

Industry & Trade Summary

**Medicinal Chemicals,
Except Antibiotics**

**USITC Publication 2846
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**OFFICE OF INDUSTRIES
U.S. International Trade Commission
Washington, DC 20436**



UNITED STATES INTERNATIONAL TRADE COMMISSION

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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.¹

This report on medicinal chemicals covers the period 1989-93 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, chemicals and textiles sectors.

<i>USITC publication number</i>	<i>Publication date</i>	<i>Title</i>
Energy and Chemicals:		
2458	November 1991	Soaps, Detergents, and Surface-Active Agents
2509	May 1992	Inorganic Acids
2548	August 1992	Paints, Inks, and Related Items
2578	November 1992	Crude Petroleum
2588	December 1992	Major Primary Olefins
2590	February 1993	Polyethylene Resins in Primary Forms
2598	March 1993	Perfumes, Cosmetics, and Toiletries
2736	February 1994	Antibiotics
2739	February 1994	Pneumatic Tires and Tubes
2741	February 1994	Natural Rubber
2743	February 1994	Saturated Polyesters in Primary Forms
2747	March 1994	Fatty Chemicals
2750	March 1994	Pesticide Products and Formulations
2823	October 1994	Primary Aromatics
2845	December 1994	Polyvinyl Chloride in Primary Forms
2846	December 1994	Medicinal Chemicals, except Antibiotics
Textiles and apparel:		
2543	August 1992	Nonwoven Fabrics
2580	December 1992	Gloves
2642	June 1993	Yarn
2695	November 1993	Carpets and Rugs
2702	November 1993	Fur Goods
2703	November 1993	Coated Fabrics
2735	February 1994	Knit Fabric
2841	December 1994	Cordage

¹ 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

Pharmaceuticals (medicinal drugs) are used in the prevention, diagnosis, alleviation, treatment, or cure of disease in humans or animals.¹ Pharmaceutical products can be grouped in several classes, including preparations available only through prescription, whether brandname or generic, and nonprescription, or over-the-counter (OTC), products. These products are available as bulk active ingredients² or as dosage-form, or end-use, products. Bulk active ingredients are manufactured in a variety of processes, including chemical synthesis (the most common method), fermentation, and extraction from natural sources (e.g., alkaloids such as opium and caffeine) (see fig. 1).³

This report addresses certain features and trends of the U.S. pharmaceutical industry over the past five years.⁴ Products covered by the report include bulk-form and dosage-form pharmaceuticals, except antibiotics. The report contains three-major sections: a discussion of the pharmaceutical industry in the United States and overseas; a discussion of domestic and foreign trade measures; and a discussion of domestic and foreign markets for these products. An appendix is also included that provides an explanation of tariff and trade agreement terms.

U.S. INDUSTRY PROFILE

Industry Structure

Medicinal chemicals are classified under the three-digit Standard Industrial Classification (SIC) Group No. 283 "Drugs." Depending on their form, they are further classified in one of four four-digit industry numbers: SIC 2833 "Medicinal Chemicals and Botanical Products," SIC 2834 "Pharmaceutical Preparations," SIC 2835 "In Vitro and In Vivo Diagnostic Substances," and SIC 2836 "Biological Products, Except Diagnostic Substances." The majority of U.S. shipments of pharmaceuticals, whether in bulk form or in finished dosage form, are grouped in SIC 2833 and SIC 2834. These two SIC classifications reflect the two major manufacturing stages in which drugs are produced:

- ☐ the production of pure pharmacologically active chemicals (also called active ingredients) in bulk form either by conventional methods or through use of bioengineering procedures (SIC 2833); and

- ☐ the formulation of these concentrated pharmacologically active chemicals into dosage form (also called pharmaceutical preparations) (SIC 2834).⁵

Medicinal chemicals, either in bulk form or as pharmaceutical preparations, are produced both by innovative companies (i.e., those companies involved in research and development (R&D) of new pharmaceutical products) and by companies that primarily manufacture generics (see fig. 1).⁶ Multinationals, which account for a relatively high percentage of the production by innovative companies, generally have operations in most of the developed countries and in many developing countries. Such operations include facilities focusing on production, formulation, R&D, marketing, or a combination of these functions. Within the United States, most pharmaceutical firms, whether innovative or generic producers, are concentrated geographically in New York, New Jersey, Pennsylvania, and California.

Historically, the level of concentration within the U.S. pharmaceutical industry has not been very high,⁷ with firms, including each of the top ten firms, holding less than 10 percent of the U.S. market for pharmaceuticals. In recent years, however, the pharmaceutical industry has been undergoing increasing consolidation, in forms ranging from mergers to strategic alliances. This consolidation is reportedly the result of companies trying to expand their portfolios and their geographic reach. Industry sources also cite the need to spread risks and costs, including those associated with R&D expenditures and product liability concerns, as another reason for the consolidation.⁸

Total U.S. employment in firms classified under SIC 283 has remained relatively constant during the past five years, at about 184,000 workers.⁹ During these years, about 77 percent of these employees were involved in the manufacture of dosage form products (SIC 2834).

⁵ Pharmaceutical preparations are typically the pure chemicals plus inert substances such as diluents or extenders. Pharmaceutical preparations are available in several forms, including pills, capsules, tablets, creams, and lotions.

⁶ The term "generic" refers to nonproprietary products. Denoting a drug name not protected by a trademark, the term is usually descriptive of the drug's chemical structure. Innovative companies, in addition to producing brandname products, also often manufacture generic drugs. Innovative and generic companies are represented in almost all of the statistics presented in this report. Many of the discussions, however, such as those on nontariff barriers, primarily address innovative companies.

⁷ Because of the high level of integration of foreign and domestic firms in the industry, it is difficult to estimate the share of the industry held by foreign firms.

⁸ For further information see U.S. International Trade Commission, *Global Competitiveness of U.S. Advanced-Technology Manufacturing Industries: Pharmaceuticals*, (investigation No. 332-302), USITC publication 2437, Sept. 1991, p. vii.

⁹ Derived from information provided in the U.S. Department of Commerce's *U.S. Industrial Outlook 1994*, p. 43-2. Total employment is defined as all employees, including production workers and R&D scientists.

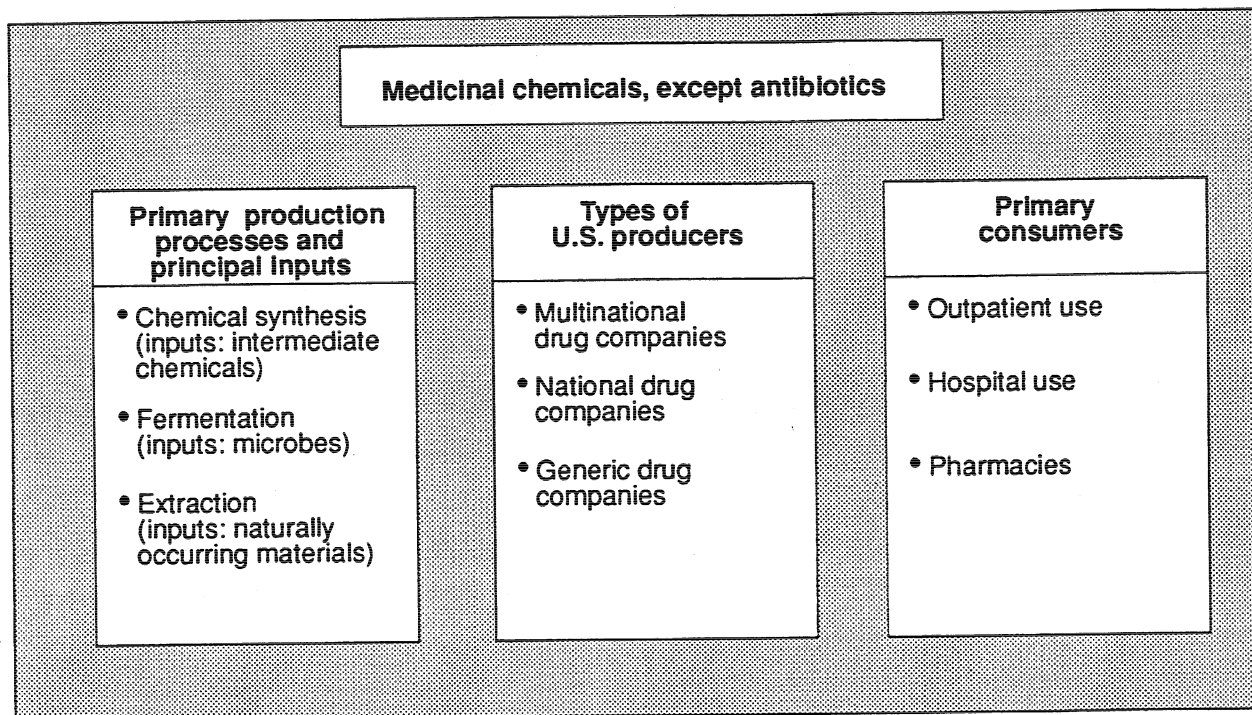
¹ *Stedman's Medical Dictionary*, 23rd edition, 1976, p. 423.

