).

¹⁵ NSF International is an independent organization that tests, audits, and certifies products and systems. NSF International develops public health standards and certifications that protect food, water, consumer products and the environment. NSF International, <http://www.nsf.org/>, accessed April 10, 2017.

Table II-6**HEDP: Importance of purchase factors, as reported by U.S. purchasers, by factor**

Factor	Very important	Somewhat important	Not important
Availability	24	2	0
Delivery terms	9	13	3
Delivery time	18	6	2
Discounts offered	6	10	7
Extension of credit	6	11	8
Minimum quantity requirements	9	12	5
Packaging	8	16	1
Price	20	6	0
Product consistency	21	4	0
Product range	8	13	4
Quality exceeds industry standards	7	14	4
Quality meets industry standards	21	5	0
Reliability of supply	22	3	0
Technical support/service	6	13	6
U.S. transportation costs	13	10	2

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

Supplier certification

Thirteen of 25 responding purchasers require their suppliers to become certified or qualified to sell HEDP to their firm. Purchasers reported that the time to qualify a new supplier ranged from 2 weeks to 6 months. Purchasers described their process to certify new suppliers as based on sample testing, site audit, and evaluation of specs sheet. One purchaser reported that a Chinese supplier had failed in its attempt to qualify product because the sample was high in heavy metals.

Changes in purchasing patterns

Purchasers were asked about changes in their purchasing patterns from different sources since January 2014 (table II-7). Those describing decreasing or fluctuating purchases from the United States cited customer demand, bidding results from RFPs, consolidating suppliers that serve global locations, and failure to deliver as promised. Purchasers that increased their purchases from domestic sources cited increased business. A plurality of purchasers reported increased purchases from China, citing business growth and increased demand, supplier availability, price, and a desire to diversify suppliers.

Table II-7**HEDP: Changes in purchase patterns from U.S., subject, and nonsubject countries**

Source of purchases	Did not purchase	Decreased	Increased	Constant	Fluctuated
United States	11	1	2	3	6
China	2	2	8	5	4
All other sources	9	3	3	4	2

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

Ten of 26 purchasers reported that they had changed suppliers since January 2014. One purchaser (***) dropped Compass from its active supplier list ***. Two purchasers added Brenntag because of pricing; one purchaser added North Metal because of its packaging size; purchaser *** added Connect and Taico due to “competitiveness.”

Importance of purchasing domestic product

Twenty-three of 25 purchasers (accounting for 98.6 percent of total reported purchases) reported that purchasing U.S.-produced product was not an important factor in their purchasing decisions. One purchaser (***) reported that domestic product was required by law (for 5 percent of its purchases) as well as was required by its customers (for 5 percent of its purchases).

Comparisons of domestic products, subject imports, and nonsubject imports

Purchasers were asked a number of questions comparing HEDP produced in the United States, China, and nonsubject countries. First, purchasers were asked for a country-by-country comparison on the same 15 factors (table II-8) for which they were asked to rate the importance.

Most U.S. purchasers reported that domestic and Chinese HEDP were comparable on all factors except for price (for which most purchasers rated the Chinese product as lower priced).

In comparing U.S. product and HEDP from nonsubject sources, most purchasers reported that domestic HEDP and Indian HEDP were comparable on all factors except for price (for which most purchasers rated the Indian product as lower priced). Most purchasers reported that U.S. product and HEDP from all other sources were comparable on all factors except for price (for which a plurality of purchasers rated the domestic product as lower priced) and U.S. transportation costs (for which a plurality of purchasers rated the products as comparable).

Table II-8

HEDP: Purchasers' comparisons between U.S.-produced and imported product

Factor	United States vs. China			United States vs. India			United States vs. all other sources		
	S	C	I	S	C	I	S	C	I
Availability	2	13	2	3	7	0	1	4	0
Delivery terms	2	12	1	1	8	1	0	5	0
Delivery time	2	10	3	2	6	2	0	4	1
Discounts offered	0	10	4	0	7	3	1	3	0
Extension of credit	0	12	2	0	8	2	0	4	0
Minimum quantity requirements	3	10	2	1	8	1	0	5	0
Packaging	2	12	1	1	8	1	1	4	0
Price ¹	1	3	12	0	4	6	2	1	2
Product consistency	1	13	1	1	9	0	0	4	1
Product range	0	13	2	0	10	0	0	5	0
Quality exceeds industry standards	0	14	0	0	9	0	0	4	1
Quality meets industry standards	0	15	0	0	10	0	0	4	1
Reliability of supply	2	9	4	2	6	2	0	5	0
Technical support/service	3	11	1	2	7	1	0	5	0
U.S. transportation costs ¹	1	12	2	1	8	1	1	3	1

Table continued on the next page.

Table II-8 --Continued

HEDP: Purchasers' comparisons between U.S.-produced and imported product

Factor	China vs. India			China vs. All other sources		
	S	C	I	S	C	I
Availability	1	8	0	2	2	1
Delivery terms	1	8	0	0	2	2
Delivery time	1	8	0	0	2	2
Discounts offered	1	8	0	1	2	0
Extension of credit	0	9	0	0	3	0
Minimum quantity requirements	0	9	0	0	1	3
Packaging	0	9	0	0	4	0
Price ¹	4	5	0	6	0	0
Product consistency	1	7	1	0	5	0
Product range	1	8	0	2	2	1
Quality exceeds industry standards	0	9	0	0	4	1
Quality meets industry standards	0	8	1	0	4	0
Reliability of supply	2	7	0	0	5	0
Technical support/service	1	6	2	0	2	3
U.S. transportation costs ¹	1	8	0	1	2	2

¹ 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.

Note.--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 HEDP

In order to determine whether U.S.-produced HEDP can generally be used in the same applications as imports from China, 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-9, Compass reported that ***. Compass stated that there were no quality or purity issues that limit the interchangeability of domestic HEDP and HEDP imported from China and other sources.¹⁶ A plurality of importers and most purchasers reported that domestic HEDP was frequently interchangeable with HEDP from China.

¹⁶ Hearing transcript, p. 22 (McCaul).

Table II-9

HEDP: Interchangeability between HEDP produced in the United States and in other countries, by country pairs

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 country: U.S. vs. China	***	***	***	***	2	4	2	0	5	11	2	0
Nonsubject countries comparisons: U.S. vs. India	***	***	***	***	2	1	2	0	3	10	0	0
U.S. vs. all other sources	***	***	***	***	1	1	1	0	2	5	1	0
China vs. India	***	***	***	***	1	3	1	0	3	9	0	0
China vs. all other sources	***	***	***	***	1	3	0	0	2	5	1	0

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-10, 12 responding purchasers reported that domestically produced HEDP always met minimum quality specifications. Eleven responding purchasers reported that the Chinese product always met minimum quality specifications. Most purchasers reported that HEDP from all other sources always met minimum quality specifications.

Table II-10

HEDP: Ability to meet minimum quality specifications, by source¹

Source	Always	Usually	Sometimes	Rarely or never
United States	12	5	1	0
China	11	6	1	0
India	7	6	0	0
Other	3	1	0	0

¹ Purchasers were asked how often domestically produced or imported HEDP 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 a significant factor in sales of HEDP from the United States, China, or nonsubject countries. As seen in table II-11, Compass reported that differences other than price were *** a significant factor in their sales of HEDP. In contrast, the responses were mixed for importers, with a plurality of importers reporting that differences other than price were frequently a factor in their firms' sales of HEDP. Differences other than price cited by importers include availability, transportation network, delivery time, technical support, and quality issues. U.S. purchasers' responses were also varied; ten of 18 responding purchasers reported that differences other than price were always or frequently a factor in their purchases of HEDP and eight purchasers reported that differences other than price were sometimes or

never a factor. Differences other than price cited by purchasers include longer lead times, supply chain disruptions, technical support, and packaging requirements. One purchaser (***) reported that it has had historical problems with the quality of domestically produced HEDP and therefore no longer qualifies the domestic product for use. Respondent contends that purchasers want to have multiple sources of HEDP and are willing to pay higher prices for different suppliers.¹⁷

Table II-11
HEDP: Significance of differences other than price between HEDP produced in the United States and in other countries, by country pairs

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 country: U.S. vs. China	0	0	1	0	2	3	1	0	5	5	5	3
Nonsubject countries comparisons: U.S. vs. India	0	0	1	0	1	3	1	0	3	4	5	2
U.S. vs. all other sources	0	0	1	0	1	0	1	0	2	1	3	2
China vs. India	0	0	1	0	0	1	3	1	1	6	4	2
China vs. all other sources	0	0	1	0	0	0	2	0	1	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; parties were encouraged to comment on these estimates in their prehearing or posthearing brief. Party comments are presented and addressed below.

U.S. supply elasticity

The domestic supply elasticity¹⁸ for HEDP measures the sensitivity of the quantity supplied by U.S. producers to changes in the U.S. market price of HEDP. 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 HEDP. Analysis of these factors above indicates that the U.S. industry has a moderate-to-large ability to increase or decrease shipments to the U.S. market; an estimate in the range of 3 to 6 is suggested.

¹⁷ Hearing transcript, pp. 117-118 (McGrath).

¹⁸ A supply function is not defined in the case of a non-competitive market.

U.S. demand elasticity

The U.S. demand elasticity for HEDP measures the sensitivity of the overall quantity demanded to a change in the U.S. market price of HEDP. 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 HEDP in the production of any downstream products. Based on the available information, the aggregate demand for HEDP is likely to be inelastic; a range of -0.25 to -0.50 is suggested.

Substitution elasticity

The elasticity of substitution depends upon the extent of product differentiation between the domestic and imported products.¹⁹ 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 HEDP and imported HEDP is likely to be in the range of 3 to 5.²⁰

¹⁹ 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.

²⁰ Petitioner contends that the degree of substitution between domestic and Chinese HEDP is even higher than staff's estimates but did not provide an estimate. Petitioner's prehearing brief, p. 10 n. 19.

PART III: U.S. PRODUCER'S 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 one firm, Compass, that accounted for 100 percent U.S. production of HEDP during 2014-16.

