

# Industry & Trade Summary

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Inorganic Acids

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Washington, DC 20436

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*This report was prepared principally by*

Cynthia Trainor

Organic and Inorganic Chemicals Branch  
Energy and Chemicals Division

**Address all communications to**  
**Kenneth R. Mason, Secretary to the Commission**  
**United States International Trade Commission**  
**Washington, DC 20436**

## PREFACE

In 1991 the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into and exported from the United States. Each summary addresses a different commodity/industry area and contains information on product uses, U.S. and foreign producers, and customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.<sup>1</sup>

This report on inorganic acids covers the period 1986 through 1990 and represents one of approximately 250 to 300 individual reports to be produced in this series during the first half of the 1990s. Listed below are the individual summary reports published to date on the energy and chemicals sector.

<i>USITC publication number</i>	<i>Publication date</i>	<i>Title</i>
2458 (CH-1)	November 1991 .....	Soaps, Detergents, and Surface-Active Agents
2509 (CH-2)	May 1992 .....	Inorganic Acids

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<sup>1</sup>The information and analysis provided in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.



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## INTRODUCTION

This summary of industry and trade information on inorganic acids covers the period 1986 through 1990. The report is organized into three major sections: U.S. and foreign industry profiles; tariffs and nontariff measures; and U.S. industry performance in domestic and foreign markets. In addition, appendix A provides information explaining tariff and trade agreement terms.

An acid is a chemical substance that forms a salt and water when it reacts with an alkali (base). When acids are added to water, the hydrogen-ion concentration of the resulting solution is increased. Inorganic acids have many important industrial and agricultural applications. Sulfuric, phosphoric, nitric, hydrochloric, and hydrofluoric acids are of particular importance.

Based on volume, sulfuric acid is the largest volume inorganic acid produced in the United States. However, because of the significant percentage of captive consumption by highly integrated producers, U.S. sulfuric acid shipments have become the second largest inorganic acid in terms of value. Sulfuric acid is produced principally by the oxidation of elemental sulfur or as a byproduct of metal production. The principal end use of sulfuric acid is in the manufacture of phosphatic and other fertilizers. Many industrial processes also use sulfuric acid, including the production of explosives, other chemicals, dyes and pigments, high-octane gasoline, and steel.

Phosphoric acid, based on volume, is the second largest inorganic acid produced in the United States, but ranks first on a value-of-shipments basis. Production processes for phosphoric acid are predicated by type, grade, and end use. In the United States, the majority of phosphoric acid is produced by the so-called "wet-process" method, whereby phosphate rock is digested by sulfuric acid. Phosphoric acid thus produced is sold just the way it is on the merchant market, that is, as a fertilizer and an intermediate raw material for production of more complex, higher value-added fertilizers and other phosphoric acid based compounds. High purity phosphoric acid is produced by a "thermal" method, whereby elemental phosphorus is oxidized to phosphorus pentoxide, which reacts with water to form the acid. The principal use of thermal-grade phosphoric acid is in the manufacture of industrial phosphates, in particular sodium tripolyphosphate, which is used as a builder in laundry detergents and other cleaning agents. Other thermal acid merchant applications include water treatment and the preparation of foods, beverages, and dentifrices.

Nitric acid is the third largest inorganic acid produced in the United States, based on volume, and is fourth largest on a value-of-shipments basis. Nitric acid is produced by the oxidation of synthetic ammonia and is principally used in the production of nitrogenous fertilizers. Nitric acid is also a basic raw material in the production of industrial explosives and has further

uses in the synthesis of chemical intermediates and the manufacture of fibers, plastics, and elastomers.

Based on quantity, hydrochloric acid is the fourth largest inorganic acid produced in the United States and is third largest on a value-of-shipments basis. Approximately 90 percent of the hydrochloric acid used commercially is obtained as a byproduct or coproduct of the reaction of organic chemicals with chlorine. The principal use of hydrochloric acid consumed in the United States is in the organic synthesis of polyvinyl chloride plastics. Hydrochloric acid is also used in the production of organic and inorganic compounds, in metal treatment, and in the preparation of food products.

Another inorganic acid of major commercial importance is hydrofluoric acid. Hydrofluoric acid, which is produced by the reaction of the mineral fluorspar with sulfuric acid, is used principally in the production of fluorocarbons and aluminum metal. Other uses are in the etching and frosting of glass and in the cleaning of metals.

Based on value, 83 percent of total U.S. imports of inorganic acids in 1990 was accounted for by two acids: hydrofluoric acid (61 percent) and sulfuric acid (22 percent).

The values of U.S. shipments of inorganic acids were estimated as being dominated during 1990 by sulfuric and phosphoric acids which accounted for 24 and 49 percent, respectively, of total U.S. shipments of inorganic acids.

## U.S. INDUSTRY PROFILE

### Industry Structure<sup>1</sup>

The principal raw materials, producer types, major products, and principal consumers of the U.S. inorganic acids industry are shown in figure 1. By far the most important types of producers are fertilizer producers using sulfuric, phosphoric, and nitric acids to produce sulfate, phosphate, and nitrate products for the fertilizer industry.