² Bulk active ingredients are the pure pharmacologically active chemicals that are formulated into finished dosage form products.

³ Some products that occur naturally in nature can also be produced synthetically.

⁴ The U.S. pharmaceutical industry, as referred to in this report, includes firms based in the United States and firms of foreign parentage operating in the United States.

Figure 1
Medicinal chemicals, except antibiotics: Primary production processes and principal raw materials, types of producers, and primary consumers



Source: Compiled from various sources, including the *Encyclopedia of Chemical Technology*, edited by Raymond Eller Kirk and Donald Frederick Othmar.

Government policies, domestic and foreign,¹⁰ can have a cumulative impact on the competitiveness and viability of the pharmaceutical industry. Such policies include regulatory and tax policies, intellectual property rights (IPR), and product liability. In some cases, the impact can be negative if a decrease in industry revenues results in reduced R&D activity. A Commission study found that the ability of a pharmaceutical firm and, ultimately, the industry, to remain competitive "hinges on its capability to develop innovative and profitable products."¹¹ The U.S. pharmaceutical industry finances a large portion of its R&D efforts itself, typically reinvesting about 16-17 percent of its revenues into R&D activities, or about three times the level allocated by the remainder of the chemical and related industries sector.¹²

Regulatory policies and practices, for example, are intended to protect the consumer from unsafe and

nonefficacious products. Lengthy delays in the granting of product approvals, however, can shorten a product's market lifetime and effective patent term, thereby decreasing the time in which a company can recoup its R&D expenditures. Such delays can be partially offset by patent restoration programs such as those enacted in the United States in 1984 and in Japan in 1988. These programs offer innovative drug firms partial restoration of their patent term (up to 5 years on new products in the United States), depending on the amount of time lost during regulatory review. Nonetheless, many companies reportedly seek approval of pharmaceutical products overseas first because of a perception that the approval process in several countries is faster than that in the United States.¹³

Product liability laws and judgments can also have a significant impact on the U.S. pharmaceutical industry. In the United States, U.S. firms reportedly face more exposure to the risks of liability suits than foreign firms with U.S. operations since, in the case of litigation, only the U.S. assets of the foreign companies can be seized. Therefore, U.S. firms must factor in

¹⁰ See "Foreign Trade Measures" section for a brief discussion of some foreign government policies that affect the U.S. pharmaceutical industry.

¹¹ For further information see U.S. International Trade Commission, *Global Competitiveness of U.S. Advanced-Technology Manufacturing Industries: Pharmaceuticals*, (investigation No. 332-302), USITC publication 2437, Sept. 1991, p. vii.

¹² Ibid.

¹³ For additional information, see USITC, *Pharmaceuticals*, USITC publication 2437, p. 3-6.

higher costs for liability claims into the prices of their products.¹⁴

Consumer Characteristics and Factors Affecting Demand

Pharmaceuticals in bulk form are more likely to be consumed internally by producing companies in the manufacture of dosage-form products or marketed to other companies for formulation into dosage-form products. Pharmaceuticals in dosage form are marketed directly to wholesalers, who then supply pharmacies and hospitals. The final consumer generally obtains pharmaceuticals in dosage form either from a hospital, on an inpatient or an outpatient basis; from a pharmacy with a doctor's prescription; or from a retailer as an OTC product. The largest therapeutic product groupings in the United States, in terms of sales (although not presented in ranked order), were cardiovascular products, products affecting the central nervous system, and antibiotics.

Anti-infectives (including antibiotics), the second-largest class of prescription pharmaceutical products sold in the United States in 1972, accounting for almost 16 percent of the total, declined to the third-largest class by the early 1990s. Overseas, however, anti-infectives (including antibiotics) maintained their premier position in the market during this time period, accounting for about 22 percent of the total overseas market for prescription pharmaceutical products. Differences in the leading categories of products in the United States and overseas primarily reflect differences in marketing or consumer information, and in socioeconomic and demographic factors, such as prescription patterns and prevailing trends in particular diseases or conditions.

FOREIGN INDUSTRY PROFILE

The U.S. pharmaceutical industry is multinational in nature. Many major U.S. producers have operations overseas; conversely, many foreign-based firms have operations in the United States. The three largest producing countries or regions are the United States, Western Europe, and Japan. Subsidiaries of U.S.-based firms accounted for approximately 25 percent of all pharmaceuticals produced, formulated, or both, in Western Europe during 1988-93. U.S. firms accounted for about 10 percent of the Japanese market for pharmaceuticals during this period.

U.S. TRADE MEASURES

Tariff Measures

The provisions of the *Harmonized Tariff Schedule of the United States* (HTS) applicable as of January

¹⁴ Peter Huber and Robert E. Litan, *The Liability Maze: The Impact of Liability Law on Safety and Innovation*, Washington, DC (The Brookings Institution), 1991, p. 18.

1994 to medicinal chemicals other than antibiotics are shown in table B-1. The table shows the column-1 general rates of duty for countries eligible for most-favored-nation (MFN) treatment, as well as the duty rates under column 1 for countries qualifying under special tariff programs.¹⁵ The column-1 general rates of duty for pharmaceuticals ranged from free to slightly over 7 percent ad valorem in 1993. The aggregate trade-weighted, average rate of duty for all products covered based on full-year 1993 trade was about 5 percent ad valorem.

Pharmaceuticals constitute one of the sectors for which "zero-for-zero" tariffs were negotiated in the Uruguay Round market access negotiations under the General Agreement on Tariffs and Trade (GATT). The Uruguay Round tariff concessions, once implemented, will provide for duty-free treatment by the major trading countries for those pharmaceuticals, in bulk and in dosage forms, having an international nonproprietary name and for certain specified intermediate chemical products used primarily in the production of pharmaceuticals.¹⁶

The pharmaceutical industry is generally expected to benefit from the North American Free Trade Agreement (NAFTA)¹⁷ through the opening of the government procurement market in Mexico. Although intellectual property rights in Canada were addressed in the NAFTA agreement, Canada enacted separate legislation in January 1993 (commonly called C-91) that ended compulsory licensing for pharmaceuticals in Canada.¹⁸ At the time NAFTA was negotiated, Mexico already provided patent rights for pharmaceuticals "at a level and standard of the OECD [Organization for Economic Cooperation and Development] industrial trading partners" as a result of Mexico's implementation of "The Law for the Development and Protection of Industrial Property" on June 28, 1991.¹⁹

¹⁵ See appendix B.

¹⁶ The GATT Uruguay Round of trade negotiations was completed in December 1993.

¹⁷ NAFTA, as implemented by the North American Free Trade Agreement Implementation Act (Pub. Law 103-182, approved Dec. 8, 1993), provided for the elimination of U.S. duties, effective Jan. 1, 1994, on certain pharmaceutical products imported from Mexico. The NAFTA became effective for the United States on Jan. 1, 1994.

¹⁸ The change in the Canadian patent system was projected to occur either as a result of C-91 or NAFTA, whichever was implemented first. The Canadian legislation paralleled the NAFTA provisions inasmuch as the NAFTA text was based on draft GATT TRIPS text. "Stronger Patents and Curbs on Pricing in Canada," *SCRIP Magazine*, Sept. 1992, p. 55; *USITC, Potential Impact on the U.S. Economy and Selected Industries of the North American Free-Trade Agreement*, USITC publication 2596, Jan. 1992, pp. 9-1 and 9-2; Pharmaceutical Research and Manufacturers of America (formerly Pharmaceutical Manufacturers Association) Media Backgrounder, "Impact on the Pharmaceutical Industry of the North American Free Trade Agreement," Sept. 10, 1992.