U.S. PRODUCER

Compass was formed in 1999 and is the sole producer of HEDP in the United States.¹ Compass produces HEDP at its plant in Smyrna, GA, which it purchased from Lynx Chemical Group (“Lynx”) in July 2006.² At the time that it acquired the Smyrna, GA facility, Compass was solely an importer of HEDP. Compass began producing HEDP in 2006 by using phosphorus trichloride as the primary raw material, but continued to import HEDP from China through the fourth quarter of 2007.³

In late 2006, Compass established its current production process, which begins with phosphorus acid as the primary raw material rather than phosphorus trichloride. Compass made this adjustment after analysis of each production process indicated that using phosphorous acid was more cost effective.⁴ Compass periodically re-evaluates the economics of different production methods for HEDP and, at reasonable cost, can change its production method back to using phosphorus trichloride as the primary raw material.⁵

Compass also operates a facility in Huntsville, TX, which produces 70 percent phosphorous acid (from crystal), a raw material used to manufacture other phosphonates, but not HEDP. The Huntsville plant also serves as a blending facility and has a large warehouse where manufactured products from the Smyrna plant can be stored and distributed.⁶ Table III-1

¹ Compass was acquired by One Rock Capital Partners, a private equity group based in New York City, in March 2015 and was sold to Italmatch Chemicals, a chemicals manufacturer based in Italy, in 2016. Hearing transcript, pp. 19-20 (McCaul).

² HEDP has been produced at the Smyrna, GA facility since the 1980s. Hearing transcript, p. 15 (Allen). Lynx owned and operated the Smyrna, GA facility from 2003 through June 2006. During that period, Lynx ***. The *** terminated at the same time as Compass' acquisition of Lynx. Petition, pp. 3-4.

³ Petition, p. 4. Compass stated that it is no longer an importer of HEDP and does not intend to import HEDP as long as its return on investment is reflected in fair market pricing. Hearing transcript, pp. 18-19 (Allen).

⁴ Petitioner's posthearing brief, exh. 2, p. 2.

⁵ Ibid.

⁶ Hearing transcript, p. 20 (McCaul).

lists Compass' production location for HEDP, position on the petition, total production, and shares of total production.

Table III-1

HEDP: U.S. producer of HEDP, its positions on the petition, production location, production, and share of reported production, 2016

Firm	Position on petition	Production location(s)	Share of production (percent)
Compass Chemical Intl., LLC	Support (petitioner)	Smyrna, GA	***
Total			***

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

Compass was asked to report any changes in its operations since January 2014. The firm reported that ***. According to Compass, ***.⁷ Compass added that ***.

U.S. PRODUCTION, CAPACITY, AND CAPACITY UTILIZATION

Table III-2 and figure III-1 present Compass' production, capacity, and capacity utilization. From 2014 to 2016, Compass' production capacity of HEDP ***.⁸ Production capacity is based on ***. Compass calculated the average cycle time by ***.⁹ In its calculations, Compass ***. Based on this methodology, Compass reports that ***.¹⁰

Compass' production of HEDP decreased from *** pounds in 2014 to *** pounds in 2015, and then increased slightly to *** pounds in 2016, a decrease of *** percent during 2014-2016. Capacity utilization decreased by *** percentage points from 2014 to 2016, much of which occurred from 2014 to 2015 when capacity utilization decreased from *** percent to *** percent. The decrease in capacity utilization during 2014-2016 is attributable to a decrease in production from 2014 to 2015.

Table III-2

HEDP: U.S. producer's production, capacity, and capacity utilization, 2014-16

* * * * *

Figure III-1

HEDP: U.S. producer's production, capacity, and capacity utilization, 2014-16

* * * * *

⁷ ***, email message to USITC staff, February 1, 2017.

⁸ From 2013 to 2014, Compass' production capacity increased by *** percent. Petitioner's post conference brief, p. 17. This increase in production capacity was a result of ***. ***, email message to USITC staff, February 1, 2017.

⁹ ***, email message to USITC staff, February 1, 2017

¹⁰ ***, email message to USITC staff, February 1, 2017

Potential product shifting in U.S. production facilities

Compass produces a range of phosphonates at the Smyrna, GA facility; however, HEDP accounts for the largest volume of its production of phosphonates.¹¹ Compass' overall production capacity increased from *** pounds in 2014 to *** pounds in 2016. According to Compass, this increase is largely due to ***.¹² As discussed previously in Part I, Compass ***. Compass added that it can manufacture high purity HEDP ***.¹³

Compass' production of other products manufactured at the Smyrna facility decreased from *** pounds in 2014 to *** pounds in 2016; the majority of the decrease occurred from 2014 to 2015. As noted earlier, acetic acid is a byproduct produced in the production of HEDP. Compass stated that because it can sell the byproduct, it is able to deduct the value of the byproduct from the raw material cost; however, if the price of HEDP and the byproduct declines, then eventually the product line would not be sustainable.¹⁴ Table III-3 presents overall U.S. capacity and production on manufacturing equipment used to produce HEDP.

Table III-3
HEDP: U.S. producer's overall capacity and production on the same equipment as HEDP, 2014-16

* * * * *

When asked to describe the factors that affect its ability to shift production capacity between products (e.g., time, cost, relative price change, etc.), and the degree to which these factors enhance or constrain such shifts, Compass reported that ***.¹⁵ Compass estimated that it would ***.

U.S. PRODUCER'S U.S. SHIPMENTS AND EXPORTS

Table III-4 presents Compass' U.S. shipments, exports shipments and total shipments of HEDP. From 2014 to 2016, the quantity of Compass' U.S. shipments of HEDP decreased from *** pounds to *** pounds, a decrease of *** percent. Much of the decrease occurred from 2015 to 2016, when Compass' U.S. shipments decreased from *** pounds to *** pounds. U.S. commercial shipments accounted from over *** to *** percent of total shipments during 2014-2016. The value of Compass' U.S. shipments exhibited the same change, decreasing from \$*** in 2014 to \$*** in 2016, a decrease of *** percent. The unit value for U.S. shipments decreased from \$*** per pound in 2014 to \$*** per pound in 2016.

¹¹ Compass noted that it is the only full line producer of phosphonates in the United States. Hearing transcript, p. 18 (Allen). HEDP accounted from *** percent to *** percent of Compass' overall production during 2014-2016. Other phosphonates produced by Compass on the same manufacturing equipment used to produce HEDP include: ***.

¹² ***, email message to USITC staff, February 1, 2017.

¹³ ***, email message to USITC staff, February 10, 2017.

¹⁴ Hearing transcript, pp. 25-27 (McCaul). Compass also stated that it has ***. Petitioner's postconference brief, exh. 7.

¹⁵ ***, email message to USITC staff, February 1, 2017.

The quantity of Compass' export shipments of HEDP increased from *** pounds in 2014 to *** pounds in 2016, an increase of *** percent, but still were *** percent of the volume of domestic sales by 2016. According to Compass, the increase in export shipments ***.¹⁶ Compass reported exports to ***. Despite the increase in export shipments from 2015 to 2016, the decrease in Compass's U.S. shipments resulted in total shipments decreasing from *** pounds in 2014 to *** pounds in 2016.

The value of export shipments of HEDP increased from \$*** in 2014 to \$*** in 2016; the majority of the increase occurred from 2015 to 2016. The unit value for export shipments decreased from \$*** in 2014 to \$*** in 2015 and *** from 2015 to 2016. Compass ***.¹⁷

Table III-4
HEDP: U.S. producer's U.S. shipments, exports shipments, and total shipments, 2014-16

* * * * * * *

U.S. PRODUCER'S INVENTORIES

Table III-5 presents Compass' end-of-period inventories and the ratio of these inventories to production, U.S. shipments, and total shipments. End-of-period inventories decreased from *** pounds in 2014 to *** pounds in 2015, and then increased to *** pounds in 2016, a decrease of *** percent during 2014-2016. Compass stated that *** pounds of inventory at the end of every year.¹⁸ Compass ***.¹⁹

Compass' end-of-period inventories decreased from 2014 to 2015 due to ***.²⁰ Compass also noted that ***.²¹

Ratio of inventories to U.S. production decreased from *** percent in 2014 to *** percent in 2015, and then increased to *** percent in 2016, an overall decrease of *** percentage points during 2014-2016. Ratio of inventories to U.S. shipments decreased from *** percent in 2014 to *** percent in 2015, and then increased to *** percent in 2016, an overall decrease of *** percentage points during 2014-2016.

Table III-5
HEDP: U.S. producer's inventories, 2014-16

* * * * * * *

¹⁶ ***, email message to USITC staff, February 1, 2017.

¹⁷ Ibid.

¹⁸ ***, email message to USITC staff, February 7, 2017.

¹⁹ Ibid.

²⁰ ***, email message to USITC staff, May 2, 2016.

²¹ Compass noted that ***. ***, email message to USITC staff, February 7, 2017.

U.S. EMPLOYMENT, WAGES, AND PRODUCTIVITY

Table III-6 shows the U.S. producer's employment-related data. The average number of production related workers (PRWs) of HEDP increased *** from 2014 to 2015 and *** in 2016. Hours worked by PRWs decreased from *** hours in 2014 to *** hours in 2015, and then increased to *** hours in 2016. Hourly wages decreased from \$*** in 2014 to \$*** in 2015 and then increased to \$*** in 2016.

Table III-6

HEDP: Average number of production and related workers, hours worked, wages paid to such employees, hourly wages, productivity, and unit labor costs, 2014-16

* * * * *

PART IV: U.S. IMPORTS, APPARENT U.S. CONSUMPTION, AND MARKET SHARES

U.S. IMPORTERS

The Commission issued importer questionnaires to 17 firms believed to be importers of HEDP.¹ Usable questionnaire responses were received from 11 firms, which staff believes represents a large majority of U.S. imports from China between January 2014 and December 2016.² Nonsubject imports from India accounted for a moderate portion of U.S. imports of HEDP.³ Table IV-1 lists all responding U.S. importers of HEDP from China and other sources, their locations, and their shares of U.S. imports, in 2016.

¹ The Commission issued questionnaires to firms identified in the petition and to firms identified through a review of the *** record under HTS statistical subheading 2931.90.9043. As discussed in Part I, this HTS subheading represents a basket category, which includes products outside the scope of these investigations. USITC staff reviewed this record to determine whether there are companies not previously identified in the petition that may have business interests in the merchandise under investigation. Commission staff found six companies: ***, *** and ***, ***, ***, and *** that have such interests.