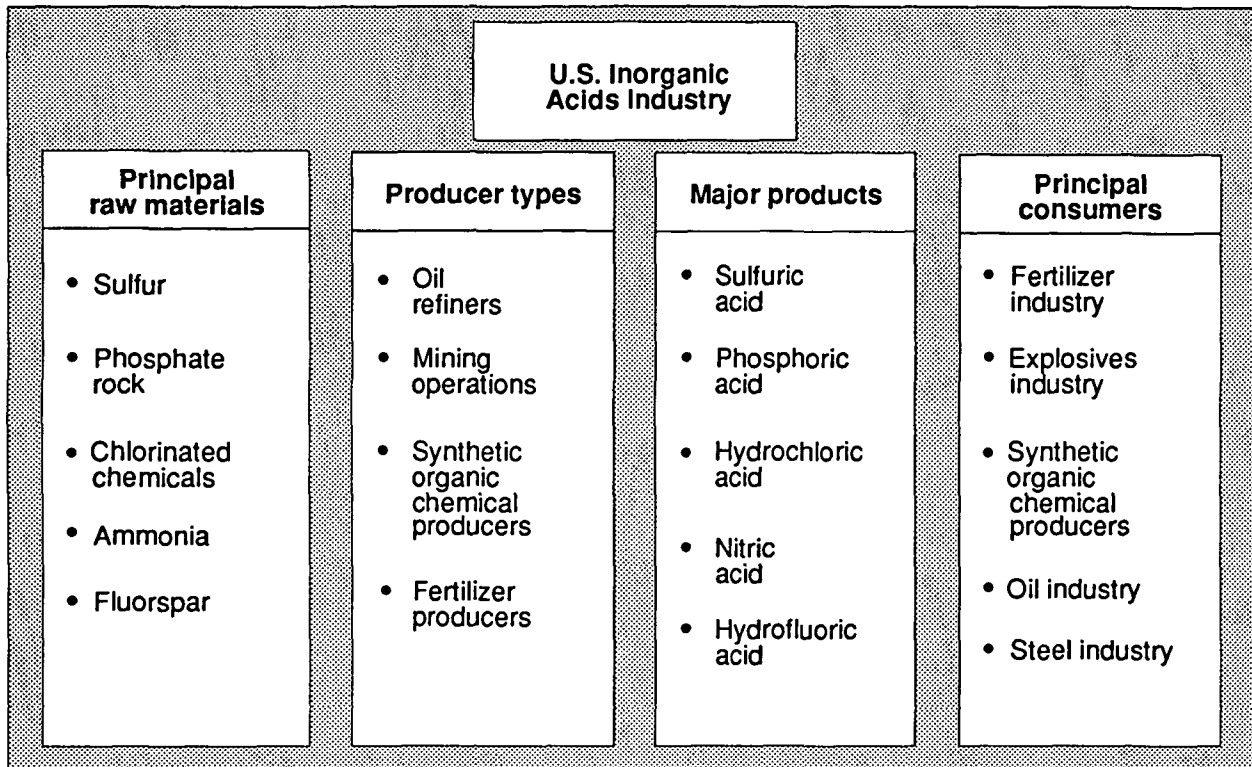
The United States is the foremost world producer of inorganic acids, with an estimated 145 establishments and total employment of approximately 9,500 workers.<sup>2</sup> Geographic distribution of the inorganic acids industry in the United States is concentrated in Florida, South Carolina, Louisiana, Texas, Oklahoma, and the Pacific Northwest, generally near access to raw materials, primary users, and water

<sup>1</sup> Inorganic acids, excepting nitric and phosphoric acid, are included as part of SIC 2819, Industrial Inorganic Chemicals, Not Elsewhere Classified. Nitric acid is included as part of SIC 2873, Nitrogenous Fertilizers, and phosphoric acid is included as part of SIC 2874, Phosphatic Fertilizers.

<sup>2</sup> Estimated from data derived from U.S. Bureau of the Census, *1987 Census of Manufactures: Agricultural Chemicals* and *1987 Census of Manufactures: Industrial Inorganic Chemicals*.

Figure 1

**U.S. Inorganic acids Industry: Principal raw materials, producer types, major products, and principal consumers**



Source: U.S. International Trade Commission

transportation routes.<sup>3</sup> Inorganic acids production is highly automated, generally computer controlled, and nonlabor intensive. Approximately two-thirds of total inorganic acids industry employees are production workers.<sup>4</sup>

The majority of U.S. inorganic acids producers are large, highly diversified, vertically and horizontally integrated, privately owned companies. Many produce the elements needed as raw materials and then use the acids produced as intermediates in fertilizer or in other chemicals production. For example, it is less expensive to ship crude sulfur, dry or liquid, than sulfuric acid. Because sulfuric acid is a principal requirement for the manufacture of phosphoric acid, it is often produced near phosphate rock deposits (largely in Florida) for use in phosphoric acid production. The phosphoric acid produced is an intermediate product used for the production of a wide range of high-grade phosphatic fertilizers. In another example, nitric acid is produced by oxidation of ammonia by air. Ammonia

is generally produced from natural gas; therefore, ammonia and nitric acid production may often occur at or near the same source of natural gas. Nitric acid thus produced is then used with additional ammonia to manufacture ammonium nitrate for fertilizers and explosives.

The U.S. inorganic acids industry is privately owned and essentially domestic with very few multinational holdings. To minimize capital outlay, commitment, and risk, the preferred market entry strategy for foreign suppliers appears to encourage the export of inorganic acids to the United States, rather than the direct investment in the United States industry through joint ventures or other investment arrangements.

Because product differentiation and quality differences are almost nonexistent, individual inorganic acids are generally, with few exceptions, marketed on the basis of price by the private companies' marketing and sales forces. However, some international marketing arrangements are handled through international traders and collaborative industry organizations organized for such purposes. Beyond pricing policies, marketing methods may also depend on countertrade availability and credit terms. Because

<sup>3</sup> U.S. Bureau of Mines, *Mineral Commodity Summaries, 1991*, specific related chapters from the *1989 Minerals Yearbook*, and the *1987 Census of Manufactures*.

<sup>4</sup> Estimated from *1987 Census of Manufactures*.



transportation costs are an important factor for inorganic acids, the primary channels of distribution require access to deep water ports, inland waterways, and proximity to world trade routes.

Since the production of inorganic acids is energy intensive, energy costs play a role in determining commodity prices and competitive advantage. Higher energy costs in industrialized countries are a factor in the emergence of inorganic acids industries in less developed countries.<sup>5</sup>

There is a relatively low level of research and development expenditure in the inorganic acids industry, probably because of the relatively mature technology used worldwide to produce these commodity products. Inorganic acids research and development expenditures generally focus on process upgrades or modifications to attain environmental compliance in the areas of process effluent and tailings disposal and handling, of transport, and of shipping regulations for corrosive or hazardous materials.

### Consumer Characteristics and Factors Affecting Demand

The U.S. fertilizer industry is by far the major consumer of sulfuric, nitric, and phosphoric acids, basically as process intermediates. There are approximately 485 fertilizer industry consumers<sup>6</sup> of these acids, primarily in Florida, Louisiana, and Texas. Most inorganic acids produced in the United States are consumed on-site in the production of fertilizers and other industrial chemicals by highly integrated producers. Trade disputes, economic agricultural problems, and overall rationalization and consolidation were characteristic of the U.S. fertilizer industry during 1984-87 and are reflected in the somewhat stagnant domestic demand for inorganic acids for this period. From late 1987 onward, demand for fertilizers and inorganic acids began to improve. The consumers of the bulk of inorganic acids are able to avoid drastic swings in merchant acid prices because of the high degree of captive acid consumption as intermediates. However, merchant market sales prices of these commodity acids fluctuated by about \$10 to \$25 per short ton (ton) during 1986-90. For example, sulfuric acid prices consistently fluctuated by approximately \$11 per ton per year during 1986-90, from approximately \$75 to \$86 per ton, f.o.b., U.S. Gulf coast.<sup>7</sup> Prices of fertilizer grade phosphoric acid exhibited an average annual price range of \$295 to \$350 per ton, f.o.b., bulk, U.S. Gulf coast, during 1988-90.<sup>8</sup> This wider fluctuation in

<sup>5</sup> Energy resources in such countries are often state-owned and provided to domestic industrial users in the country concerned at prices substantially below the world market value of the product.