¹⁹ Mexican Investment Board, "Intellectual Property: Increased Protection for Business in Mexico," Oct. 1991, pp. 6 and 11, and the American Bar Association, International Trade Committee, "The North American Free Trade Agreement," Mar. 1992, p. 288.

Nontariff Measures

Other than Food and Drug Administration (FDA) approval requirements (which apply to both imported and domestic pharmaceuticals), there are no known significant domestic nontariff import restrictions on imports of these products. FDA approval is required for all pharmaceutical products entering the United States for commercial use, regardless of the country of origin. Likewise, most developed foreign countries have approval processes that are similar to that of the United States.

U.S. Government Trade-Related Investigations

During the past five years, the Commission has conducted two investigations involving ibuprofen: one under the U.S. antidumping law²⁰ and one under the U.S. countervailing law.²¹ Additionally, several investigations were conducted under section 337 of the Tariff Act of 1930.²² In 1991, the Commission also completed an investigation under section 332 of the Tariff Act of 1930²³ concerning the competitiveness of the U.S. pharmaceutical industry.

The antidumping and countervailing duty investigations concerned imports of bulk ibuprofen from India.²⁴ The investigations were conducted following the filing of a petition by Ethyl Corporation, Richmond, VA, on July 31, 1991, with the U.S. Department of Commerce and the U.S. International Trade Commission alleging that an industry in the United States is materially injured, or threatened with material injury, by reason of subsidized and less-than-fair-value imports of bulk ibuprofen from India. The Commission made affirmative injury determinations in both cases. In March 1992, Ethyl withdrew its petition and requested that Commerce terminate the antidumping and countervailing duty investigations. The investigations were terminated²⁵ and no antidumping or countervailing duty order was issued.

The section 332 investigation on pharmaceuticals, Commission investigation No. 332-302, *Global Competitiveness of U.S. Advanced-Technology Manufacturing Industries: Pharmaceuticals*, was instituted in November 1990, following receipt of a request from the Senate Committee on Finance. The Commission transmitted its report to the Committee in September 1991.

²⁰ 19 U.S.C. 1673 et seq.

²¹ 19 U.S.C. 1671 et seq.

²² 19 U.S.C. 1337.

²³ 19 U.S.C. 1332.

²⁴ The antidumping investigation was USITC investigation No. 731-TA-526 (preliminary) and the countervailing duty case was USITC investigation No. 701-TA-308.

²⁵ See Commerce notice published in the *Federal Register* of Mar. 13, 1992 (57 F.R. 8860).

FOREIGN TRADE MEASURES

Tariff Measures

The general rates of duty associated with most pharmaceuticals in many of the developed countries are similar to or lower than those in the United States. In the European Union (EU),²⁶ for example, the general rates of duty for pharmaceuticals in bulk form (including mixtures) and in dosage form in 1992 ranged from 5.3 percent to 10 percent ad valorem, with many at the 5.3-percent and 6.3-percent level.²⁷ In Canada, many imports of medicinal chemicals except antibiotics enter free of duty under the provisions of the United States-Canada Free-Trade Agreement Implementation Act of 1988.

In recent years, Japan unilaterally instituted a schedule falling under the temporary category that includes rates of duty that are lower than those in its GATT schedule. The temporary schedule is up for review every year on March 31 (the end of the Japanese fiscal year). Under this schedule, the rates of duty for these products in bulk (including mixtures) and dosage forms range from free to 3.0 percent ad valorem.²⁸

Nontariff Measures

Government policies considered to have the most significant effect on the industry, in addition to regulatory concerns, include IPR protection and price controls/cost-containment programs. Although the patent systems in the United States, Western Europe, and Japan are generally viewed by industry representatives as offering comparable protection and enforcement, concern exists about inadequate patent protection systems in a number of other countries, including many developing countries.²⁹ Inadequate patent protection in a country can result in losses to companies from patent infringement and can reduce a company's market share and presence in the country.³⁰

The Trade-Related Aspects of Intellectual Property Rights agreement (TRIPs) of the Uruguay Round of the GATT addresses some of these concerns. Some of the major provisions of the TRIPs agreement are limitations on compulsory licensing, the importation of products to satisfy local patent working requirements, and strict enforcement of IPR. However, TRIPs does not provide "pipeline" protection for pharmaceuticals in the research, development, and regulatory process.³¹

²⁶ Formerly known as European Community.

²⁷ Telephone interview with a representative of the U.S. Department of Commerce on Sept. 15, 1992; and from the *Official Journal of the European Communities*.

²⁸ Telephone interview with a representative of the U.S. Department of Commerce on Oct. 27, 1993; and from the *Customs Tariff Schedules of Japan*, 1992.

²⁹ Regions in which inadequate patent protection is of the greatest concern to the pharmaceutical industry include Latin America, East Asia, and the Pacific Rim.

³⁰ For additional information, see USITC, *Pharmaceuticals*, USITC publication 2437, p. 3-38.

³¹ "Pipeline" protection refers to the protection of products that have been previously patented in other countries (i.e., country of origin). Those products would be entitled to protection for the unexpired terms of their patents in any given country, provided that the product has not been previously marketed in that country.

Price controls, cost-containment programs, or both, have been implemented throughout Western Europe and Japan, primarily in an effort to offset growing national health-care expenditures. The enactment of such programs on a national level, however, is believed to result in decreased R&D spending because these programs often reduce revenues that companies could reinvest in R&D programs. Some countries, including those in Western Europe, require national price approval prior to marketing pharmaceutical products in the country, setting prices for these products based in part on negotiation and in part on consideration of factors such as exports, investments, research, wages, raw material costs, and employment levels.³²

U.S. MARKET

Consumption

U.S. consumption of medicinal chemicals, except antibiotics, in bulk and in dosage form, fluctuated upward from about \$37 billion in 1989 to approximately \$49 billion in 1993, an increase of approximately 32 percent (see fig. 2 and table 1). The growth in the value of the U.S. market was attributable to several factors, including: (1) the increasing size of the domestic geriatric population; (2) the growing use of products to treat chronic disease; and (3) a gradual shift in the product mix from older products to newer, more effective, and higher value products.³³ Separately, although pricing in the United States for various prescription products and/or product classes generally trended upward during 1988-91, in response to various economic factors including inflation, price increases for prescription products reportedly slowed during 1992-94, primarily as a result of changes in buying patterns that are associated with the growth of managed care.³⁴

The imports-to-consumption ratio for these products generally fluctuated upward during 1989-93, ranging from a low of about 8.1 percent in 1990 to a high of approximately 10.3 percent in 1992. This increase is attributed largely to the increasing trend of pharmaceutical companies to manufacture bulk product overseas, thus supplying demand generated both by foreign markets and by ongoing clinical trials outside the United States. Once approval is received to market the product in the United States, the producing company will often import the bulk active ingredient

from its overseas manufacturing facility and formulate it domestically rather than multiplying costs by bringing onstream multiple production facilities.³⁵

Production

The value of U.S. shipments of medicinal chemicals, except antibiotics, in bulk and in dosage form, increased from approximately \$37.3 billion in 1989 to about \$50 billion in 1993, or by about 35 percent. Dosage form products accounted for a large share of total production of pharmaceuticals in 1993, in terms of value, primarily because of the added value associated with the production of the finished dosage-form products. Specific data on U.S. production of individual classes of medicinal chemicals cannot be published because to do so could disclose confidential business information.

Imports

U.S. imports of medicinal chemicals, except antibiotics, increased in value from \$3.0 billion to \$4.9 billion during 1989-93, or by 61 percent (see table 2). This increase is primarily attributable to increased related party trade, inasmuch as the industry is largely multinational and many of the newer products are more likely to be patent protected in the United States.³⁶ Moreover, since many multinational companies are reluctant to duplicate the capital expenditures associated with bringing onstream multiple production facilities and because they wish to meet the needs of local markets, companies with production facilities overseas are more likely to transfer bulk active ingredient to the United States for domestic formulation. In the United States, this trend has been reflected in the increasing numbers of temporary duty suspensions sought by companies for individual bulk active ingredients that are not produced domestically.