² The Commission received completed questionnaires from the same 10 firms that responded in the preliminary phase of these investigations as well as one additional questionnaire from ***. ***, ***, and *** did not report imports of HEDP since January 1, 2014. Three firms did not provide a response. In the preliminary phase of these investigations, U.S. imports and apparent U.S. consumption were understated due to less than comprehensive coverage of U.S. imports from nonsubject sources. USITC staff believes the understated data was largely due to a lack of response from ***, which is believed to be the largest importer of HEDP from India. With *** response, USITC staff believes the responses from these 11 firms represent the large majority of imports from all sources.

³ The Commission issued an importers' questionnaire to the firm believed to be the largest importer from the United Kingdom, ***. This firm did not provide a response despite repeated requests from USITC staff. As a result, nonsubject imports may be understated.

**Table IV-1
HEDP: U.S. importers by source, 2016**

Firm	Headquarters	Share of imports by source (percent)				
		China	India	All other sources	Nonsubject sources	Total
Aquapharm Chemicals ¹	Pune, India	***	***	***	***	***
Brenntag North America, Inc. ²	Reading, PA	***	***	***	***	***
BWA Water Additives US LLC. ³	Tucker, GA	***	***	***	***	***
Penn Chemicals Incorporated ("Penn Chemicals, Inc.")	Bensalem, PA	***	***	***	***	***
SDA Chemicals, Inc.	Huntington Beach, CA	***	***	***	***	***
Taico Inc. ⁴	Cherry Hill, NJ	***	***	***	***	***
Uniphos, Inc. ⁵	Oak Park, IL	***	***	***	***	***
Univar Usa Inc. ⁶	Downers Grove, IL	***	***	***	***	***
Wego Chemical & Mineral Corp. ⁷	Great Neck, NY	***	***	***	***	***
Zibex, Inc.	Duluth, GA	***	***	***	***	***
Zschimmer & Schwarz, Inc. ⁸	Milledgeville, GA	***	***	***	***	***
Total		***	***	***	***	***

¹ Although headquartered in India, Aquapharm is the ***. According to Aquapharm's website, its main consignees are Tau Chemical Inc. and Philltech LLC.

² Brenntag is ***.

³ BWA Water Additives is ***.

⁴ Taico is ***.

⁵ Uniphos is ***.

⁶ Univar is ***.

⁷ Wego is ***.

⁸ Zschimmer & Schwarz is ***.

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

According to respondent, imports from India gained market share from the U.S. industry and subject imports during 2014-16, despite overselling the domestic like product in most instances.⁴ Because Indian imports were able to gain market share despite the presence of the lower priced domestic like product, respondent argues that the performance of the U.S. industry is not attributable to the presence of subject imports.⁵ Petitioner asserts that the volume of imports from India began to increase in earnest in the second half of 2016, only after imports from China exited the market.⁶ This increase, petitioner contends, is due to purchasers

⁴ Respondent Shandong Taihe's prehearing brief, pp. 3-4.

⁵ Respondent Shandong Taihe's prehearing brief, pp. 3-4

⁶ Petitioner's posthearing brief, p. 12.

*** shifting their sourcing from China to India and importers *** stopping shipments of imports from China and increasing its shipment of imports from India in early or mid-2016.⁷

U.S. IMPORTS

Table IV-2 and figure IV-1 present data for U.S. imports of HEDP from China and from nonsubject sources. U.S. import data are based on questionnaire responses. U.S. imports of HEDP from China, by volume, decreased from *** pounds in 2014 to *** pounds in 2015 and then increased to *** pounds in 2016, an overall decrease of *** percent from 2014 to 2016. This year-to-year fluctuation is largely attributable to importer ***⁸, whose import volume exhibited the same change. It decreased by *** pounds from 2014 to 2015, and then increased by *** pounds from 2015 to 2016. Importer *** stated that *** was the driving force behind the decrease in its volume of imports from China from 2014 to 2015.⁹

The quantity of U.S. imports of HEDP from India also fluctuated year-to-year, decreasing from *** pounds in 2014 to *** pounds in 2015 and then increasing to *** pounds in 2016, an overall increase of *** percent during 2014-2016. This year-to-year fluctuation is largely due to importers ***¹⁰, whose combined imports from India decreased by *** pounds from 2014 to 2015, and then increased by *** pounds from 2015 to 2016. According to ***, price and availability were the main causes of the fluctuation in its import volume from India.¹¹ There were no reported imports from other nonsubject sources in 2015 or 2016.¹²

The value of U.S. imports of HEDP from China decreased from \$*** in 2014 to \$*** in 2016; the majority of the decrease occurred from 2014 to 2015. The value of U.S. imports from India fluctuated from year to year, decreasing from \$*** in 2014 to \$*** in 2015, and then increasing to \$*** in 2016, resulting in an overall increase of *** percent. The average unit values of U.S. imports of HEDP from China were consistently lower than those from India during 2014-2016.

China's share of reported imports, by volume, decreased from *** percent in 2014 to *** percent in 2016 while India's share increased from *** percent in 2014 to *** percent in 2016. In both cases, most of the change occurred from 2015 to 2016.

⁷ Ibid, p. 13.

⁸ Importer *** accounted for *** percent of total reported imports of HEDP from China in 2016.

⁹ ***, email message to USITC staff, February 7, 2017.

¹⁰ Importers *** and *** accounted for *** percent of reported imports of HEDP from India in 2016. *** imports from India increased by *** pounds from 2015 to 2016, accounting for the majority of the increase during the period.

¹¹ ***, email message to USITC staff, February 6, 2017.

¹² As noted previously, data for imports from all other nonsubject sources may be understated due to a lack of response from ***, which USITC staff believes is the largest importer of subject merchandise from the United Kingdom.

Table IV-2
HEDP: U.S. imports by source, 2014-16

* * * * *

Figure IV-1
HEDP: U.S. import volumes and average unit values, 2014-16

* * * * *

NEGLIGENCE

The statute requires that an investigation be terminated without an injury determination if imports of the subject merchandise are found to be negligible.¹³ Negligible imports are generally defined in the Tariff Act of 1930, 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.¹⁴ During calendar year 2015, the most recent 12-month period preceding the filing of the petition for which data is available, subject imports from China accounted for *** percent by quantity in the antidumping duty investigation and *** percent by quantity in the countervailing duty investigation.

APPARENT U.S. CONSUMPTION

Table IV-3 and figure IV-2 present data on apparent U.S. consumption and U.S. market shares for HEDP. Apparent U.S. consumption, based on quantity, decreased from *** pounds in 2014 to *** pounds in 2015 and then increased to *** pounds in 2016, an overall increase of *** percent during 2014-2016. This year-to-year fluctuation is attributable to decreases in Compass' U.S. shipments during 2015-2016 being offset by slightly larger increases in U.S. importers' U.S. shipments of imports from China and India.

Increases in U.S. importers' U.S. shipments from China are largely attributable to importer ***, whose U.S. shipments increased by *** pounds from 2014 to 2016 while

¹³ 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)).

¹⁴ Section 771 (24) of the Act (19 U.S.C § 1677(24)).

increases in U.S. importers' U.S. shipments from India were driven by importer ***¹⁵, whose U.S. shipments increased by *** pounds from 2014 to 2016. On a value basis, apparent U.S. consumption decreased from \$*** in 2014 to \$*** in 2016. This decrease is driven by *** in the value of Compass' U.S. shipments and U.S. importers' shipments of imports from China.

Table IV-3

HEDP: Apparent U.S. consumption and market share, 2014-16

* * * * *

Figure IV-2

HEDP: Apparent U.S. consumption, 2014-16

* * * * *

¹⁵ Importer *** accounted for *** percent of U.S. importers' shipments of HEDP imports from India in 2016.

PART V: PRICING DATA

FACTORS AFFECTING PRICES

Raw material costs

The principal raw materials used for producing HEDP in the United States are acetic anhydride and phosphorous acid.¹ Compass' raw material costs as a share of the gross cost of goods sold (total cost of goods sold prior to byproduct credit) decreased from *** percent in 2014 to *** percent in 2016. See part VI for a further discussion on raw material costs.

Compass indicated that raw material prices fluctuated since January 2014, with raw material costs increasing in 2013 and 2014 and then decreasing in 2015 and 2016.² Compass stated that changes in the cost of raw materials have a limited impact on price negotiations of HEDP and that the price of HEDP is driven by the general market price.³ Seven of 10 importers reported that raw material prices have decreased since January 2014. Importer *** stated that the cost of phosphorous, which is a primary cost driver in HEDP production, has decreased.

U.S. inland transportation costs

Transportation costs for U.S. inland shipments of HEDP generally account for a small-to-moderate share of the delivered price of these products. Compass reported that *** transportation to its customers and its U.S. inland transportation cost accounted for *** percent of the delivered cost of HEDP. Seven of nine responding importers reported that they typically arrange transportation to their customers and that their U.S. inland transportation costs ranged from 2 to 18 percent, with six of the eight responding importers reporting shipping costs between 2 and 5 percent.

¹ Respondent stated that foreign producer Shandong Taihe and likely other foreign producers use phosphorous trichloride and glacial acetic acid as the principal raw material inputs. Respondent contends that phosphorous trichloride and glacial acetic acid cost less than acetic anhydride and phosphorous acid and therefore, it is much cheaper to produce HEDP using these raw material inputs. Shandong Taihe's prehearing brief, pp. 6-7.

² Compass reported that the cost of phosphorous acid began to decline in 2015 while the cost of acetic anhydride remained relatively stable throughout the period. Conference transcript, p. 73 (McCaul).

³ Hearing transcript, p. 48 and p. 81 (McCaul).

PRICING PRACTICES

Pricing methods

Compass reported that it sold HEDP using *** (table V-1). Six importers reported using transaction-by-transaction negotiations, two reported using price lists, and two reported using other methods including market conditions and bid sheets.

Table V-1

HEDP: U.S. producer’s and importers’ reported price setting methods, by number of responding firms¹

Method	U.S. producers	Importers
Transaction-by-transaction	***	6
Contract	***	0
Set price list	***	2
Other	***	2

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.

Compass reported selling *** and importers reported selling ***. As shown in table V-2, U.S. producers and importers reported their 2016 U.S. commercial shipments of HEDP by type of sale.