<sup>6</sup> Estimated from 1987 *Census of Manufactures and 1989 Minerals Yearbook*.

<sup>7</sup> *Chemical Marketing Reporter* and David Morse, Mineral Commodity Specialist, U.S. Bureau of Mines, telephone conversation with USITC staff, Apr. 2, 1991.

<sup>8</sup> *Fertilizer Week*, British Sulfur Corp.

phosphoric acid prices is due to an upturn in Indian phosphoric acid demand during a 1989 acid supply dispute between Morocco and India. If the price swing from \$380 per ton to \$335 per ton, caused by the 1989 Morocco/India situation is excluded, the average price range becomes \$295 per ton to \$320 per ton, or a fluctuation of \$25 per ton.

There are essentially no substitutes for inorganic acids in most commercial processes. One acid may be substituted for another in certain processes, such as digestion/acidulation of phosphate rock with hydrochloric acid rather than sulfuric acid, but at a cost or efficiency differential. Real or actual consumption of inorganic acids was relatively steady throughout 1986-90<sup>9</sup>. During the next 5 years, the fertilizer and agricultural sector is expected to continue to recover and enjoy modest annual growth. Hydrofluoric acid use in the aluminum and refrigerant industries appears stable; however, concern about the depletion of the ozone layer may depress hydrofluoric acid use in plastics manufacture.

### FOREIGN INDUSTRY PROFILE

Besides the United States, the major world producers of inorganic acids are the highly industrialized countries of Europe, Canada, the Soviet Union,<sup>10</sup> and Japan, as well as Mexico. During 1986-90, Canada, Mexico, the Soviet Union, Morocco, and Jordan increased inorganic acids capacity. In Mexico, additional sulfuric acid capacity resulted from the necessity to meet environmental regulations for a copper ore smelter operation. In Canada, Morocco, and Jordan, capacity increases reflected the growth of fertilizer operations.<sup>11</sup> As in the United States, the global inorganic acids market reflects the global fertilizer market to a significant degree. Inorganic acids capacity remained fairly constant in many industrialized countries during 1986-90. At least a portion of the new capacity in foreign countries is thought to have been constructed for export purposes.<sup>12</sup>

Compared with the U.S. industry, the foreign inorganic acids industry has certain general competitive advantages compared with the U.S. industry. A significant portion of foreign inorganic acids producers are state-owned with low-cost state-owned energy inputs, abundant raw materials, strategic market share capture rather than financial goals, and geographic proximity to areas of growth in inorganic acid consumption, such as India and the Soviet Union. Inorganic acids production technology is generally

<sup>9</sup> Calculated estimates of apparent U.S. consumption are distorted by the suppression of export statistics of fertilizer grade phosphoric acid, the major U.S. inorganic acids product exported. This situation is explained in the U.S. Exports section of this report.

<sup>10</sup> At the time this summary was written the Soviet Union still existed as an entity and therefore is referred to as such throughout.

<sup>11</sup> "Market Place," *Fertilizer International*, No. 295, (March 1991), p. 9-15.

<sup>12</sup> *Ibid.*

mature and available on the world market, so foreign inorganic acids research and development expenditures are minimal and resemble those in the United States for process upgrades or modifications to attain environmental compliance in areas of process effluent and tailings disposal and handling, of transport, and of shipping regulations for corrosive or hazardous materials.

## U.S. TRADE MEASURES

### U.S. Tariff Measures

Table 1 provides the 1991 column 1-general rate of duty, preferential rates of duty, and U.S. exports and imports for 1990 for each 8-digit Harmonized Tariff Schedule (HTS) inorganic acids subheading.<sup>13</sup> Nearly 90 percent of inorganic acids imports entered the United States duty-free in 1990, including sulfuric, phosphoric, nitric, and hydrochloric acids discussed earlier. Inorganic acids that have tariffs are relatively minor in commerce and accounted for approximately 10 percent of total inorganic acids imports

<sup>13</sup> Appendix A includes an explanation of tariff and trade agreement terms.

**Table 1**

**Inorganic acids: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1991; U.S. exports, 1990; and U.S. imports, 1990**

HTS subheading	Description	Col. 1 rate of duty As of Jan. 1, 1991		U.S. exports, 1990	U.S. imports, 1990
		General	Special <sup>1</sup>		
-Million dollars-					
2806.10.00	Hydrogen chloride (Hydrochloric acid) . . . . .	Free		6	5
2806.20.00	Chlorosulfuric acid . . . . .	4.2%	Free (A,E,IL) 1.6% (CA)	6	( <sup>2</sup> )
2807.00.00	Sulfuric acid; oleum . . . . .	Free		12	40
2808.00.00	Nitric acid; sulfonitric acids . . . . .	Free		4	2
2809.10.00	Diphosphorus pentoxide . . . . .	Free		1	1
2809.20.00	Phosphoric acid and polyphosphoric acids . . . . .	Free <sup>3</sup>		<sup>4</sup> 24	5
2810.00.00	Oxides of boron; boric acids . . . . .	1.5%	Free (A,E,IL) 0.6% (CA)	32	4
2811.11.00	Hydrogen fluoride (Hydrofluoric acid) . . . . .	Free		9	109
2811.19.10	Arsenic acid . . . . .	3.1¢/kg	Free (A,E,IL) 1.2¢/kg (CA)	3	( <sup>2</sup> )
2811.19.50	Inorganic acids, nesi . . . . .	4.2%	Free (A,E,IL) 1.6% (CA)	13	14

<sup>1</sup> Programs under which special tariff treatment may be provided, and the corresponding symbols for such programs as they are indicated in the "Special" subcolumn, are as follows: Generalized System of Preferences (A); Automotive Products Trade Act (B); Agreement on Trade in Civil Aircraft (C); United States-Canada Free-Trade Agreement (CA); Caribbean Basin Economic Recovery Act (E); and United States-Israel Free Trade Area (IL).