The three largest single sources of U.S. imports of medicinal chemicals, except antibiotics, in 1993 were the United Kingdom (20 percent), Germany (11 percent), and Japan (10 percent) (see fig. 3). As a group, the EU accounted for 60 percent of total imports of these products. U.S. imports entering duty-free under special tariff provisions such as the Generalized System of Preferences (GSP), the Caribbean Basin Economic Recovery Act (CBERA), the United States-Israel Free Trade Area Implementation Act of 1985 (IFTA), and the United States-Canada Free Trade Agreement (CFTA) accounted for between 5-10 percent of total imports of these products in 1993.

³² Ibid.

³³ Telephone interview with a representative of the Pharmaceutical Research Manufacturers of America on November 22, 1994.

³⁴ Lehman Brothers, *Pharma Pipelines: Implications and Structural Change for Returns on Pharmaceutical R&D*, April 12, 1994, pp. 6-8.

³⁵ As mentioned earlier, many companies reportedly seek product approval overseas first because of a perceived differential in approval times overseas compared with those of the United States. USITC, *Global Competitiveness of U.S. Advanced-Technology Manufacturing Industries: Pharmaceuticals*, USITC publication 2437, p. 3-6.

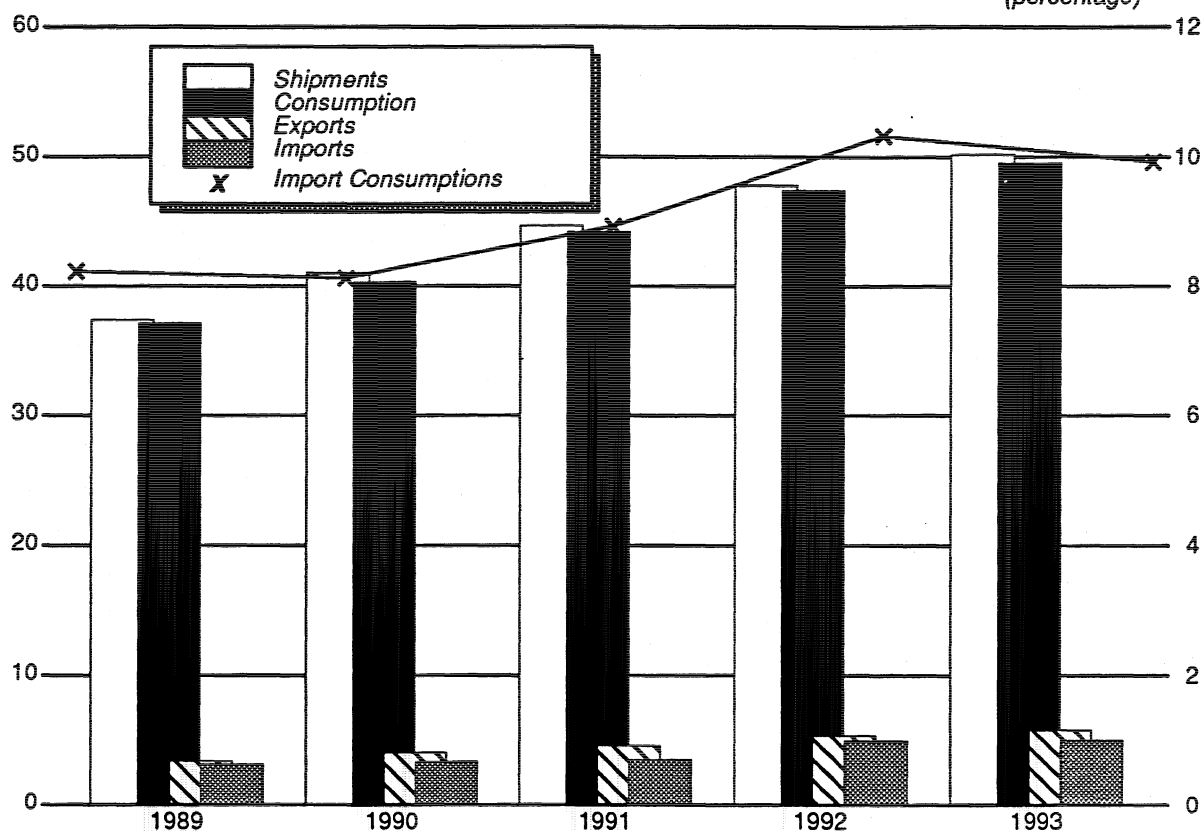
³⁶ Until the U.S. patent on a product expires, only the company holding the U.S. patent and/or its licensee(s) can import the product.

Figure 2

Medicinal chemicals, except antibiotics (in bulk and dosage forms): U.S. imports, exports, shipments, and apparent consumption 1989-93

Billion dollars

*Import consumption ratio
(percentage)*



Apparent consumption = Producers' shipments + imports - exports.

Source: Official statistics of the U.S. Department of Commerce and estimates by the Commission.

Table 1

Medicinal chemicals, except antibiotics: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1989-93

Year	U.S. shipments ¹	U.S. exports	U.S. Imports	Apparent U.S. consumption ¹	Ratio of Imports to consumption ¹
	Million dollars				Percent
1989	37,296	3,297	3,049	37,048	8.2
1990	40,932	3,950	3,268	40,250	8.1
1991	44,630	4,458	3,918	44,090	8.9
1992	47,707	5,248	4,888	47,347	10.3
1993	50,133	5,690	4,897	49,430	9.9

¹ Estimated by the staff of the U.S. International Trade Commission.

Note.—Includes bulk-active ingredient and dosage-form products. Because of rounding, figures may not add to the totals shown.

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

Table 2
Medicinal chemicals, except antibiotics: U.S. Imports for consumption by principal sources, 1989-93

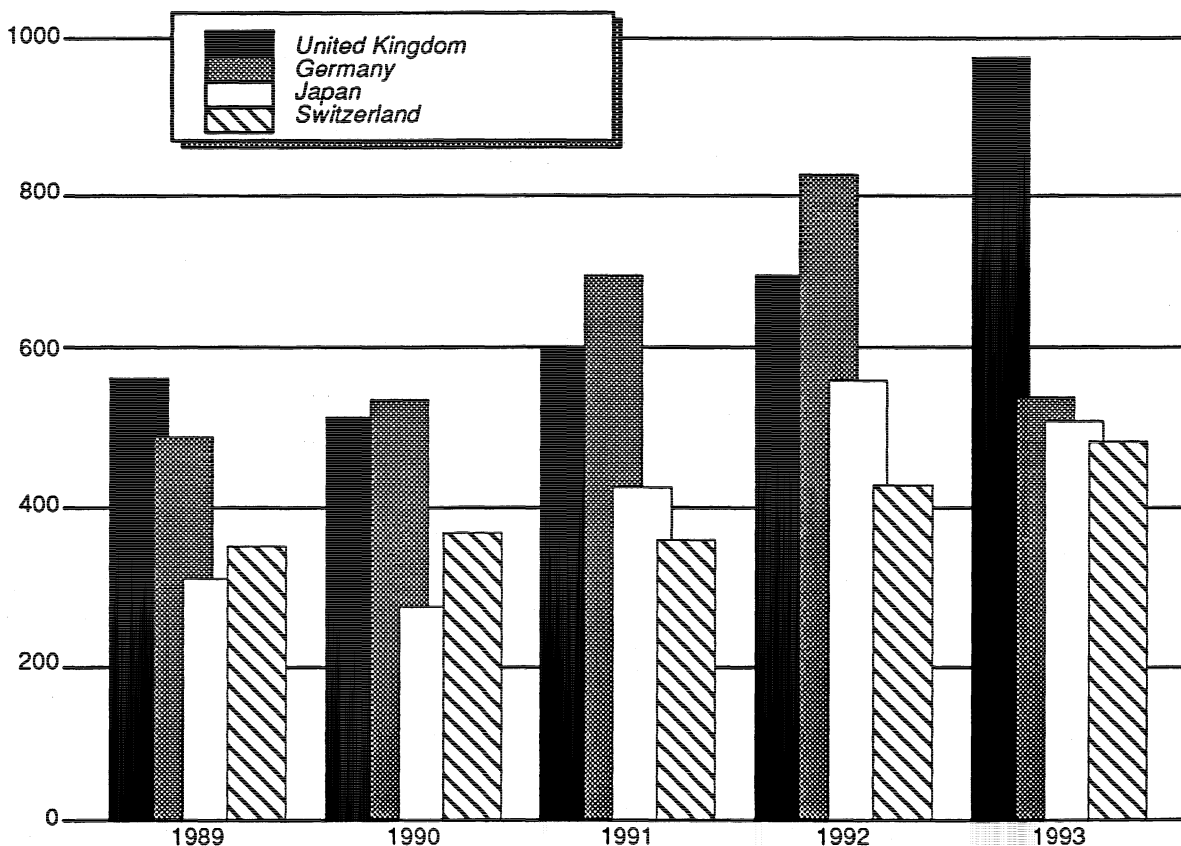
Source	1989	1990	1991	1992	1993
<i>Thousands of dollars</i>					
United Kingdom	564,336	513,605	605,282	696,259	974,252
Germany	488,607	536,345	696,253	823,500	540,257
Japan	306,621	272,174	424,055	560,932	508,612
Switzerland	349,346	366,181	356,628	426,645	483,344
Ireland	191,975	295,102	365,044	398,498	474,471
France	153,558	185,100	213,619	240,287	298,022
Belgium	55,462	74,268	94,919	224,340	234,899
Italy	102,698	133,665	74,722	177,620	220,353
Canada	71,118	94,365	114,301	166,149	192,017
Bahamas	283,149	301,942	315,689	379,143	178,316
All other	482,586	495,249	657,934	794,457	792,282
Total	3,049,457	3,267,997	3,918,447	4,887,828	4,896,825