Table V-2

HEDP: U.S. producer’s and importers’ shares of U.S. commercial shipments by type of sale, 2016

* * * * *

Compass reported that its short-term contracts averaged *** and ***. Two importers of HEDP from China reported that their short-term contracts averaged ***, one importer reported that its short-term contract averaged ***, and one importer did not specify its average duration. Two of the four importers reported that price could be renegotiated during the contract period. These four importers of HEDP from China reported that their short-term contracts fixed price and did not have meet-or-release provisions. Importer *** reported that its annual contracts allowed for price renegotiation, fixed both price and quantity, and did not have meet-or-release provisions. Importer *** reported that its annual contracts fixed price, did not allow for price renegotiation, and did not contain a meet-or-release provision.

One purchaser reported that it purchases HEDP daily, three purchase weekly, eight purchase monthly, and five purchase quarterly. Sixteen of 26 responding purchasers reported that their purchasing frequency had not changed since 2014. Most purchasers (23 of 24) contact 1 to 5 suppliers before making a purchase.

Fourteen of 26 responding purchasers reported that their firms’ purchases of HEDP usually involve negotiations with their suppliers. Purchasers reported that their firms negotiate price, availability, lead time, and minimum order volume. One purchaser, ***, reported that it “negotiates pricing based on many factors including feedstock costs, market information and

competition, volume requirements, security of supply and lead times.” Of the 14 responding purchasers that negotiate with their suppliers, five purchasers reported that their firms do not quote competing prices during negotiations. The remaining nine purchasers did not indicate whether their firms quote competing prices during negotiations.⁴

Sales terms and discounts

U.S. producer Compass typically quotes price on ***. Five importers typically quote prices on a delivered basis and four importers typically quote prices on an f.o.b. basis. *** seven of nine importers indicated that they do not have discount policies for their sales of HEDP. *** seven of eight importers reported sales terms of net 30 days.

Price leadership

Most purchasers (18 of 26) did not identify a price leader. Four of eight responding purchasers reported that Compass was a price leader, stating that Compass provided competitive prices. Four purchasers listed Connect Chemical, Shepard Brothers, Brenntag, and Italmatch as price leaders.

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 HEDP products shipped to unrelated U.S. customers during January 2014-December 2016.

Product 1.-- all grades of aqueous HEDP typically at 60% concentration (whether referred to as “HEDP” or “1-hydroxyethylidene-1, 1-diphosphonic acid”, “hydroxethylidenendiphosphonic acid”, “hydroxyethanediphosphonic acid”, “acetodiphosphonic acid”, “etidronic acid, or substantially similar names) sold in bulk containers (e.g., ISO containers, or bulk tank cars, or rail cars).

Product 2.-- all grades of aqueous HEDP typically at 60% concentration (whether referred to as “HEDP” or “1-hydroxyethylidene-1, 1-diphosphonic acid”, “hydroxethylidenendiphosphonic acid”, “hydroxyethanediphosphonic acid”, “acetodiphosphonic acid”, “etidronic acid, or substantially similar names) sold in drums.

⁴ Petitioner reported that purchasers quote Chinese prices when they are negotiating with Compass. Hearing transcript, p. 79 (McCaul) and petitioner’s posthearing brief, exhibit 2.

Product 3-- all grades of aqueous HEDP typically at 60% concentration (whether referred to as “HEDP” or “1-hydroxyethylidene-1, 1-diphosphonic acid”, “hydroxethylidenendiphosphonic acid”, “hydroxyethanediphosphonic acid”, “acetodiphosphonic acid”, “etidronic acid, or substantially similar names) sold in intermediate bulk containers (IBS’s).

Compass and nine importers provided usable pricing data for sales of the requested products,⁵ although not all firms reported pricing for all products for all quarters.⁶ Pricing data reported by these firms accounted for approximately 100 percent of U.S. producer’s shipments of HEDP and 98.8 percent of U.S. shipments of subject imports from China in 2016.

Price data for products 1-3 are presented in tables V-3 to V-5 and figures V-1 to V-3. Nonsubject country prices are presented in Appendix D.

Table V-3
HEDP: Weighted-average f.o.b. prices and quantities of domestic and imported product 1 and margins of underselling/(overselling), by quarters, January 2014-December 2016

* * * * *

Table V-4
HEDP: Weighted-average f.o.b. prices and quantities of domestic and imported product 2 and margins of underselling/(overselling), by quarters, January 2014-December 2016

* * * * *

Table V-5
HEDP: Weighted-average f.o.b. prices and quantities of domestic and imported product 3 and margins of underselling/(overselling), by quarters, January 2014-December 2016

* * * * *

⁵ 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.

⁶ *** provided price data for imports of China for products 1-2, accounting for *** percent of importers’ reported price data from China during January 2014-December 2016. These data were reported in the preliminary phase and final phase of these investigations and have higher than average unit values. *** confirmed the accuracy of these data and stated that its smaller volume sales solicit high prices. See email with ***. Staff has included *** data in the price data. Petitioner contends that ***. Petitioner did not contend that *** data should be excluded from the price data analysis. Petitioner’s prehearing brief, pp. 14-15.

Figure V-1
HEDP: Weighted-average prices and quantities of domestic and imported product 1, by quarters, January 2014-December 2016

* * * * *

Figure V-2
HEDP: Weighted-average prices and quantities of domestic and imported product 2, by quarters, January 2014-December 2016

* * * * *

Figure V-3
HEDP: Weighted-average prices and quantities of domestic and imported product 3, by quarters, January 2014-December 2016

* * * * *

Price trends

In general, prices decreased during 2014-16. Table V-6 summarizes the price trends, by country and by product. As shown in the table, domestic price decreases ranged from *** to *** percent during 2014-16 while import price decreases ranged from *** to *** percent.

Table V-6
HEDP: Summary of weighted-average f.o.b. prices for products 1-3 from the United States and China

* * * * *

Price comparisons

As shown in table V-7, prices for HEDP imported from China were below those for U.S.-produced product in 24 of 36 instances (***) pounds); margins of underselling ranged from 0.6 to 32.1 percent, averaging 10.7 percent.⁷ In the remaining 12 instances (***) pounds), prices for HEDP from China were between 0.2 to 17.8 percent above prices for the domestic product.⁸

⁷ On an annual basis, there were 5 instances of underselling during 2014, 7 instances of underselling during 2015, and 12 instances of underselling during 2016.

⁸ On an annual basis, there were 7 instances of overselling during 2014, 5 instances of overselling during 2015, and 0 instances of overselling during 2016.

Table V-7

HEDP: Instances of underselling/overselling and the range and average of margins, by country, January 2014-December 2016

Product	Underselling				
	Number of quarters	Quantity ¹ (units)	Average margin (percent)	Margin range (percent)	
				Min	Max
Product 1	5	***	***	***	***
Product 2	10	***	***	***	***
Product 3	9	***	***	***	***
Total	24	***	10.7	0.6	32.1
Product	(Overselling)				
	Number of quarters	Quantity ¹ (units)	Average margin (percent)	Margin range (percent)	
				Min	Max
Product 1	7	***	***	***	***
Product 2	2	***	***	***	***
Product 3	3	***	***	***	***
Total	12	***	(5.5)	(0.2)	(17.8)

¹ These data include only quarters in which there is a comparison between the U.S. and subject product.

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 Compass report purchasers where it experienced instances of lost sales or revenue due to competition from imports of HEDP from China during January 2014-December 2016. Compass reported that it had reduced prices and lost sales due to imported HEDP from China and provided lost sale and lost revenue allegations. It identified *** where it lost sales or revenue (***)).

In the final phase of these investigations, Compass reported that it ***. As noted in Part II, the Commission received purchaser questionnaire responses from 26 purchasers. Responding purchasers reported purchasing 15.0 million pounds of HEDP during 2016 (table V-8).

30,000 pounds to 786,359 pounds (table V-9). Availability was the most frequently cited non-price reasons for purchasing imported HEDP rather than U.S.-produced HEDP; other reasons included packaging size, technical assistance, and supplier's location.

Table V-9
HEDP: Purchasers' responses to changes in supply sources

* * * * *

Of the 26 responding purchasers, one purchaser reported that U.S. producers had reduced prices in order to compete with lower-priced imports from China (table V-10; 17 purchasers reported that they did not know). The reported estimated price reduction was 3.0 percent.

Table V-10
HEDP: Purchasers' responses to U.S. producer price reductions

* * * * *

PART VI: FINANCIAL EXPERIENCE OF U.S. PRODUCERS

BACKGROUND

The U.S. industry's HEDP financial results presented in this section of the report reflect the operations of a single U.S. producer, Compass.¹ In June 2016, Italmatch, a multinational chemical company headquartered in Genoa, Italy, acquired Compass from One Rock Capital Partners, an investment group, which acquired Compass in March 2015.²

Consistent with ***, the company reported no curtailments or production disruptions related to HEDP operations during 2014-16.³

OPERATIONS ON HEDP

Income-and-loss data for Compass' HEDP operations are presented in table VI-1. Table VI-2 presents corresponding changes in average per pound values and table VI-3 presents a variance analysis of these financial results.⁴

Table VI-1
HEDP: Results of operations of Compass, 2014-16

* * * * *

¹ Compass reported its HEDP financial results on the basis of generally accepted accounting principles (GAAP) for calendar-year periods. Staff conducted a verification of the financial section, and selected elements of the trade and pricing sections, of Compass' U.S. producer questionnaire on February 16, 2017. Data changes pursuant to verification are reflected in this and other relevant sections of the staff report. Verification report (Compass), p. 3.

² Ibid. Conference transcript, p. 19 (McCaul). As described by Compass and with respect to the March 2015 acquisition, ***. April 26, 2016 e-mail with attachment from counsel on behalf of Compass to USITC auditor. ***. Verification report (Compass), p. 3.

³ Conference transcript, p. 77 (McCaul).

⁴ The Commission's variance analysis is calculated in three parts: sales variance, cost of goods sold (COGS) variance, and sales, general and administrative (SG&A) expenses variance. Each part consists of a price variance (in the case of the sales variance) or a cost or expense variance (in the case of the COGS and SG&A expenses variance), and a volume variance. The sales or cost/expense variance is calculated as the change in unit price or per-unit cost/expense times the new volume, while the volume variance is calculated as the change in volume times the old unit price or per-unit cost/expense. As summarized at the bottom of table VI-3, the price variance is from sales, the cost/expense variance is the sum of those items from the COGS and SG&A variances, respectively, and the volume variance is the sum of the volume components of the net sales, COGS, and SG&A expenses variances. In general, the utility of the Commission's variance analysis is enhanced when product mix remains the same throughout the period.