<sup>2</sup> Less than \$50,000.

<sup>3</sup> Temporary duty provision applies to certain articles in this subheading. See United States Nontariff Measures section of report.

<sup>4</sup> Effective July 1985, the U.S. Department of Commerce discontinued publishing export statistics for fertilizers by individual Schedule B item classifications to protect confidential business information. With the 1989 changeover to HTS-based Schedule B, all phosphoric acid, including fertilizer grades, are classified under 2809.20.00. Therefore, the fertilizer grade portion of phosphoric acids exports is suppressed as confidential business information.

Source: U.S. exports and imports compiled from official statistics of the U.S. Department of Commerce.

during 1990. The aggregate trade-weighted-average rate of duty for inorganic acids based on 1990 data is 0.4 percent. This rate essentially remained the same during 1986-90.

There have been few classification criteria adjustments or substantive changes for inorganic acids as a result of the conversion from the Tariff Schedules of the United States (TSUS) to the HTS. Changes encompass loss of 8-digit *eo nomine* (by name) breakouts for tungstic and sulfamic acids and addition of 8-digit level *eo nomine* breakouts for chlorosulfuric acid and diphosphorus pentoxide. None of these changes significantly affect trade.

### U.S. Government Trade-Related Investigations

On November 5, 1986, the U.S. International Trade Commission, at the request of FMC Corp. and Monsanto Co., instituted antidumping and countervailing duty investigations involving imports of industrial phosphoric acid allegedly sold in the United States at less than fair value (LTFV) and subsidized by the Governments of Belgium and Israel (Investigations Nos. 731-TA-365-366 and 701-TA-285-286.)

The Department of Commerce determined that industrial phosphoric acid from Belgium and Israel was being sold in the United States at LTFV and that benefits that constitute subsidies were being provided to manufacturers, producers, or exporters of industrial phosphoric acid in Israel.

On August 12, 1987, the Commission determined that an industry in the United States was being materially injured by reason of imports from Israel of industrial phosphoric acid subsidized by the Government of Israel. The Commission also determined that an industry in the United States was being materially injured by reason of imports from Belgium and Israel of phosphoric acid that have been found by Commerce to be sold in the United States at LTFV. As a result, a cash deposit or bond in the weighted-average margin percentage of 14.67 percent is required for imports of industrial phosphoric acid from Belgium, and countervailing duties of 15.11 percent are required for imports of industrial phosphoric acid from the Israeli firm Haifa Chemicals, Ltd., and of 5.36 percent for all other U.S. imports of Israeli industrial phosphoric acid.<sup>14</sup>

## FOREIGN TRADE MEASURES

The major U.S. trading partners for inorganic acids, both exports and imports, are Canada, Japan, Mexico, and Taiwan (excluding suppressed statistics for fertilizer-grade phosphoric acid). As in the United States, the majority of inorganic acids enter Canada dutyfree (see table B-1 in appendix B). Diphosphorus pentoxide, phosphoric acid and polyphosphoric acids, and inorganic acids, not elsewhere specified, have Canadian tariffs of 12.5 percent for MFN countries and 5 percent for the United States under the U.S.-Canada Free Trade Agreement. In addition, inorganic acids, n.e.s.i., have a Canadian General Preference Tariff of 8 percent.<sup>15</sup> Most inorganic acids entering Japan are subject to a 10 to 15 percent General, 3 to 4.9 percent GATT, or 3 to 3.9 percent Temporary tariffs, depending on which Japanese tariff classification applies to the particular country. The Temporary Japanese tariff classification applies to the United States.<sup>16</sup> All inorganic acids entering Mexico, including U.S.-sourced product, are subject to a 10 percent Mexican General tariff. The only exceptions are "special" duty rates applicable to the Latin American Integration Association (LAIA)/Asociacion Latinamerica de Integracion (ALADI) countries.<sup>17</sup>

<sup>14</sup> USITC, *Industrial Phosphoric Acid from Belgium and Israel*, USITC publication 2000, Aug. 1987, pp. A-70 and A-85.

<sup>15</sup> U.S. Department of Commerce (DOC) Canada country desk staff and relevant pages of the Canadian tariff schedule.

<sup>16</sup> DOC Japan country desk staff and relevant pages from the Japanese tariff schedule.

<sup>17</sup> Central Intelligence Agency, *The World Factbook 1990*, apps. B-C, pp. 353-363.

The LAIA/ALADI rates are not standardized for the group, and vary by country within a commodity classification.<sup>18</sup> Inorganic acids entering Taiwan are subject to either column 1 tariffs, which range from 2.5 to 7.5 percent, or column 2 tariffs, which range from 2.5 to 5 percent. Column 2 tariffs apply to the United States.<sup>19</sup>

## U.S. MARKET

### Consumption

Apparent U.S. consumption of inorganic acids (table 2) increased steadily from \$1.9 billion in 1986 to \$2.8 billion in 1990.<sup>20</sup> This increase in consumption of inorganic acids may be attributed in part to the slow but steady increase in demand for several inorganic acids in their respective primary use industries, such as fertilizers and production of chemicals.

The U.S. fertilizer industry is by far the major consumer of sulfuric, nitric, and phosphoric acids, basically as process intermediates. The U.S. fertilizer industry endured a difficult period throughout the early to mid-1980s. The difficult financial position of the U.S. farm economy and Government programs aimed at reducing farm production by encouraging a decline in acreage planted depressed domestic fertilizer consumption, thereby depressing consumption of inorganic acids. The fertilizer sector appears to be recovering from these difficulties since 1987, as reflected in the steady U.S. producers' shipments and in U.S. import demand increases for inorganic acids.

Import penetration of inorganic acids products declined irregularly from 8.5 percent in 1986 to 6.5 percent in 1990. Both U.S. producers' shipments and U.S. imports of inorganic acids increased steadily during 1986-1990 (table 2). However, U.S. producers' shipments of inorganic acids increased an estimated \$535 million, from \$2.2 billion in 1986 to \$2.7 billion in 1990, while imports increased only \$14 million, from \$165 million in 1986 to \$179 million in 1990. This import penetration decrease may also be attributable partially to a decline in imports of industrial phosphoric acid as a result of affirmative dumping determinations against Belgium and Israel and of an affirmative countervailing duty determination against Israel.