Note.—Includes bulk-active ingredient and dosage-form products. Because of rounding, figures may not add to the totals shown.

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

Figure 3
Medicinal chemicals, except antibiotics (in bulk and dosage forms): U.S. Imports for consumption, by principal sources, 1989-93

Million dollars



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

FOREIGN MARKETS

Foreign Market Profile

Canada (16 percent), Germany (13 percent), and Japan (12 percent) were the major overseas markets, by value, in 1993, for U.S. exports of medicinal chemicals, except antibiotics. As a group, the EU accounted for 44 percent of the value of total U.S. exports of these products. A large percentage of these exports to Western Europe during 1989-93 were bulk medicinals, which were then formulated into dosage form in individual Western European countries. In Japan, the second-largest world market for pharmaceuticals, antibiotics have traditionally been the major class of pharmaceuticals consumed. More recently, however, Japanese producers and importers have been diversifying into cardiovascular agents, central nervous system drugs, digestive system products, and anticancer drugs, responding to changing demographics worldwide.

U.S. Exports

The value of U.S. exports of medicinal chemicals, except antibiotics, increased from \$3.3 billion in 1989 to \$5.7 billion in 1993, or by 73 percent (see table 3). The ratio of exports to U.S. producers' shipments remained relatively constant during 1989-93, ranging from 9 percent in 1989-92 to 10 percent in 1993. One of the largest increases in U.S. exports of these products was to Canada. During 1989-93, total U.S. exports of these products to Canada tripled. One factor among many cited for the increase was the passage of legislation in Canada in January 1993 (commonly called C-91) that ended the compulsory licensing system for pharmaceuticals in Canada.

Compulsory licensing for bulk active ingredients (covered by Canadian patent claims) used in the preparation or production of a medicine was in effect in Canada since 1923.³⁷ The Canadian Patent Act was amended in 1969 and in 1987 to include bulk active ingredients that were imported, rather than produced in Canada (1969) and to defer the use of a compulsory license granted to a company intending to make its own brand of the product (1987).³⁸ As compulsory licensing of patented pharmaceuticals increased during

³⁷ Patented Medicine Prices Review Board, *Third Annual Report*, June 1991, p. 5; John W. Rogers, III, "The Revised Canadian Patent Act, the Free Trade Agreement, and Pharmaceutical Patents: An Overview of Pharmaceutical Compulsory Licensing in Canada," *EIPR*, 1990, p. 351.

³⁸ Although the companies seeking the compulsory licenses are called "generic" companies, compulsory licenses are applicable to products that are still patented (i.e., non-generic products).

the 1970s and 1980s,³⁹ the annual growth rate for pharmaceutical research in Canada declined during 1970-77 to 7 percent from 18 percent during 1963-69.⁴⁰ Many pharmaceutical companies reportedly closed or moved their Canadian research facilities to the United States in response to the 1969 amendments.⁴¹ The near demise of a Canadian research based industry resulted primarily because of (1) the concern of non-Canadian innovative companies that their patented products would be licensed, thereby earning, at most, a 4 percent royalty,⁴² and (2) because of the growing dependence of many Canadian firms on licensing products rather than on innovation.

Bulk medicinals accounted for a large share of U.S. exports of pharmaceuticals. As mentioned in the section discussing import levels, many producers of these products have production facilities concentrated in a few countries. Most have decentralized formulation facilities, however, locating them in or near most markets being accessed.⁴³ Bulk product is then shipped from the production facilities to the formulation facilities, resulting in a relatively high level of related-party trade.

U.S. TRADE BALANCE

The U.S. pharmaceutical industry has historically exhibited a positive overall trade balance (see table 4). On a country basis, the largest trade surpluses in these products in 1993 were with Canada, Germany, and Japan; negative trade balances were incurred with the United Kingdom, Ireland, and Switzerland. A large share of the imports from the United Kingdom and Switzerland are likely to be related-party transactions between the parent companies in these countries and their U.S. subsidiaries, affiliates, or both.

³⁹ It has been reported that between June 1969 and January 31, 1985, 599 applications for the grant of compulsory licenses to import and sell were applied for, 306 of which were granted, 15 were refused or terminated, 96 were abandoned or withdrawn, and 142 were still pending. The Report of the Commission of Inquiry, H.C. Eastman, Commissioner, cited in John W. Rogers, "An Overview of Pharmaceutical Compulsory Licensing in Canada."

⁴⁰ According to one source, compulsory licenses were granted almost routinely. Generic manufacturers simply applied for the license.

⁴¹ "The Revised Canadian Patent Act, the Free Trade Agreement, and Pharmaceutical Patents," p. 351.

⁴² Compulsory licensing affected the innovation of these companies in that it reduced their revenues, thereby potentially reducing their R&D expenditures.

⁴³ Investment in facilities in a particular country, whether involved with production, formulation, or marketing, can often result in better market access within that country. Transportation costs within this industry are relatively low, facilitating this structure. Other advantages of formulating and packaging products abroad include the need to label the products in the language of the country and the desire to meet the preferences of local doctors for certain dosage forms. Pharmaceutical Manufacturers Association, *Fact Book*, 1991, p. 12.

Table 3
Medicinal chemicals, except antibiotics: U.S. exports of domestic merchandise, by principal markets, 1989-93

Market	1989	1990	1991	1992	1993
	<i>Thousands of dollars</i>				
Canada	286,765	478,511	566,075	754,867	883,102
Germany	367,068	477,233	593,396	716,458	740,305
Japan	635,927	610,216	669,597	673,484	707,700
France	167,924	232,051	266,883	365,747	343,739
Italy	185,644	247,115	312,564	349,702	314,182
Switzerland	97,396	105,841	109,572	168,095	284,876
United Kingdom	164,818	190,289	211,835	242,272	279,302
Belgium	144,526	167,074	187,149	219,050	272,545
Ireland	222,588	223,341	204,539	194,481	203,924
Netherlands	122,919	171,086	188,090	265,591	193,356
All other	901,515	1,047,178	1,148,203	1,298,472	1,467,039
Total	3,297,089	3,949,935	4,457,904	5,248,219	5,690,070

Note.—Includes bulk-active ingredient and dosage-form products. Because of rounding, figures may not add to the totals shown.