Table VI-2
HEDP: Changes in average per pound values, between calendar years

* * * * * * *

Table VI-3
HEDP: Variance analysis of financial results of Compass, 2014-16

* * * * * * *

Revenue

HEDP revenue reflects commercial sales, primarily made up of U.S. commercial shipments, and a smaller share of exports. HEDP revenue also includes a small amount of internal consumption.⁵ From a marketing perspective HEDP reportedly plays an important role in terms of allowing Compass to offer a full range of phosphonates to its customers.⁶

Total HEDP revenue declined throughout 2014-16. As shown in the revenue section of the variance analysis (table VI-3), price and volume variances were negative in each year. For 2014-15, the negative price variance was the primary factor in terms of explaining the decline in revenue. For 2015-16, in contrast, the negative price and volume variances were similar in magnitude.

With regard to HEDP pricing and formulas that directly pass through raw material costs, a Compass company official stated that “We don’t have any contracts like that, haven’t had for some time. So there isn’t any pass through. There is an expectation from customers that as we might achieve lower costs, that we would -- we would be expected to adjust pricing accordingly. But that’s just a loose expectation shall we say.”⁷ Both the average per pound HEDP sales value and raw material costs declined throughout the period. As described in the Cost of Goods Sold section below, the two primary HEDP raw material inputs (PAC and acetic anhydride) both declined, by varying amounts, during the period.

Cost of goods sold

Raw material costs

Total raw material cost, representing PAC and acetic anhydride, is the single largest component of HEDP COGS. On a gross basis (i.e., prior to byproduct deduction), PAC declined from *** percent of gross COGS in 2014 to *** percent in 2016 and acetic anhydride increased from *** percent in 2014 to *** percent in 2016. According to a company official, the cost of

⁵ ***. April 26, 2016 e-mail with attachment from counsel on behalf of Compass to USITC auditor. ***. Verification report (Compass), p. 3.

⁶ Conference transcript, pp. 17-18 (Allen), p. 20, p. 26 (McCaul). With respect to its overall operations, Compass primarily sells directly to customers using its own sales force with a smaller share of sales made to distributors. Conference transcript, p. 75 (McCaul).

⁷ Conference transcript, p. 75 (McCaul).

PAC began to decline during 2015 while the cost of acetic anhydride was relatively stable throughout the period.⁸

Conversion costs

HEDP is Compass' largest volume phosphonate product and plays an important part in terms of absorbing a share of plant fixed costs.⁹ As shown in table VI-1, direct labor increased from *** percent of total gross COGS in 2014 to *** percent in 2016. Other factory costs increased from *** percent in 2014 to *** percent of total gross COGS.¹⁰ While their shares of gross COGS changed somewhat, table VI-1 shows that average per pound direct labor and other factory costs remained within a relatively narrow range during 2014-16.

Byproduct revenue

As noted previously, the production of HEDP yields a byproduct (acetic acid), which Compass sells commercially.¹¹ As described by the company, ***.¹²

As shown in table VI-1, average per pound byproduct revenue was at its highest level in 2014 and declined throughout the period.¹³ Compass noted that its ***.¹⁴

Gross profit

Total HEDP gross profit and corresponding gross profit ratios (total gross profit divided by total revenue) increased somewhat in 2015 compared to 2014 levels and then declined to a gross loss in 2016.¹⁵ With respect to the 2015 increase in gross profit, table VI-2 shows that the decline in average per pound HEDP sales value was more than offset by the corresponding decline in average per pound COGS. The 2015 decline in average per pound COGS in turn

⁸ Conference transcript, p. 73 (McCaul). ***. Verification report (Compass), p. 4. ***. Ibid.

⁹ Conference transcript, pp. 25-26 (McCaul).

¹⁰ ***. Verification report (Compass), pp. 4-5.

¹¹ ***. Verification report (Compass), p. 5. In general, the distinction between joint products, also called main products, and byproducts is largely dependent on the market value of the products in question and their contribution to overall revenue. As such, a product's designation as a byproduct or a main product can change over time given market conditions. For cost accounting purposes the market value of a byproduct is generally treated as a deduction to arrive at the cost of the main product. *Cost Accounting: Using a Cost Management Approach*, L. Gayle Rayburn, Irwin, 1993, pp. 258-259.

¹² Compass U.S. producer questionnaire (final), response to III-5b.

¹³ ***. April 26, 2016 e-mail with attachment from counsel on behalf of Compass to USITC auditor. ***. Verification report (Compass), p. 5.

¹⁴ Compass U.S. producer questionnaire (final), response to III-5c.

¹⁵ With regard to how HEDP financial results are routinely monitored, the company's CEO noted that "{w}e look at all the product that we produce, and look at the sales dollars, the margins, the contribution . . . that products bring to the bottom line. So HEDP, although it is one of a group of phosphonates, we do look at it as an individual product line and look at the contribution that it brings." Conference transcript, pp. 77-78 (McCaul).

primarily reflects lower costs for PAC and acetic anhydride which were partially offset by a decline in 2015 byproduct revenue. In 2016, the subsequent decline to a gross loss in 2016 reflects a continued reduction in average per pound HEDP sales value which was amplified by an increase in average per pound COGS. As shown in table VI-2, the increase in 2016 average per pound COGS reflects a decline in average per pound PAC cost that was almost entirely offset by a corresponding decline in byproduct revenue.¹⁶ In conjunction with the above factors, the net increase in 2016 average per pound COGS reflects marginally higher average per pound acetic anhydride and conversion costs.

SG&A expenses and operating income or loss

HEDP generated operating losses of varying magnitude throughout the period. The decline and subsequent increase in the level of operating losses reported in 2015 and 2016, respectively, generally reflect the previously noted gross profit ratio expansion and contraction in those years. The pattern of operating losses was also impacted to a lesser degree by changes in the level of assigned SG&A expenses. Table VI-1 shows that total SG&A expenses assigned to HEDP operations and corresponding SG&A expense ratios (total SG&A expenses divided by total revenue) declined somewhat in 2015 and then increased in 2016 to their highest levels of the period.¹⁷

Interest expense, other expenses, and net income or loss

Table VI-1 shows that net losses of increasing magnitude were generated throughout the period and that the directional pattern of net results was somewhat different than the pattern of operating losses. Compass confirmed that the ***.¹⁸ ***.¹⁹

CAPITAL EXPENDITURES AND RESEARCH AND DEVELOPMENT EXPENSES

Table VI-4 presents capital expenditures and research and development (R&D) expenses related to Compass' HEDP operations.

¹⁶ With regard to the importance of acetic acid byproduct revenue, a company official noted at the Commission's staff conference that "{i}f we did not manufacture HEDP, we would not produce acetic acid. That of course is not the point of our being in the business of HEDP production, but considering the fact that it is only through the sale of acetic acid that we are able to see any profit from our HEDP manufacturing under current market conditions, it is as of now a rather critical element to our overall company's operations." Conference transcript, pp. 14-15 (Allen).

¹⁷ ***. Verification report (Compass), p. 5.

¹⁸ ***. April 26, 2016 e-mail with attachment from counsel on behalf of Compass to USITC auditor.

***. Verification report (Compass), p. 5.

¹⁹ Ibid.

Table VI-4
HEDP: Compass' capital expenditures and research and development (R&D) expenses, 2014-16

* * * * *

Consistent with the relatively *** levels of HEDP capital expenditures shown in table VI-4, Compass described them as ***.²⁰ ***.²¹

Compass also reported R&D expenses *** which were reportedly for ***.²²

ASSETS AND RETURN ON INVESTMENT

Table VI-5 presents data on the U.S. producer's HEDP total assets, asset turnover (sales divided by total assets), and return on assets.²³

Table VI-5
HEDP: Compass' total assets, asset turnover, and return on assets, 2014-16

* * * * *

CAPITAL AND INVESTMENT

The Commission requested that the U.S. producer of HEDP describe any actual or potential negative effects on its return on investment or its growth, investment, ability to raise capital, existing development and production efforts (including efforts to develop a derivative or more advanced version of the product), or the scale of capital investments as a result of imports of HEDP from China. Table VI-6 tabulates Compass' responses regarding actual negative effects on investment, growth and development, as well as anticipated negative effects. Table VI-7 presents Compass' narrative responses regarding actual and anticipated negative effects on investment, growth and development.

²⁰ Compass U.S. producer questionnaire, response to III-13 (note 1). As described by Compass, "{w}hen evaluating capital investment we look at ROI {return on investment}. When considering changing methods of production which would involve plant modifications . . . we look at ROI. When evaluating plant expansion, or replacement of major equipment, ROI is always evaluated." Petitioner's postconference brief, Exhibit 7 (response to staff questions).

²¹ ***. Verification report (Compass), p. 5.

²² Compass U.S. producer questionnaire, response to III-13 (note 2).

²³ With respect to a company's overall operations, staff notes that a total asset value (i.e., the bottom line value on the asset side of a company's balance sheet) reflects an aggregation of a number of assets which, in many instances, are not product specific. Since Compass produces other products (HEDP represents *** percent of total sales in 2016), high-level allocation factors were necessary in order to assign total asset values to U.S. HEDP operations. The ability to assign total asset values to a discrete product line in turn affects the accuracy of calculated asset turnover and corresponding product-specific return on assets.