Because inorganic acids are commodities that compete primarily on price, differences of a few dollars per ton will often win the sale. Quality and performance of most inorganic acids have been standardized through years of maturing production

<sup>18</sup> DOC Mexico country desk staff and relevant pages from the Mexican tariff schedules.

<sup>19</sup> DOC Taiwan country desk staff and relevant pages of the Taiwanese tariff schedule.

<sup>20</sup> Estimates of apparent U.S. consumption are distorted by the suppression of export statistics of fertilizer grade phosphoric acid, the major U.S. inorganic acids product exported. See explanation in U.S. Exports section.

**Table 2**  
**Inorganic acids: U.S. shipments, exports of domestic merchandise, imports for consumption, and apparent U.S. consumption, 1986-90**

Year	U.S. shipments <sup>1</sup>	U.S. exports <sup>2</sup>	U.S. imports	Apparent U.S. consumption <sup>3</sup>	Ratio of imports to consumption
				Million dollars	Percent
1986 .....	2,186	423	165	1,928	8.5
1987 .....	2,335	498	153	1,990	7.7
1988 .....	2,550	556	172	2,165	7.9
1989 .....	2,668	104	180	2,745	6.6
1990 .....	2,721	109	179	2,791	6.5

<sup>1</sup> Estimated by the staff of the U.S. International Trade Commission.

<sup>2</sup> Excludes fertilizer grade phosphoric acid, the major inorganic acids product exported.

<sup>3</sup> Apparent U.S. consumption was calculated from export data that excludes fertilizer grade phosphoric acid, the major U.S. inorganic acids product exported; therefore consumption figures may be misleading.

Source: Compiled from official statistics of the U.S. Department of Commerce, except as noted.

technology. In their application to certain areas, such as foods, rigid quality and design specifications of the phosphoric acid may be the ground of competition. Much of U.S. inorganic acids production is captively consumed in the fertilizer industry. However, competition among inorganic acids that are sold on the merchant market may be affected by credit terms, producers' responsiveness to orders, and customer service, such as just-in-time delivery and producer-provided storage, training, and equipment.

### Production

Much of U.S. inorganic acids production is for captive use and, as such, is often near both raw materials sources and the primary use sites. Based on quantity data, it is estimated that approximately 25 to 30 percent of inorganic acids production is for captive use.<sup>21</sup> Production value data are not available in published form. However, during 1986-90, the value of U.S. shipments of inorganic acids to unrelated firms increased at an estimated average annual rate of nearly 6 percent, from \$2.2 billion in 1986 to \$2.7 billion in 1990. The major inorganic acids products shipped were phosphoric and sulfuric acids, with an estimated 49 and 24 percent, respectively, of the total value of U.S. shipments of inorganic acids in 1990. This increase in the value of U.S. shipments of inorganic acids may be attributed partially to increased demand in primary use industries, such as fertilizers. Since inorganic acids are very corrosive and difficult to handle, very little inventory is held. Instead these acids are produced just-in-time, as needed, often in line of a multistep chemical process.

<sup>21</sup> U.S. Bureau of the Census, *Current Industrial Reports: Inorganic Chemicals 1990*, MA28A(90)-1, (Aug. 1991) p. 3.

### Imports

#### Products Imported

The major inorganic acids products imported are hydrofluoric and sulfuric acids, accounting for 61 percent and 22 percent, respectively, of the total value of inorganic acids imports during 1990. There was one significant change in the pattern of imports during 1986-90. Phosphoric acid imports decreased irregularly from \$8.4 million in 1986 to \$4.7 million in 1990. This decrease appears to be directly attributable to a decrease in phosphoric acid imports from Belgium. Imports of Belgian phosphoric acid rose from \$3.4 million in 1986 to \$5.0 million in 1987. The final affirmative dumping decision against Belgium was reached in August 1987. Imports of phosphoric acid from Belgium fell to \$350,000 in 1988, to zero in 1989, and then were \$74,000 in 1990.

The United States imports approximately 90 percent of the hydrofluoric acid it uses, primarily from Mexico because fluorspar deposits are more abundant in Mexico than in the United States. (Fluorspar is the raw material for hydrofluoric acid.) Hydrofluoric acid produced in Mexico is then imported duty free by U.S. multinational companies with direct investment holdings in the Mexican hydrofluoric acid production facilities.

Although the United States is both the world's foremost producer of sulfur and sulfuric acid, domestic supply of both is insufficient to meet domestic demand. The balance of domestic sulfuric acid demand is met primarily through imports from Canada and Mexico. Canada has abundant sources of sulfur from natural gas relative to domestic demand. In fact, Canada is the largest single exporter of sulfur and sulfuric acid. Mexican exports of sulfuric acid to the United States increased in 1990. The increase is due to a new Mexican copper smelter that produces sulfuric acid as a by-product.

## Import Levels and Trends

Total U.S. imports of inorganic acids increased irregularly at an average annual rate of 2 percent during 1986-90, from \$165 million in 1986 to \$179 million in 1990 (table 3), representing 6.5 percent of U.S. consumption in 1990.<sup>22</sup>

Approximately 90 percent of imports of inorganic acids entered the United States duty free in 1990.

<sup>22</sup> Calculated using export data distorted by suppression of fertilizer grade phosphoric acid, the major inorganic acids product exported.

These imports came chiefly from Canada and Mexico, dutyfree under column 1-general rates. Of the remaining 10 percent of imports which are dutiable, 2 percent entered the United States under the Generalized System of Preferences (GSP) during 1990. No duty free U.S. imports entered under the U.S.-Israel Free Trade Area Implementation Act of 1985 or the Caribbean Basin Economic Recovery Act (CBERA). No inorganic acids were exported and returned after being advanced or improved abroad under HTS subheading 9802.00.80.

The principal types of U.S. importers of inorganic acids are U.S. fertilizer and chemical producers and international traders.