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

Table 4
Medicinal chemicals, except antibiotics: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 1989-93¹

(Million dollars)

Item	1989	1990	1991	1992	1993
U.S. exports of domestic merchandise:					
Germany	367	477	593	716	740
United Kingdom	165	190	212	242	279
Japan	636	610	670	673	708
Canada	287	479	566	755	883
Switzerland	97	106	110	168	285
Ireland	223	223	205	194	204
France	168	232	267	366	344
Italy	186	247	313	350	314
Belgium	145	167	187	219	273
Netherlands	123	171	188	266	193
All other	902	1,047	1,148	1,298	1,467
Total	3,297	3,950	4,458	5,248	5,690
EU-12	1,471	1,819	2,094	2,500	2,522
OPEC	78	75	88	115	115
ASEAN	58	69	68	76	91
CBERA	75	67	69	63	67
Central Europe	11	10	18	24	21
U.S. imports for consumption:					
Germany	489	536	696	823	540
United Kingdom	564	514	605	696	974
Japan	307	272	424	561	509
Canada	71	94	114	166	192
Switzerland	349	366	357	427	483
Ireland	192	295	365	398	474
France	154	185	214	240	298
Italy	103	134	75	178	220
Belgium	55	74	95	224	235
Netherlands	44	45	46	49	57
All other	722	752	927	1,125	913
Total	3,049	3,268	3,918	4,888	4,897
EU-12	1,715	1,882	2,215	2,730	2,921
OPEC	3	2	4	2	2
ASEAN	31	5	6	7	6
CBERA	287	307	321	384	184
Central Europe	26	25	24	16	14
U.S. merchandise trade balance:					
Germany	-122	-59	-103	-107	200
United Kingdom	-399	-324	-393	-454	-695
Japan	329	338	246	112	199
Canada	216	385	452	589	691
Switzerland	-252	-260	-247	-259	-198
Ireland	31	-72	-160	-204	-270
France	14	47	53	126	46
Italy	83	113	238	172	94
Belgium	90	93	92	-5	38
Netherlands	79	126	142	217	136
All other	180	295	221	173	554
Total	248	682	540	360	793
EU-12	-244	-63	-121	-230	-399
OPEC	75	73	84	113	113
ASEAN	27	64	62	69	85
CBERA	-212	-240	-252	-321	-117
Central Europe	-15	-15	-6	8	7

¹ 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 "Central Europe."

Note.—Because of rounding, figures may not add to the totals shown.

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

APPENDIX A
EXPLANATION OF 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 upon 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 nonembargoed countries except those enumerated in general note 3(b) to the HTS—Afghanistan, Azerbaijan, Cuba, Kampuchea, Laos, North Korea, and Vietnam—whose goods are dutiable at the rates set forth in *column 2*. Goods from Albania, Armenia, Belarus, Bosnia, Bulgaria, the People's Republic of China, Croatia, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Mongolia, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan are now eligible for MFN treatment. Among goods 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. Where eligibility for special tariff treatment is not claimed or established, goods are dutiable at column 1-general rates.

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 September 30, 1994. 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 4 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, and reduced-duty treatment to certain other articles, which are the product of and imported directly from designated countries, as set forth in general note 7 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 (IFTA), as provided in general note 8 to the HTS. Where 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 nonreciprocal duty-free or reduced-duty treatment in the special subcolumn of column 1 followed by the symbol "J" or "J*" in parentheses is afforded to eligible articles the product of designated beneficiary countries under the *Andean Trade Preference Act* (ATPA), enacted in title II of Public Law 102-182 and implemented by Presidential Proclamation 6455 of July 2, 1992 (effective July 22, 1992), as set forth in general note 11 to the HTS.

Preferential rates of duty in the special subcolumn of column 1 followed by the symbol "CA" are applicable to eligible goods of Canada, and those followed by the symbol "MX" are applicable to eligible goods of Mexico, under the *North American Free Trade Agreement*, as provided in general note 12 to the HTS, effective January 1, 1994.

Other special tariff treatment applies to particular *products of insular possessions* (general note 3(a)(iv)), goods covered by the *Automotive Products Trade Act* (APTA) (general note 5) and the *Agreement on Trade in Civil Aircraft* (ATCA) (general note 6), and *articles imported from freely associated states* (general note 10).

The *General Agreement on Tariffs and Trade* (GATT) (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) is a multilateral agreement setting forth basic principles governing international trade among its

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, antidumping 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 participating 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 establish quantitative limits on imports of textiles and apparel, of cotton and other vegetable fibers, wool, man-made 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 many supplying countries, including the four largest suppliers: China, Hong Kong, the Republic of Korea, and Taiwan.

APPENDIX B
STATISTICAL TABLE

Table B-1

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
Million dollars					
1302.11.0000	Opium	Free		(2)	15
2906.13.1000	Inositols	5.8%	Free(A*,CA,E,IL, J,MX)	(3)	4
2906.13.5000	Sterols	3.7%	Free(A*,CA,E,IL, J,MX)	(3)	5
2907.29.3000	Polyphenol drugs	7.2%	Free(CA,E,IL, J,MX)	(2)	(2)
2909.49.0500	Guaifenesin	9.1%	Free(A*,CA,E,IL J,MX)	(3)	8
2909.50.1000	4-Ethylguaiaicol	6.9%	Free(CA,E,IL,J) 5.5% MX	(3)	(2)
2909.50.2000	Guaiacal and its derivatives	9.1%	Free(A*,CA,E,IL, J,MX)	(3)	1
2912.19.3000	Glyoxal	3.7%	Free(A*,CA,E,IL, J,MX)	(3)	6
2914.69.2000	Quinone drugs	6.9%	Free(CA,E,IL, J,MX)	(2)	9
2916.39.1500	Ibuprofen	6.8%	Free(A*,CA,E,IL J,MX)	(3)	39
2916.39.1600	4-Chlorobenzoic acid	3.7¢/kg + 17.9%	Free(A*,CA,E,IL,J,MX)	(3)	(2)
2917.19.1000	Ferrous fumarate	6.9%	Free(A*,CA,E, IL,J) 6.2% MX	(2)	1
2918.17.1000	Mandelic acid	8.1%	Free(A*,CA,E,IL J,MX)	(3)	2
2918.17.5000	Salts and esters of mandelic acid	8.1%	Free(CA,E,IL, J,MX)	(3)	(2)
2918.21.1000	Medicinal grade salicylic acid and its salts	8.7%	Free(A*,CA,E,IL, J,MX)	10	9
2918.22.1000	o-Acetylsalicylic acid (Aspirin)	10.2%	Free(A*,CA,E,IL, J,MX)	(3)	7
2918.23.1000	Medicinal grade salol (phenyl salicylate)	6.8%	Free(A*,CA,E,IL, J,MX)	(3)	1
2918.90.3000	Other aromatic carboxylic drugs, nes	6.8% ⁴	Free(A*,CA,E,IL, J,MX)	(3)	234
2921.49.2000	Amitriptyline hydrochloride	16.6%	Free(A*,CA,E,IL, J,MX)	(3)	4
2921.49.3500	Aromatic monoamine antidepressants, tranquilizers, and other psychotherapeutic agents	16.6%	Free(CA,E,IL, J,MX)	(3)	2
2921.49.4000	Other aromatic monoamine drugs	8.2%	Free(CA,E,IL, J,MX)	(3)	17
2922.19.1000	Diphenhydramine; and Tamoxifen citrate	6.6% ⁴	Free(CA,E,IL, J,MX)	(3)	27
2922.19.1200	Propoxyphene hydrochloride	13.4%	Free(CA,E,IL, J,MX)	(3)	0
2922.19.1500	Other aromatic drugs of amino-alcohols, their ethers and esters, other than those containing more than one kind of oxygen function	7.6% ⁴	Free(CA,E,IL, J,MX)	(3)	3
2922.29.2700	Other drugs of amino-naphthols and other amino-phenols, their ethers and esters, other than those containing more than one kind of oxygen function	8.2%	Free(CA,E,IL, J,MX)	(3)	3
2922.49.1500	Benzocaine; and Procaine hydrochloride	7.0%	Free(A*,CA,E,IL,J) 6.3%(MX)	(3)	1
2922.49.2500	Other aromatic drugs of amino-acids and their esters other than those containing more than one kind of oxygen function	7.0%	Free(CA,E,IL,J) 6.3%(MX)	(3)	7