Table VI-6
HEDP: Negative effects of imports from subject sources on investment, growth, and development since January 1, 2014

* * * * *

Table VI-7
HEDP: Narrative responses of Compass regarding actual and anticipated negative effects of imports from subject sources on investment, growth, and development since January 1, 2014

* * * * *

PART VII: THREAT CONSIDERATIONS AND INFORMATION ON NONSUBJECT COUNTRIES

Section 771(7)(F)(i) of the Act (19 U.S.C. § 1677(7)(F)(i)) provides that—

In determining whether an industry in the United States is threatened with material injury by reason of imports (or sales for importation) of the subject merchandise, the Commission shall consider, among other relevant economic factors¹--

- (I) if a countervailable subsidy is involved, such information as may be presented to it by the administering authority as to the nature of the subsidy (particularly as to whether the countervailable subsidy is a subsidy described in Article 3 or 6.1 of the Subsidies Agreement), and whether imports of the subject merchandise are likely to increase,*
- (II) any existing unused production capacity or imminent, substantial increase in production capacity in the exporting country indicating the likelihood of substantially increased imports of the subject merchandise into the United States, taking into account the availability of other export markets to absorb any additional exports,*
- (III) a significant rate of increase of the volume or market penetration of imports of the subject merchandise indicating the likelihood of substantially increased imports,*
- (IV) whether imports of the subject merchandise are entering at prices that are likely to have a significant depressing or suppressing effect on domestic prices, and are likely to increase demand for further imports,*
- (V) inventories of the subject merchandise,*

¹ Section 771(7)(F)(ii) of the Act (19 U.S.C. § 1677(7)(F)(ii)) provides that “The Commission shall consider {these factors} . . . as a whole in making a determination of whether further dumped or subsidized imports are imminent and whether material injury by reason of imports would occur unless an order is issued or a suspension agreement is accepted under this title. The presence or absence of any factor which the Commission is required to consider . . . shall not necessarily give decisive guidance with respect to the determination. Such a determination may not be made on the basis of mere conjecture or supposition.”

- (VI) *the potential for product-shifting if production facilities in the foreign country, which can be used to produce the subject merchandise, are currently being used to produce other products,*
- (VII) *in any investigation under this title which involves imports of both a raw agricultural product (within the meaning of paragraph (4)(E)(iv)) and any product processed from such raw agricultural product, the likelihood that there will be increased imports, by reason of product shifting, if there is an affirmative determination by the Commission under section 705(b)(1) or 735(b)(1) with respect to either the raw agricultural product or the processed agricultural product (but not both),*
- (VIII) *the actual and potential negative effects on the existing development and production efforts of the domestic industry, including efforts to develop a derivative or more advanced version of the domestic like product, and*
- (IX) *any other demonstrable adverse trends that indicate the probability that there is likely to be material injury by reason of imports (or sale for importation) of the subject merchandise (whether or not it is actually being imported at the time).²*

Information on the nature of the alleged 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. producer's 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 CHINA

The Commission issued foreign producers' or exporters' questionnaires to 4 firms which were listed in the petition and believed to produce and/or export HEDP from China.³ As discussed in Part I, the Commission received a usable response to the questionnaire from one firm: Shandong Taihe.⁴ In the preliminary phase of these investigations, Henan Qingshuiyuan⁵, Nantong Uniphos⁶, and Wujin Water⁷ provided questionnaire responses, but elected not to participate in this final phase.⁸ Information provided by these companies is based on their questionnaire responses from the preliminary phase, unless otherwise noted. Table VII-1 presents Shandong Taihe's share of production and exports to the United States by volume.

Table VII-1
HEDP: Data for producer, Shandong Taihe, 2016

* * * * *

The Commission asked responding Chinese producers to indicate whether they have experienced any changes in relation to the production of HEDP since January 1, 2014.⁹ One notable change reported in the preliminary phase was the formation of Nantong Uniphos.¹⁰ According to Nantong Uniphos, the new entity was formed after Wujin Fine Chemical was forced to close its production facility because it was no longer appropriate to operate the facility in its present location. The plant, acquired for commercial development and production,

³ These firms were identified through a review of information submitted in the petition and through a review of *** records.

⁴ Shandong Taihe is reportedly the largest producer of HEDP in China. Respondent Shandong Taihe's postconference brief, p. 11. The firm estimated that it accounted for *** percent of China's total production of HEDP in 2016. Shandong Taihe is ***. The Commission also received a questionnaire response from Shandong Taihe Chemicals Co., ***. After a request from USITC staff, Shandong Taihe and Shandong Taihe Chemicals Co. provided a combined response under Shandong Taihe for simplicity and clarity.

⁵ Henan Qingshuiyuan was a respondent party during the preliminary phase of these investigations. Henan Qingshuiyuan ***. Respondent Nantong Uniphos' postconference brief, p. 9.

⁶ Nantong Uniphos was a respondent party during the preliminary phase of these investigations. The company estimated that it accounted for *** percent of China's production of HEDP in 2015 and *** percent of China's exports of HEDP to the United States in 2015. Nantong Uniphos reported ***.

⁷ Wujin Water estimated that it accounted for *** percent of China's production of HEDP in 2015 and *** percent of China's exports of HEDP to the United States in 2015. Wujin Water reported ***.

⁸ Chinese industry data from the preliminary phase is presented in app E. ***, email message to USITC staff, February 3, 2017.

⁹ Changes in relation to the production of HEDP reported by Nantong Uniphos, Wujin Water and Henan Qingshuiyuan occurred during the POI covered in the preliminary phase (2013-2015).

¹⁰ According to Nantong Uniphos' website, the new manufacturing plant is a joint investment by Wujin Fine Chemical Factory ("Wujin Fine Chemical"), Wujin Water, Wujin Water Quality Stabilizer, and Connect Jiangyin. <http://uniphos.com.cn/English/About/AboutUniphos/>, retrieved April 28, 2016.

was relocated to a new facility operating as Nantong Uniphos. Nantong Uniphos added that another factory operated by Wujin Water, which was located near Wujin Fine Chemical, was also forced to close. The factory ceased production in January 2016. Nantong Uniphos noted that ***.¹¹

When asked about anticipated changes in the character of its operations or organization of its future HEDP production, Henan Qingshuiyuan noted that ***. In addition to ***, Wujin Water noted that ***.

Nantong Uniphos and Wujin Water reported producing *** and Henan Qingshuiyuan reported producing *** on the same equipment and machinery used to produce HEDP. Shandong Taihe stated that it ***.¹² Shandong Taihe also stated that it employs a continuous process that begins with phosphorus trichloride and acetic acid and has a reaction time of about four hours. This particular manufacturing process produces a valuable and high margin by-product called acetyl chloride¹³, which is used in pesticides and in the production of intermediates for active pharmaceutical ingredients.¹⁴ Shandong Taihe employs this method of production because phosphorus trichloride and acetic acid are cheaper than phosphorus acid and acetic anhydride. Furthermore, acetic anhydride procurement is tightly controlled as it is a known ingredient in the production of heroin and methamphetamines.¹⁵ Shandong Taihe asserts that this production process reduces energy consumption, lowers investment in fixed assets, and exhibits economies of scale, thereby lowering the overall production cost.¹⁶ Table VII-2 presents Shandong Taihe's overall capacity and production on the same equipment used to produce HEDP.

¹¹ Respondent Nantong Uniphos' post conference brief, p. 5. In its questionnaire response, Wujin Water noted that ***. When asked to elaborate on these circumstances, *** stated that ***. After the antidumping duty orders were revoked in April 2014, Wujin Water made the decision to ***. Wujin Water added that ***. ***, email message to USITC staff, April 26, 2016.

¹² In the preliminary phase of these investigations, Shandong Taihe mistakenly reported ***. Shandong Taihe ***. ***, email message to USITC staff, February 13, 2017.

¹³ Shandong Taihe's counsel incorrectly reported that acetyl chloride is a co-product of the unique HEDP production process. It is in fact a byproduct of the production process. This error is attributable to counsel not fully understanding the production process before reporting it to the Commission. Respondent Shandong Taihe's prehearing brief, pp. 5-7.

¹⁴ In the preliminary phase, Shandong Taihe stated that this third production method, which it believes is likely used by most other foreign producers of HEDP, does not produce hydrochloric acid as a byproduct, but instead produces zero-margin hydrogen chloride as a byproduct. In the final phase, Shandong Taihe's counsel confirmed that this response was incorrect and that Shandong Taihe's production process produces ***. Shandong Taihe stated that while production of HEDP via a process that produces acetyl chloride as a byproduct is not in itself a patented process, Shandong Taihe does own patents on various elements of its production process. Respondent Shandong Taihe's prehearing brief, pp. 5-7. ***, email message to USITC staff, February 6, 2017.

¹⁵ Hearing transcript, pp. 88-89 (Cheng).

¹⁶ Respondent Shandong Taihe's prehearing brief, pp. 5-7.

Table VII-2

HEDP: Chinese producer, Shandong Taihe's, overall capacity and production on the same equipment as subject projection, 2014-16

* * * * *

Table VII-3 presents production and shipments data for responding producer, Shandong Taihe.¹⁷

Table VII-3

HEDP: Data on industry in China, 2014-16 and projection calendar years 2016 and 2017

* * * * *

Shandong Taihe's production capacity increased from *** in 2014 to *** in 2016; the majority of the increase occurred from 2014 to 2015. Shandong Taihe's production capacity is calculated based on ***. Shandong Taihe stated that ***. Shandong Taihe reported that ***.¹⁸ Shandong Taihe's HEDP production reflected these ***, increasing from *** pounds in 2014 to *** pounds in 2016. Capacity utilization *** percent during 2014-2016.¹⁹

From 2014 to 2016, Shandong Taihe's home market shipments increased from *** pounds to *** pounds, an increase of *** percent.²⁰ Its export shipments to the United States increased from *** pounds in 2014 to *** pounds in 2015, and then *** in 2016. Shandong Taihe's export shipments to all other markets increased from *** pounds in 2014 to *** pounds in 2016; the majority of the increase occurred from 2014 to 2015.²¹ Shandong Taihe's home market shipments as a share of total shipments increased from *** percent in 2014 to *** percent in 2016, while the share of its exports to the United States decreased from *** percent in 2014 to *** percent in 2016.²² Shandong Taihe asserts that the United States will not

¹⁷ In the preliminary phase, the Commission also received questionnaire responses from Nantong Uniphos, Wujin Water and Henan Qingshuiyuan. The reported combined production capacity of these firms and Shandong Taihe in 2015 was *** pounds, combined production was *** pounds, combined home market shipments was *** pounds, capacity utilization rate was *** percent, and combined export shipments to the United States was *** pounds, which was *** percent of total export shipments. Data presented in the final phase is based on Shandong Taihe's questionnaire response. *Investigation Nos. 701-TA-558 and 731-TA-1316 (Preliminary): 1-Hydroxyethylidene-1, 1-Diphosphonic Acid (HEDP) from China – Staff Report*, INV-OO-039, May 9, 2016, p. VII-9.