**Table 3**  
**Inorganic acids: U.S. Imports for consumption, by principal source, 1986-90**

Source	1986	1987	1988	1989	1990
	<i>Quantity (metric tons)</i>				
Mexico .....	(1)	(1)	(1)	251,388	231,687
Canada .....	(1)	(1)	(1)	1,077,874	1,442,593
Taiwan .....	(1)	(1)	(1)	7,788	10,879
Japan .....	(1)	(1)	(1)	121,169	40,402
West Germany .....	(1)	(1)	(1)	1,828	76,478
Italy .....	(1)	(1)	(1)	2,322	27,644
United Kingdom .....	(1)	(1)	(1)	1,421	1,463
Israel .....	(1)	(1)	(1)	15,424	38,192
France .....	(1)	(1)	(1)	39,572	3,186
All other .....	(1)	(1)	(1)	394,738	266,974
<b>Total .....</b>	<b>1,232,613</b>	<b>1,113,568</b>	<b>1,338,924</b>	<b>1,521,844</b>	<b>1,965,154</b>
	<i>Value (1,000 dollars)</i>				
Mexico .....	(1)	(1)	(1)	80,553	79,561
Canada .....	(1)	(1)	(1)	70,675	69,237
Taiwan .....	(1)	(1)	(1)	4,602	6,710
Japan .....	(1)	(1)	(1)	8,246	4,659
West Germany .....	(1)	(1)	(1)	3,681	3,954
Italy .....	(1)	(1)	(1)	1,721	3,182
United Kingdom .....	(1)	(1)	(1)	2,258	2,612
Israel .....	(1)	(1)	(1)	2,871	2,439
France .....	(1)	(1)	(1)	1,775	2,094
All other .....	(1)	(1)	(1)	4,036	4,550
<b>Total .....</b>	<b>164,694</b>	<b>152,846</b>	<b>171,716</b>	<b>180,418</b>	<b>178,998</b>
	<i>Unit value (dollars per ton)</i>				
Mexico .....	(1)	(1)	(1)	320.43	343.40
Canada .....	(1)	(1)	(1)	65.57	47.99
Taiwan .....	(1)	(1)	(1)	590.90	616.73
Japan .....	(1)	(1)	(1)	68.05	115.32
West Germany .....	(1)	(1)	(1)	2,014.37	51.70
Italy .....	(1)	(1)	(1)	741.24	115.10
United Kingdom .....	(1)	(1)	(1)	1,542.89	247.41
Israel .....	(1)	(1)	(1)	186.12	63.87
France .....	(1)	(1)	(1)	44.84	657.34
All other .....	(1)	(1)	(1)	10.23	17.04
<b>Average .....</b>	<b>133.61</b>	<b>137.26</b>	<b>128.25</b>	<b>118.55</b>	<b>91.09</b>

<sup>1</sup> Country detail provided only for years in which there are actual import data under the HTS—suppressed for years in which data were derived from the TSUS using a concordance.

Source: Compiled from official statistics of the U.S. Department of Commerce.

### *Principal Import Suppliers*

Principal suppliers of U.S. imports of inorganic acids in 1990 were Mexico, Canada, Taiwan, and Japan, in order of import value. While there were no significant changes in top suppliers during 1986-90, the order of importance of the top four did change somewhat. From 1986 through 1988, the chief import supplier of inorganic acids to the United States was Canada, followed closely by Mexico.

In 1989 and 1990, Mexico surpassed Canada and became the principal supplier of imports of inorganic acids to the U.S. market. This change may be attributed partially to a new Mexican copper smelter that produces sulfuric acid as a byproduct. The additional Mexican production of sulfuric acid is exported primarily to the United States. Similarly, during 1986-89, Japan was the number three supplier of U.S. imports of inorganic acids, on a value basis, followed closely by Taiwan. In 1990, Taiwan surpassed Japan and became the number three supplier.

## **FOREIGN MARKETS**

### **Foreign Market Profile**

The major foreign markets for all U.S. exports of inorganic acids during the period 1986-90 were India and the Soviet Union. However, because fertilizer-grade phosphoric acid export data are suppressed, the major foreign markets for U.S. exports of inorganic acids during the period 1986-1990 are listed in published statistics as Canada and Japan. The principal factors affecting U.S. export demand and competitiveness in these markets are the availability of countertrade, credit terms, price, quality, low cost and readily available transportation, and the absence of, or relatively low, foreign tariffs. The economic difficulties in the Soviet Union and the change in government in India could negatively affect U.S. exports of inorganic acids in the near term. Other major world exporters of inorganic acids tend to have strengths in particular acids, based on raw materials availability. For example, Canada and Mexico are major exporters of sulfuric and hydrofluoric acids, while Morocco and Jordan are major exporters of phosphoric acid.

### **U.S. Exports**

#### *Products Exported*

Fertilizer grade phosphoric acid is the single most important inorganic acid exported by the United States.

However, effective July 1985, the U.S. Department of Commerce discontinued publishing export statistics for fertilizers by individual Schedule B item classifications to protect business proprietary information.

The other major inorganic acids products exported by the United States, as listed in statistics published by the Department of Commerce, are boric, phosphoric, and sulfuric acids, with 29 percent, 22 percent, and 11 percent, respectively, of total U.S. exports of inorganic acids during 1990. No inorganic acids were exported and returned after being advanced or improved abroad under HTS subheading 9802.00.80. During 1986-90, U.S. exports of all inorganic acids, including fertilizer grade phosphoric acid, were estimated to account for 20 to 25 percent of the value of U.S. producers' shipments.

### *Export Levels and Trends*

Based on published statistics, U.S. exports of inorganic acids decreased irregularly at an average annual rate of 29 percent, from \$423 million in 1986 to \$109 million in 1990 (table 4), representing 4 percent of U.S. shipments in 1990. However, if fertilizer-grade phosphoric acid had been included in these past conditional data, U.S. exports of inorganic acids would have probably experienced some growth. The principal markets for all U.S. exports of inorganic acids, including fertilizer grade phosphoric acids, were India and the Soviet Union during 1986-90. Published statistics list the principal markets as Canada, Japan, and Mexico.

### *U.S. Exporters*

The principal types of exporters of inorganic acids are U.S. producers, international traders, and Webb-Pomerene<sup>23</sup> associations, all exempt from U.S. antitrust regulations on U.S. marketing of their products for export.

## **U.S. TRADE BALANCE**

As derived from published statistics, the U.S. trade balance in inorganic acids decreased irregularly at an average annual rate of 22 percent during 1986-90, from a positive \$258 million to a negative \$70 million (table 5). The U.S. trade balance in inorganic acids increased steadily from \$258 million in 1986 to \$384 million in 1988. The trade balance then fell off dramatically to a negative \$76 million in 1989 and improved slightly to a negative \$70 million in 1990.