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

		Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
HTS subheading	Description	General	Special ¹		
Million dollars					
2922.50.0500	α-Methyldopa	8.0%	Free(A*,CA,E,IL, J,MX)	(³)	3
2922.50.1300	Isoetharine hydrochloride; Isoxsuprine hydrochloride; Nyldrin hydrochloride; Phenylephrine hydrochloride; Propranolol hydrochloride; Salbutamol (Albuterol); and Terbutaline sulfate	6.7%	Free(CA,E,IL, J,MX)	(³)	6
2922.50.1600	Aromatic cardiovascular drugs of amino-alcohol-phenols, amino- acid-phenols and other amino-compounds with oxygen function	8.0%	Free(CA,E,IL, J,MX)	(³)	22
2922.50.1700	Aromatic dermatological agents and local anesthetics of amino- alcohols-phenols, amino-acid phenols and other amino-compounds with oxygen function	7.2%	Free(CA,E,IL, J,MX)	(³)	4
2922.50.1900	Certain aromatic guaiacol derivative drugs of amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function	9.1%	Free(A*,CA,E,IL J,MX)	(³)	0
2922.50.2500	Other aromatic drugs of amino-alcohol-phenols, amino-acid-phenols and other amino-compounds with oxygen function	8.7%	Free(CA,E,IL, J,MX)	(³)	122
2923.10.0000	Choline and its salts	3.7%	Free(A*,CA,E,IL, J,MX)	(³)	25
2924.29.3500	Diethylaminoacetoxylidide (Lidocaine)	10.0%	Free(A*,CA,E,IL, J,MX)	(³)	(²)
2924.29.3910	Acetaminophen	6.8%	Free(A*,CA,E,IL, J,MX)	(³)	14
2424.29.3920	Acetphenetidine (Phenacetin)	6.8%	Free(A*,CA,E,IL, J,MX)	(³)	(²)
2924.29.3950	Other aromatic drugs of cyclic amides (including cyclic carbamates) and their derivatives; salts thereof	6.8%	Free(A*,CA,E,IL, J,MX)	(³)	73
2925.20.1000	N'-(4-Chloro-o-tolyl)-N,N-dimethyl formamidine; Bunamidine hydrochloride; and Pentamidine	6.9%	Free(CA,E,IL, J,MX)	(³)	(²)
2925.20.2000	Other aromatic drugs of imines and their derivatives; salts thereof	8.1%	Free(CA,E,IL, J,MX)	(³)	4
2928.00.3000	Nonaromatic drugs of organic derivatives of hydrazine or of hydroxylamine	3.7%	Free(A*,CA,E,IL, J,MX)	35	3
2930.40.0000	Methionine	4.2%	Free(A*,CA,E,IL, J,MX)	10	36
2931.00.2200	Other aromatic organo-inorganic drugs	8.1%	Free(CA,E,IL, J,MX)	2	1
2932.29.2000	Lactone drugs	7.4%	Free(CA,E,IL,J) 6.6%(MX)	(²)	1
2933.11.000	Phenazone (antipyrine) and its derivatives	6.6%	Free(A*,CA,E,IL J,MX)	(²)	(²)
2933.19.3500	Other aromatic drugs with an unfused pyrazole ring	6.8%	Free(A*,CA,E,IL, J,MX)	(³)	1
2933.19.4500	Other nonaromatic drugs with an unfused pyrazole ring	3.7%	Free(A*,CA,E,IL, J,MX)	(³)	(²)
2933.21.0000	Hydantoin and its derivatives	6.7% ⁴	Free(A*,CA,E,IL, J,MX)	5	20
2933.29.2000	Other aromatic or modified aromatic drugs containing an unfused imidazole ring (whether or not hydrogenated)	6.0%	Free(A*,CA,E,IL J,MX)	(³)	9
2933.29.4500	Other nonaromatic drugs containing an unfused imidazole ring (whether or not hydrogenated)	3.7%	Free(A*,CA,E,IL, J,MX)	(³)	5

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<i>Million dollars</i>					
2933.39.1500	Cyproheptadine hydrochloride	8.0%	Free(A*,CA,E,IL,J) 6.4% MX	(³)	(²)
2933.39.3000	Antidepressants, tranquilizers, and other psychotherapeutic agents containing an unfused pyridine ring (whether or not hydrogenated)	16.6%	Free(CA,E,IL,J) 13.2%(MX)	(³)	1
2933.39.3700	Other drugs containing an unfused pyridine ring (whether or not hydrogenated)	8.0% ⁴	Free(CA,E,IL,J) 6.4%(MX)	(³)	24
2933.40.2000	5-Chloro-7-iodo-8-quinolinol (Iodochlorhydroxyquin); Decoquinat; Diodohydroxyquin; and Oxyquinolone sulfate	6.7%	Free(CA,E,IL,J) 6.0%(MX)	(³)	5
2933.51.1000	Malonylurea (Barbituric acid)	5.0 ⁴	Free(A*,CA,E,IL, J,MX)	(³)	1
2933.51.3000	Phenobarbital	3.7%	Free(A*,CA,E,IL, J,MX)	(³)	1
2933.59.2000	5-Ethyl-5-phenylhexahydropyrimidine-4,6-dione (Primidone)	5.3%	Free(A*,CA,E,IL, J,MX)	(³)	2
2933.59.2300	Meclizine hydrochloride	9.2%	Free(A*,CA,E,IL, J,MX)	(³)	1
2933.59.2500	Other aromatic antihistamines, including those principally used as antinauseants, containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring; nucleic acids and their salts	9.2%	Free(CA,E,IL,J) 7.3%(MX)	(³)	(²)
2933.59.3100	Nicarbazin	6.7%	Free(CA,E,IL,J) 5.3%(MX)	(³)	3
2933.59.3200	Trimethoprim	6.7%	Free(A*,CA,E,IL,J) 5.3%(MX)	(³)	4
2933.59.3600	Other aromatic anti-infective agents containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring; nucleic acids and their salts	8.1% ⁴	Free(CA,E,IL,J) 6.4%(MX)	(³)	24
2933.59.4500	Aromatic antidepressants, tranquilizers, and other psychotherapeutic agents containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring; nucleic acids and their salts	16.6%	Free(CA,E,IL,J) 13.2%(MX)	(³)	7
2933.59.5500	Other aromatic drugs containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring; nucleic acids and their salts	6.9%	Free(CA,E,IL,J)	(³)	17
2933.59.5900	Other nonaromatic drugs containing a pyrimidine ring (whether or not hydrogenated) or piperazine ring; nucleic acids and their salts	3.7%	Free(A*,CA,E,IL, J,MX)	(³)	11
2933.90.2600	Other aromatic antihistamines with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	6.6%	Free(CA,E,IL, J,MX)	3	53
2933.90.4100	Acriflavine; Acriflavine hydrochloride; and Pyrazinamide	6.7%	Free(CA,E,IL, J,MX)	(³)	(²)
2933.90.4400	Carbadox	6.7%	Free(A*,CA,E,IL, J,MX)	(³)	4