¹⁸ ***, email message to USITC staff, February 21, 2017.

¹⁹ After additional questioning from the Commission, Shandong Taihe confirmed that capacity utilization is *** percent. Shandong Taihe notes that it declined some orders due to inadequate capacity. Respondent Shandong Taihe's posthearing brief, Response to Commissioner Questions, p. 3.

²⁰ Internal consumption exhibited the same changes as home market shipments. It increased from *** pounds in 2014 to *** pounds in 2016, accounting for *** percent of total shipments.

²¹ Shandong Taihe exports ***. ***, email message to USITC staff, February 17, 2017.

²² The share of exports to all other markets decreased from *** percent to *** percent from 2014 to 2016.

be a priority market moving forward because demand for HEDP is ***.²³ Shandong Taihe projects that home shipments will account for *** percent of total shipments in 2017 and 2018.²⁴ Shandong Taihe reported that none of the HEDP they exported was subject to antidumping findings or remedies in any WTO-member countries. Shandong Taihe’s end-of-period inventories increased from *** pounds to *** pounds, an increase of *** percent, from 2014 to 2016. Its end-of-period inventories, as a share of production, *** during 2014-2016.

Shandong Taihe projected that its production capacity would *** pounds in 2017, and then increase slightly to *** pounds in 2018. With regard to capacity changes in China, Shandong Taihe asserts that many smaller manufacturers of HEDP have closed over the past years due to stricter enforcement of existing environmental laws, which has tightened the supply of HEDP in China.²⁵ Shandong Taihe asserts that it expanded its production capacity to replace the lost capacity caused by those shutdowns, not to overrun the HEDP market.²⁶ Nantong Uniphos listed several Chinese HEDP producers that were in operation during the prior HEDP investigation, but have reported closed facilities or stopped production during the past five years.²⁷

U.S. INVENTORIES OF IMPORTED MERCHANDISE

Table VII-4 presents data on U.S. importers’ reported inventories of HEDP. Inventories of HEDP imports from China decreased by *** percent from 2014 to 2016. These decreases were largely attributable to two importers: ***.²⁸

Table VII-4
HEDP: U.S. importers’ end-of-period inventories by source, 2014-16

* * * * *

²³ Respondent Shandong Taihe’s posthearing brief, Response to Commissioner Questions, p. 7.

²⁴ Ibid.

²⁵ Shandong Taihe asserts that chemical factories can move to a Chemical Industrial Park; however, there reportedly is an investment requirement of 100 million RMB to do so. Respondent Shandong Taihe’s postconference brief, exh. B. Respondent Shandong Taihe’s prehearing brief, p. 10.

²⁶ Hearing transcript, pp. 108-109 (McGrath).

²⁷ These firms include: Hongguang Chemical Co., Ltd.; Wujin Water; Kewei Chemicals; Chunjiang Chemicals; Yao’s Tongde Chemicals; Runyuan Chemicals; and Daming Chemicals. Respondent Nantong Uniphos’ postconference brief, p. 5. Shandong Taihe also provided a list of companies that produced and exported HEDP to the United States prior to 2015, but that reportedly did not do so during 2015 and 2016. Many of these companies became customers of Shandong Taihe. Respondent Shandong Taihe’s prehearing brief, p. 10. Respondent Shandong Taihe’s posthearing brief, Commission’s questions, p. 1.

²⁸ From 2014 to 2016, *** end-of-period inventories decreased by *** pounds. The main driving force of this decrease is lower import volumes from 2014 to 2015. During the same period, *** end-of-period inventories decreased by *** pounds. This decrease was largely driven by changes in its U.S. shipments, which increased by *** pounds during 2014-2016.

U.S. IMPORTERS' OUTSTANDING ORDERS

The Commission requested importers to indicate whether they imported or arranged for the importation of HEDP from China after December 31, 2016. These data are provided in table VII-5.

Table VII-5

HEDP: Arranged imports, January 2017 through December 2017

* * * * *

ANTIDUMPING OR COUNTERVAILING DUTY ORDERS IN THIRD-COUNTRY MARKETS

Chinese producers of HEDP reported that none of their HEDP exports were subject to antidumping findings or remedies in any WTO-member countries.

INFORMATION ON NONSUBJECT COUNTRIES

In assessing whether the domestic industry is materially injured or threatened with material injury “by reason of subject imports,” the legislative history states “that the Commission must examine all relevant evidence, including any known factors, other than the dumped or subsidized imports, that may be injuring the domestic industry, and that the Commission must examine those other factors (including non-subject imports) ‘to ensure that it is not attributing injury from other sources to the subject imports.’”²⁹

Nonsubject Source Information

While there are no published data for the global demand of HEDP, Petitioner estimates that the worldwide market is in the range of 150 million pounds annually, and that HEDP is the most widely used phosphonate worldwide.³⁰ According to published information on the global supply and demand trends of total organophosphates from 2013, China accounted for 41 percent of global organophosphate annual capacity, Europe, 38 percent, the United States, 15 percent, and other Asian countries, including India, 5 percent.³¹ The four largest consuming regions or countries of organophosphate products, in 2013, were Europe (36 percent), China (20 percent), the United States (18 percent) and Mexico (14 percent). China was the only reported net exporter, accounting for 59 percent of total global exports. Europe’s export and import trade, although equally balanced, accounted for 26 percent of the global export total. Other Asian country export and import trade, including India, was also equally balanced, and

²⁹ *Mittal Steel Point Lisas Ltd. v. United States*, Slip Op. 2007-1552 at 17 (Fed. Cir. Sept. 18, 2008), quoting from Statement of Administrative Action on Uruguay Round Agreements Act, H.R. Rep. 103-316, Vol. I at 851-52; see also *Bratsk Aluminum Smelter v. United States*, 444 F.3d 1369 (Fed. Cir. 2006).

³⁰ Hearing transcript, pp. 20-22 (McCaul).

³¹ ***.

accounted for 10 percent of global exports. The U.S. accounted for 4 percent of total export trade.³²

The total global capacity utilization rate of organophosphonates, in 2013, was reported as 85 percent. China's capacity utilization rate in 2013 was 92 percent, and represented a surplus availability of 21 million pounds as 60 percent aqueous solution relative to maximum installed capacity. Europe's capacity utilization rate during the same year was 79 percent, and also represented a maximum surplus availability of 37 million pounds of 60 percent aqueous capacity. Asia, principally India, experienced a capacity utilization rate of 83 percent during 2013, representing a capacity surplus availability maximum of 4 million pounds as 60 percent aqueous product.³³

The Industry in India

Four producers of HEDP and other organic phosphonates are reported to have operations in India, Aquapharm Chemical Pvt. Ltd., AVA Chemicals Ltd., Excel Industries Ltd., and Satyajit Chemicals Pvt. Ltd. The most recent data available indicated that Indian annual capacity of organophosphonates in all forms on a dry weight basis in 2012 was about 6,000 metric tons (13.2 million pounds),³⁴ with production of 5,000 metric tons (11.0 million pounds), of which 4,000 metric tons (8.8 million pounds) was exported, and only 1,000 metric tons (2.2 million pounds) consumed domestically. The major export destinations were reported as the United States, Europe and Japan.³⁵

Aquapharm is the largest manufacturer of phosphonates in India with a state of the art plant in Mahad. This fully automated plant is reported to be 100 percent export oriented, and one of the largest of its type in the world, set up to additionally produce phosphorus trichloride reactant. The firm also has a state of the art production facility in Pirangut.³⁶ Aquapharm is reported to have distribution networks in the United States, Europe, Latin America, South Africa, Turkey, the Middle East, Russia, Japan and Indonesia with sales representatives in the United States, Europe and Middle East, and warehousing facilities in the United States, Canada, and Europe.³⁷ According to respondent Shandong Taihe, nearly all of the imports of HEDP from India to the United States during 2013-15 were reportedly shipped by Aquapharm.³⁸ Import data collected during the current POI period, 2014-16, indicated that ***, while *** was also present as an exporter from India to the United States.³⁹

³² ***.

³³ ***.

³⁴ Indian capacity in 2012, calculates to about 22 million pounds on a 60 percent aqueous solution basis. ***.

³⁵ ***.

³⁶ Information on Aquapharm's various production processes, products and related information is reported in Part I of this report under "Manufacturing Processes."

³⁷ Aquapharm website, <http://www.aquapharm-india.com/infra.htm>, retrieved April 29, 2016.

³⁸ Respondent Shandong Taihe's postconference brief, pp. 2-3.

³⁹ Commission Importers' questionnaire responses.

Excel Industries Ltd. manufactures a line of organophosphonate chelating agents based on captive phosphorus trichloride (PCl₃) at its Lote facility.⁴⁰ Many specialty chemicals of this nature are described as low volume, which require a multi-purpose manufacturing setup with low switching time/cost, ideal for the production of such chemicals.

The Industry in the United Kingdom

The key producers of organophosphonates in the United Kingdom (U.K) are Italmatch Chemical Group at Newport, U.K., and Solvay-Rhodia at Oldbury, U.K. In March 2013, Italmatch Chemical Group purchased the liquidated ThermPhos International BV businesses which included ThermPhos chlorides and Dequest® phosphonates. The two most common organophosphonate products produced by these firms are HEDP and the amino phosphonate known as ATMP. Italmatch has an annual production capability of 15,000 metric tons (33 million pounds) as dry solids, and Solvay-Rhodia, 10,000 metric annual tons (22 million pounds) as dry solids.⁴¹ ⁴² Italmatch Chemicals exports over 85 percent of its production to the Middle East, North and South America, C.I.S., South Africa and most Far East Countries.⁴³ Likewise, Solvay-Rhodia exports over 50 percent of the product produced at Oldbury worldwide.⁴⁴

In June 2016, Italmatch purchased in whole the operations of petitioner Compass Chemical. This is the third acquisition in the water treatment industry by Italmatch since Ardian became the major shareholder in June 2014. In December 2014, Italmatch acquired GRS Chemical Technologies S.r.l., a company active in the production of polymers for water treatment, and in January 2016, Solvay's desalination, phosphonates and phosphonic acid-based water additives business.⁴⁵

⁴⁰ <http://www.excelind.co.in/manufacturing.html>, retrieved May 1, 2016.