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<sup>23</sup> Webb-Pomerene Act (Export Trade) U.S. Code 1982 Title 15, sec. 61 to 66 (Apr. 10, 1918).

**Table 4**  
**Inorganic acids: U.S. exports of domestic merchandise, by principal market, 1986-90<sup>1</sup>**

<i>Market</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>
<i>Quantity (metric tons)</i>					
Canada .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	76,870	162,567
Japan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	23,621	19,696
Mexico .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	27,976	22,400
Netherlands .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	3,966	5,979
Taiwan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	10,104	5,701
South Korea .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	12,976	9,147
Venezuela .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	2,100	22,585
Suriname .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	1,708	1,852
Spain .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	4,149	445
All other .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	545,993	329,297
Total .....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	269,502	319,680
<i>Value (1,000 dollars)</i>					
Canada .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	27,987	32,849
Japan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	18,057	16,420
Mexico .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	8,147	8,023
Netherlands .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	6,188	6,957
Taiwan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	4,962	6,660
South Korea .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	6,101	5,849
Venezuela .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	2,936	3,584
Suriname .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	1,810	2,928
Spain .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	2,010	2,478
All other .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	25,488	23,307
Total .....	423,367	498,165	556,382	103,686	109,054
<i>Unit value (dollars per ton)</i>					
Canada .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	384.73	341.13
Japan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	764.44	833.66
Mexico .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	291.20	358.18
Netherlands .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	1,560.23	1,163.59
Taiwan .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	491.14	1,168.22
South Korea .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	470.20	639.43
Venezuela .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	1,398.02	58.69
Suriname .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	1,059.86	1,580.64
Spain .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	484.47	5,569.90
All other .....	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	46.68	70.78
Average .....	( <sup>3</sup> )	( <sup>3</sup> )	( <sup>3</sup> )	384.73	341.13

<sup>1</sup> Does not include suppressed export statistics on fertilizer grade phosphoric acid.

<sup>2</sup> Country detail provided only for years in which there are actual export data under the new Schedule B—suppressed for years in which data were derived from the old Schedule B using a concordance.

<sup>3</sup> Export quantity and unit value data provided only for years in which there are actual export data under the new Schedule B—suppressed for years in which data were derived from the old Schedule B using a concordance.

Source: Compiled from official statistics of the U.S. Department of Commerce.

**Table 5**  
**Inorganic acids: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected country and country group, 1986-90<sup>1</sup>**

(Million dollars)

Item	1986	1987	1988	1989	1990
<b>U.S. exports<sup>2</sup> of domestic merchandise:</b>					
Canada .....	(3)	(3)	(3)	28	33
Mexico .....	(3)	(3)	(3)	8	8
Japan .....	(3)	(3)	(3)	18	16
Taiwan .....	(3)	(3)	(3)	5	7
Netherlands .....	(3)	(3)	(3)	6	7
Republic of Korea .....	(3)	(3)	(3)	6	6
Germany .....	(3)	(3)	(3)	2	1
Italy .....	(3)	(3)	(3)	1	1
Venezuela .....	(3)	(3)	(3)	3	4
United Kingdom .....	(3)	(3)	(3)	3	1
All other .....	(3)	(3)	(3)	23	25
<b>Total .....</b>	<b>423</b>	<b>498</b>	<b>556</b>	<b>104</b>	<b>109</b>
EC-12 .....	(3)	(3)	(3)	17	18
OPEC .....	(3)	(3)	(3)	4	5
CBERA .....	(3)	(3)	(3)	3	4
<b>U.S. imports for consumption:</b>					
Canada .....	(3)	(3)	(3)	71	69
Mexico .....	(3)	(3)	(3)	81	80
Japan .....	(3)	(3)	(3)	8	5
Taiwan .....	(3)	(3)	(3)	5	7
Netherlands .....	(3)	(3)	(3)	1	1
Republic of Korea .....	(3)	(3)	(3)	0	0
Germany .....	(3)	(3)	(3)	4	4
Italy .....	(3)	(3)	(3)	2	3
Venezuela .....	(3)	(3)	(3)	0	0
United Kingdom .....	(3)	(3)	(3)	2	3
All other .....	(3)	(3)	(3)	8	8
<b>Total .....</b>	<b>165</b>	<b>153</b>	<b>172</b>	<b>180</b>	<b>179</b>
EC-12 .....	(3)	(3)	(3)	11	14
OPEC .....	(3)	(3)	(3)	0	0
CBERA .....	(3)	(3)	(3)	0	0
<b>U.S. merchandise trade balance:</b>					
Canada .....	(3)	(3)	(3)	-43	-36
Mexico .....	(3)	(3)	(3)	-73	-72
Japan .....	(3)	(3)	(3)	10	11
Taiwan .....	(3)	(3)	(3)	0	0
Netherlands .....	(3)	(3)	(3)	5	6
Republic of Korea .....	(3)	(3)	(3)	6	6
Germany .....	(3)	(3)	(3)	-2	-3
Italy .....	(3)	(3)	(3)	-1	-2
Venezuela .....	(3)	(3)	(3)	3	4
United Kingdom .....	(3)	(3)	(3)	1	-2
All other .....	(3)	(3)	(3)	15	17
<b>Total .....</b>	<b>258</b>	<b>345</b>	<b>384</b>	<b>-76</b>	<b>-70</b>
EC-12 .....	(3)	(3)	(3)	6	4
OPEC .....	(3)	(3)	(3)	4	5
CBERA .....	(3)	(3)	(3)	3	4

<sup>1</sup> Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export. U.S. trade with East Germany is included in "Germany" but not "eastern Europe."

<sup>2</sup> Does not include suppressed export statistics on fertilizer grade phosphoric acids.

<sup>3</sup> Country detail provided only for years in which there are actual export or import data under the HTS or new Schedule B—suppressed for years in which data were derived from the TSUS or old Schedule B using a concordance.

Note.—Data on exports are believed to be distorted by suppression of U.S. exports of fertilizer-grade phosphoric acids, the most important inorganic acids exported by the United States, by the U.S. Department of Commerce. When data on such acids are included, India and the Soviet Union were the top two U.S. export markets for inorganic acids during 1986-90.

Source: Compiled from official statistics of the U.S. Department of Commerce.



**APPENDIX A**  
**EXPLANATION OF TARIFF AND TRADE AGREEMENT TERMS**

## TARIFF AND TRADE AGREEMENT TERMS

The *Harmonized Tariff Schedule of the United States* (HTS) replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989. Chapters 1 through 97 are based on the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description, with additional U.S. product subdivisions at the 8-digit level. Chapters 98 and 99 contain special U.S. classification provisions and temporary rate provisions, respectively.

Rates of duty in the *general* subcolumn of HTS column 1 are most-favored-nation (MFN) rates; for the most part, they represent the final concession rate from the Tokyo Round of Multilateral Trade Negotiations. Column 1-general duty rates are applicable to imported goods from all countries except those enumerated in general note 3(b) to the HTS, whose products are dutied at the rates set forth in *column 2*. Goods from the People's Republic of China, Czechoslovakia, Hungary, Poland, and Yugoslavia are among those eligible for MFN treatment. Among articles dutiable at column 1-general rates, particular products of enumerated countries may be eligible for reduced rates of duty or for duty-free entry under one or more preferential tariff programs. Such tariff treatment is set forth in the *special* subcolumn of HTS column 1.

The *Generalized System of Preferences* (GSP) affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 and renewed in the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976, and before July 4, 1993. Indicated by the symbol "A" or "A\*" in the special subcolumn of column 1, the GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 3(c)(ii) to the HTS.

The *Caribbean Basin Economic Recovery Act* (CBERA) affords nonreciprocal tariff preferences to developing countries in the Caribbean Basin

area to aid their economic development and to diversify and expand their production and exports. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984; this tariff preference program has no expiration date. Indicated by the symbol "E" or "E\*" in the special subcolumn of column 1, the CBERA provides duty-free entry to eligible articles the product of and imported directly from designated countries, as set forth in general note 3(c)(v) to the HTS.

Preferential rates of duty in the special subcolumn of column 1 followed by the symbol "IL" are applicable to products of Israel under the *United States-Israel Free-Trade Area Implementation Act* of 1985, as provided in general note 3(c)(vi) of the HTS. When no rate of duty is provided for products of Israel in the special subcolumn for a particular provision, the rate of duty in the general subcolumn of column 1 applies.

Preferential rates of duty in the special duty rates subcolumn of column 1 followed by the symbol "CA" are applicable to eligible goods originating in the territory of Canada under the *United States-Canada Free-Trade Agreement*, as provided in general note 3(c)(vii) to the HTS.

Other special tariff treatment applies to particular *products of insular possessions* (general note 3(a)(iv)), goods covered by the *Automotive Products Trade Act* (general note 3(c)(iii)) and the *Agreement on Trade in Civil Aircraft* (general note 3(c)(iv)), and *articles imported from freely associated states* (general note 3(c)(viii)).

The *General Agreement on Tariffs and Trade* (GATT) (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) is the multilateral agreement setting forth basic principles governing international trade among its more than 90 signatories. The GATT's main obligations relate to most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national (nondiscriminatory) treatment for imported products. The GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, anti-dumping and countervailing duties, and other measures. Results of GATT-sponsored multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participat-

ing contracting party, with the U.S. schedule designated as schedule XX.

Officially known as “The Arrangement Regarding International Trade in Textiles,” the *Multifiber Arrangement* (MFA) provides a framework for the negotiation of bilateral agreements between importing and producing countries, or for unilateral action by importing countries in the absence of an agreement. These bilateral agreements es-

tablish quantitative limits on imports of textiles and apparel, of cotton and other vegetable fibers, wool, manmade fibers, and silk blends, in order to prevent market disruption in the importing countries—restrictions that would otherwise be a departure from GATT provisions. The United States has bilateral agreements with more than 30 supplying countries, including the four largest suppliers: China, Hong Kong, the Republic of Korea, and Taiwan.



**APPENDIX B**  
**STATISTICAL TABLES**

Table B-1

## Inorganic acids: Harmonized Tariff Schedule subheading, description, and tariff treatment in primary U.S. export markets

HTS subheading	Description	Canada			Japan				Mexico <sup>1</sup>	Taiwan <sup>2</sup>	
		MFN	GPT <sup>3</sup>	US	G <sup>4</sup>	GATT	P <sup>5</sup>	T <sup>6</sup>	General	Col. 1	Col. 2
2806.10.00	Hydrogen chloride (Hydrochloric acid) . . . .	Free			10	3.7	Free	3	10	2.5	2.5
2806.20.00	Chlorosulfuric acid . . . . .	Free			10	3.7	Free	Free	10	5	5
2807.00.00	Sulfuric acid; oleum . . . . .	Free			10	3.7	Free	3	10	2.5	2.5
2808.00.00	Nitric acid; sulfonitric acids . . . . .	Free			10	3.7	Free	3	10	2.5	2.5
2809.10.00	Diphosphorus pentoxide . . . . .	12.5	Free	5	15	4.9	Free	3.9	10	5	5
2809.20.00	Phosphoric acid and polyphosphoric acids	12.5	Free	5	15	4.9	Free	3.9	10	5	5
2810.00.00	Oxides of boron; boric acids . . . . .	Free	Free	3	10	5	2.5				
2811.11.00	Hydrogen fluoride (Hydrofluoric acid) . . . .	Free			15	4.9	Free	3.9	10	5	5
2811.19.10	Arsenic acid . . . . .	(7)	(7)	(7)	(7)	(7)	(7)	(7)	10	7.5	5
2811.19.50	Inorganic acids, nesi . . . . .	12.5	8	5	15	4.9	Free	3.9	10	7.5	5

<sup>1</sup> All imports into Mexico, including those from the United States, are subject to what here have been called the "General" duties. The only exceptions are "special" duty rates applicable to members of the Latin American Integration Association (LAIA)/Asociacion Latinamericana de Integracion (ALADI) countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela). The LAIA/ALADI rates are not standardized for the group, rather they exhibit variance by country within a commodity classification.

<sup>2</sup> Most countries, including the United States, are subject to the lower column 2 duty rate. Only the Peoples Republic of China and North Korea are currently accorded the column 1 rate.

<sup>3</sup> General Preference Tariff.

<sup>4</sup> General.

<sup>5</sup> Preferential.

<sup>6</sup> Temporary: includes the United States.

<sup>7</sup> Not available.

Source: U.S. Department of Commerce Canada, Japan, Mexico, and Taiwan country desk staff; relevant pages from Canadian, Japanese, Mexican, and Taiwanese tariff schedules provided by U.S. Department of Commerce staff.