⁴¹ ***.

⁴² On a 60 percent aqueous solution basis, Italmatch capacity translates to 55 million pounds annually, and Solvay-Rhodia to 37 million pounds annually. ***.

⁴³ <http://www.italmatch.it/home/about-us/italmatch-today/>, retrieved May 1, 2016.

⁴⁴ <http://www.solvay.co.uk/en/solvay-in/locations/oldbury.html>, retrieved May 1, 2016.

⁴⁵ "Ardian Portfolio Company Italmatch Chemicals Acquires Compass Chemical International from One Rock Capital Partners," Ardian-Italmatch joint press release, June 7, 2016, <http://www.compasschemical.com/about-us/>, retrieved April 3, 2017.

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
81 FR 20416, April 7, 2016	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid From China; Institution of Antidumping and Countervailing Duty Investigations and Scheduling of Preliminary Phase Investigations</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-04-07/html/2016-07987.htm
81 FR 25377, April 28, 2016	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid From the People's Republic of China: Initiation of Less-Than-Fair-Value Investigation</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-04-28/html/2016-09881.htm
81 FR 25383, April 28, 2016	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid From People's Republic of China: Initiation of Countervailing Duty Investigation</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-04-28/html/2016-09882.htm
81 FR 31958, May 20, 2016	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid From China; Determinations</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-05-20/pdf/2016-11891.pdf
81 FR 62084, September 8, 2016	<i>Countervailing Duty Investigation of 1-Hydroxyethylidene-1, 1-Diphosphonic Acid From the People's Republic of China: Preliminary Affirmative Determination and Alignment of Final Determination With Final Antidumping Duty Determination</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-09-08/pdf/2016-21483.pdf

Table continued on the next page

Citation	Title	Link
81 FR 76916, November 4, 2016	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid From the People's Republic of China: Affirmative Preliminary Determination of Sales at Less Than Fair Value, and Postponement of Final Determination</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-11-04/pdf/2016-26755.pdf
81 FR 81805, November 18, 2016	<i>1-Hydroxyethylidene-1,1-Diphosphonic Acid from China; Scheduling of the Final Phase of Countervailing Duty and Antidumping Duty Investigations</i>	https://www.gpo.gov/fdsys/pkg/FR-2016-11-18/pdf/2016-27703.pdf
82 FR 14872, March 23, 2017	<i>Countervailing Duty Investigation of 1-Hydroxyethylidene-1, 1-Diphosphonic Acid from the People's Republic of China: Final Affirmative Determination</i>	https://www.gpo.gov/fdsys/pkg/FR-2017-03-23/pdf/2017-05804.pdf
82 FR 14876, March 23, 2017	<i>1-Hydroxyethylidene-1, 1-Diphosphonic Acid from the People's Republic of China: Final Determination of Sales at Less Than Fair Value</i>	https://www.gpo.gov/fdsys/pkg/FR-2017-03-23/pdf/2017-05805.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: 1-Hydroxyethylidene-1, 1-Diphosphonic Acid from China
Inv. Nos.: 701-TA-558 and 731-TA-1316 (Final)
Date and Time: March 23, 2017 - 9:30 am

Sessions were held in connection with these investigations in the Main Hearing Room (room 101), 500 E Street, S.W., Washington, DC.

<u>OPENING REMARKS:</u>	<u>TIME ALLOCATION:</u>
Petitioner (Jeffrey Levin , Levin Trade Law, P.C.)	5 minutes
Respondents (Matthew T. MacGrath , Barnes Richardson & Colburn, LLP)	5 minutes

<u>In Support of the Imposition of Antidumping and Countervailing Duty Orders:</u>	<u>TIME ALLOCATION:</u>
Levin Trade Law P.C. Bethesda, MD <u>on behalf of</u>	60 minutes

Compass Chemical International LLC ("Compass Chemical")

Daniel McCaul, Chief Executive Officer, Compass Chemical

Mark Allen, Plant Manager, Compass Chemical

Cara Gooden, Economist, Economic Consulting Services, LLC

Jeffrey Levin) – OF COUNSEL

**In Opposition to the Imposition of
Antidumping and Countervailing Duty Orders:**

**TIME
ALLOCATION:**

Barnes, Richardson & Colburn, LLP
Washington, DC
on behalf of

60 minutes

Shandong Taihe Water Treatment Co., Ltd.

Joanna Cheng, Regional Sales Manager, Shandong Taihe
Water Treatment Co., Ltd.

Matthew T. McGrath) – OF COUNSEL

REBUTTAL/CLOSING REMARKS:

Petitioner (**Jeffrey Levin**, Levin Trade Law, P.C.)

Respondents (**Matthew T. McGrath**, Barnes, Richardson & Colburn, LLP)

-END-

APPENDIX C
SUMMARY DATA

Table C-1

HEDP: Summary data concerning the U.S. market, 2014-16

(Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	2014	2015	2016	2014-16	2014-15	2015-16
U.S. consumption quantity:						
Amount.....	***	***	***	***	***	***
Producers' share (fn1).....	***	***	***	***	***	***
Importers' share (fn1):						
China.....	***	***	***	***	***	***
India.....	***	***	***	***	***	***
All other sources.....	***	***	***	***	***	***
Nonsubject sources.....	***	***	***	***	***	***
All import sources.....	***	***	***	***	***	***
U.S. consumption value:						
Amount.....	***	***	***	***	***	***
Producers' share (fn1).....	***	***	***	***	***	***
Importers' share (fn1):						
China.....	***	***	***	***	***	***
India.....	***	***	***	***	***	***
All other sources.....	***	***	***	***	***	***
Nonsubject sources.....	***	***	***	***	***	***
All import sources.....	***	***	***	***	***	***
U.S. importers' U.S. shipments of imports from:						
China:						
Quantity.....	***	***	***	***	***	***
Value.....	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***
India:						
Quantity.....	***	***	***	***	***	***
Value.....	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***
Ending inventory quantity.....	***	***	***	***	***	***
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).....	***	***	***	***	***	***
Productivity (pounds per hour).....	***	***	***	***	***	***
Unit labor costs.....	***	***	***	***	***	***

Table continued on next page.

Table C-1--Continued

HEDP: Summary data concerning the U.S. market, 2014-16

(Quantity=1,000 pounds; Value=1,000 dollars; Unit values, unit labor costs, and unit expenses=dollars per pound; Period changes=percent--exceptions noted)

	Reported data			Period changes		
	2014	2015	2016	2014-16	2014-15	2015-16
U.S. producers.--Continued						
Net sales:						
Quantity.....	***	***	***	***	***	***
Value.....	***	***	***	***	***	***
Unit value.....	***	***	***	***	***	***
Cost of goods sold (COGS).....	***	***	***	***	***	***
Gross profit or (loss).....	***	***	***	***	***	***
SG&A expenses.....	***	***	***	***	***	***
Operating income or (loss).....	***	***	***	***	***	***
Net income or (loss).....	***	***	***	***	***	***
Capital expenditures.....	***	***	***	***	***	***
Unit COGS.....	***	***	***	***	***	***
Unit SG&A expenses.....	***	***	***	***	***	***
Unit operating income or (loss).....	***	***	***	***	***	***
Unit net income or (loss).....	***	***	***	***	***	***
COGS/sales (fn1).....	***	***	***	***	***	***
Operating income or (loss)/sales (fn1).....	***	***	***	***	***	***
Net income or (loss)/sales (fn1).....	***	***	***	***	***	***

Notes:

fn1.--Reported data are in percent and period changes are in percentage points.

fn2.--Undefined.

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

APPENDIX D
NONSUBJECT COUNTRY PRICE DATA

Three importers reported price data for India and all other sources for products 1-3. Price data reported by these firms accounted for 85.9 percent of reported U.S. commercial shipments from India and 99.0 percent of reported U.S. commercial shipments from all other sources. These price items and accompanying data are comparable to those presented in tables V-3 to V-5. Price and quantity data for India and all other sources are shown in tables D-1 to D-3 and in figure D-1 to D-3 (with domestic and subject sources).

In comparing nonsubject country pricing data with U.S. producer pricing data, prices for product imported from India were lower than prices for U.S.-produced product in 9 instances and higher in 27 instances. Prices for product imported from all other sources were lower than prices for U.S.-produced product in 4 instances and higher in 8 instances.

In comparing nonsubject country pricing data with subject country pricing data, prices for product imported from India were lower than prices for product imported from China in 6 instances and higher in 30 instances. Prices for product imported from all other sources were lower than prices for product imported from China in 2 instances and higher in 10 instances. A summary of price differentials is presented in table D-4.

Table D-1
HEDP: Weighted-average f.o.b. prices and quantities of imported product 1, by quarters, January 2014-December 2016

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Table D-2
HEDP: Weighted-average f.o.b. prices and quantities of imported product 2, by quarters, January 2014-December 2016

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Table D-3
HEDP: Weighted-average f.o.b. prices and quantities of imported product 3, by quarters, January 2014-December 2016

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Figure D-1
Product: Weighted-average f.o.b. prices and quantities of domestic and imported product 1, by quarters, January 2014-December 2016

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Figure D-2
Product: Weighted-average f.o.b. prices and quantities of domestic and imported product 2, by quarters, January 2014-December 2016

* * * * *

Figure D-3

Product: Weighted-average f.o.b. prices and quantities of domestic and imported product 3, by quarters, January 2014-December 2016

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Table D-4

HEDP: Summary of underselling/(overselling), by country, January 2014-December 2016

Comparison	Total number of comparisons	Nonsubject lower than the comparison source		Nonsubject higher than the comparison source	
		Number of quarters	Quantity (short tons)	Number of quarters	Quantity (short tons)
Nonsubject vs United States:					
India vs. United States	36	9	***	27	***
All other sources vs. United States	12	4	***	8	***
Nonsubject vs subject countries:					
India vs. China	36	6	***	30	***
All other sources vs. China	12	2	***	10	***

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

APPENDIX E

SUMMARY OF CHINESE INDUSTRY DATA FROM THE PRELIMINARY PHASE

Table E-1
HEDP: Summary data for producers in China, 2015

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Table E-2
HEDP: Chinese producers' overall capacity and production on the same equipment as subject production, 2013-15

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Table E-3
HEDP: Data on industry in China, 2013-15 and project calendar years 2016 and 2017

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