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<i>Million dollars</i>					
2933.90.4600	Other aromatic anti-infective agents with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	8.1%	Free(CA,E,IL, J,MX)	2	15
2933.90.5100	Hydralazine hydrochloride	5.8%	Free(CA,E,IL, J,MX)	1	1
2933.90.5300	Other aromatic cardiovascular drugs with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	8.0%	Free(CA,E,IL, J,MX)	323	217
2933.90.5510	Tolmetin	6.8%	Free(A*,CA,E,IL, J,MX)	(3)	0
2933.90.5520	Tolmetin sodium dihydrate	6.8%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2933.90.5530	Tolmetin sodium (anhydrous)	6.8%	Free(A*,CA,E,IL, J,MX)	(3)	0
2933.90.5590	Other aromatic analgesics, antipyretics, and non-hormonal anti-inflammatory agents with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	6.8%	Free(A*,CA,E,IL, J,MX)	(3)	3
2933.90.5700	Clozapine; and Droperidol	6.6%	Free(CA,E,IL, J,MX)	(3)	14
2933.90.5900	Imipramine hydrochloride	6.6%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2933.90.6100	Other aromatic antidepressants, tranquilizers, and other psychotherapeutic agents with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	16.6% ⁴	Free(CA,E,IL, J,MX)	1	15
2933.90.6500	Anticonvulsants, hypnotics, and sedatives with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	6.9% ⁴	Free(CA,E,IL, J,MX)	1	31
2933.90.7000	Other aromatic drugs primarily affecting the central nervous system with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	7.6%	Free(CA,E,IL, J,MX)	4	1
2933.90.7500	Other aromatic drugs with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	6.9% ⁴	Free(CA,E,IL, J,MX)	34	33
2933.90.9000	Other nonaromatic drugs with heterocyclic structures with nitrogen hetero-atom(s) only; nucleic acids and their salts	3.7%	Free(A*,CA,E,IL, J,MX)	(3)	9
2934.30.0400	Butaperazine maleate; Chlorpromazine; Etymemazine chlorhydrate; Fluphenazine decanoate; Fluphenazine enanthate; Mesoridazine besylate; Piperacetazine; Promazine hydrochloride; 2-(Trifluoromethyl)phenothiazine; and Trifluoperazine hydrochloride	6.6%	Free(CA,E,IL,J) 5.9%(MX)	(3)	1
2934.30.0800	Prochlorperazine maleate; and Promethazine hydrochloride	6.6%	Free(A*,CA,E,IL,J) 5.9%(MX)	(3)	1
2934.30.1500	Chlorpromazine hydrochloride	16.6%	Free(A*,CA,E,IL,J) 14.9%(MX)	(3)	1
2934.30.2500	Antidepressants, tranquilizers, and other psychotherapeutic agents containing a phenothiazine ring-system (whether or not hydrogenated), not further fused	16.6%	Free(CA,E,IL,J) 14.9%(MX)	(3)	6

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
Million dollars					
2934.30.3000	Other drugs containing a phenothiazine ring-system (whether or not hydrogenated), not further fused	8.2%	Free(CA,E,IL,J) 7.3%(MX)	2	1
2934.90.2500	Other aromatic heterocyclic drugs	6.9% ⁴	Free(A*,CA,E,IL, J,MX)	(3)	296
2934.90.4700	Other nonaromatic heterocyclic drugs	3.7%	Free(A*,CA,E,IL, J,MX)	(3)	61
2935.00.3000	Sulfamethazine	8.0%	Free(A*,CA,E,IL, J,MX)	(3)	5
2935.00.3100	Acetylsulfisoxazole; Sulfacetamide, sodium; Sulfamerazine, sodium; Sulfamethazine, sodium; Sulfamethoxazole; Sulfanilamide; Sulfaquinoxaline; and Sulfisoxazole	10.8%	Free(A*,CA,E,IL, J,MX)	(3)	14
2935.00.3300	Sulfathiazole; and Sulfathiazole, sodium	15.0%	Free(A*,CA,E,IL, J,MX)	(3)	1
2935.00.3500	Salicylazosulfapyridine (Sulfasalazine); Sulfadiazine; Sulfaguanidine; and Sulfapyridine	11.6%	Free(CA,E,IL,J) 10.4%(MX)	(3)	5
2935.00.3700	Sulfamerazine	11.6%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2935.00.3900	Other anti-infective sulfonamides	10.8% ⁴	Free(CA,E,IL,J) 9.7%(MX)	(3)	7
2935.00.4300	Chlorothiazide; Chloropropamide; Hydrochlorothiazide; and Tolbutamide	6.9%	Free(A*,CA,E,IL, J,MX)	(3)	6
2935.00.4400	N-[5-(Aminosulfonyl)-1,3,4-thiadiazol-2-yl]acetamide	6.9%	Free(A*,CA,E,IL, J,MX)	(3)	1
2935.00.5300	Glyburide; and Furosemide	6.9%	Free(A*,CA,E,IL,J) 6.2%(MX)	(3)	5
2935.00.5700	Other sulfonamide drugs	6.9%	Free(CA,E,IL,J) 6.2%(MX)	(3)	144
2936.10.0000	Provitamins, unmixed	3.3%	Free(A*,CA,E,IL, J,MX)	3	3
2936.21.0000	Vitamins A and their derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	4	65
2936.22.0000	Vitamin B ₁ (Thiamine) and its derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	1	19
2936.23.0000	Vitamin B ₂ (Riboflavin) and its derivatives	7.8%	Free(CA,E,IL,J) 6.2%(MX)	1	35
2936.24.0000	D- or DL-Pantothenic acid (Vitamin B ₃ or Vitamin B ₅) and its derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	2	40
2936.25.0000	Vitamin B ₆ (Pyridoxine and related compounds with Vitamin B ₆ activity) and its derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	(2)	26
2936.26.0000	Vitamin B ₁₂ (Cyanocobalamin and related compounds with Vitamin B ₁₂ activity) and its derivatives	16.2%	Free(A*,CA,E,IL,J) 14.5%(MX)	2	9
2936.27.0000	Vitamin C (Ascorbic acid) and its derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	26	88

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
Million dollars					
2936.28.0000	Vitamin E (Tocopherols and related compounds with Vitamin E activity) and its derivatives	7.9%	Free(A*,CA,E,IL, J,MX)	37	31
2936.29.1000	Folic acid	6.9%	Free(CA,E,IL,J) 5.5%(MX)	(2)	13
2936.29.1510	Pharmaceutical-grade niacin	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	8
2936.29.1520	Other grades of niacin	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	18
2936.29.1530	Niacinamide	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	8
2936.29.2000	Other aromatic or modified aromatic vitamins, nes, and their derivatives	6.9% ⁴	Free(CA,E,IL,J) 5.5%(MX)	(3)	5
2936.29.5020	Vitamins D and their derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	10
2936.29.5030	Biotin	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	28
2936.29.5050	Other non-aromatic vitamins, nes, and their derivatives	3.1%	Free(A*,CA,E,IL, J,MX)	(3)	7
2936.90.0000	All other vitamins, including natural concentrates	4.0%	Free(A*,CA,E,IL, J,MX)	31	12
2937.10.0000	Pituitary (anterior) or similar hormones, and their derivatives	1.8%	Free(A*,CA,E,IL, J,MX)	21	12
2937.21.0010	Cortisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2937.21.0020	Hydrocortisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	10
2937.21.0030	Prednisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	4
2937.21.0040	Prednisolone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	1
2937.22.0000	Halogenated derivatives of adrenal cortical hormones	6.0%	Free(A*,CA,E,IL, J,MX)	15	12
2937.29.0010	Salts and esters of cortisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	0
2937.29.0020	Salts and esters of hydrocortisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	2
2937.29.0030	Salts and esters of prednisone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2937.29.0040	Salts and esters of prednisolone	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	1
2937.29.0050	Other adrenal cortical hormones and their derivatives	6.0%	Free(A*,CA,E,IL, J,MX)	(3)	8
2937.91.0000	Insulin and its salts	1.8%	Free(A*,E,IL,J,MX) 0.7%(CA)	63	1
2937.92.1010	Estrogens obtained directly or indirectly from animal or vegetable materials	3.2%	Free(A*,CA,E,IL,J) 2.5%(MX)	(3)	6
2937.92.1020	Progesterone obtained directly or indirectly from animal or vegetable materials	3.2%	Free(A*,CA,E,IL,J) 2.5%(MX)	(3)	
2937.92.1050	Other progestins obtained directly or indirectly from animal or vegetable materials	3.2%	Free(A*,CA,E,IL,J) 2.5%(MX) 5.5%(MX)	(3)	16
2937.92.3000	Estradiol benzoate and Estradiol cyclopentylpropionate (Estradiol cypionate)	6.9%	Free(CA,E,IL,J) 5.5%(MX)	(3)	1

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
Million dollars					
2937.92.4000	Ethinodiol decanoate; D-Norgestrel; and DL-Norgestrel	8.7%	Free(A*,CA,E,IL,J) 6.9%(MX)	(3)	1
2937.92.8010	Other estrogens	8.7%	Free(CA,E,IL,J) 6.9%(MX)	(3)	1
2937.92.8020	Other progesterone	8.7%	Free(CA,E,IL,J) 6.9%(MX)	(3)	(2)
2937.92.8050	Other progestins	8.7%	Free(CA,E,IL,J) 6.9%(MX)	(3)	4
2937.99.2000	Desonide; Epinephrine; Epinephrine hydrochloride; and L-Thyroxine (Levothyroxine), sodium	6.9%	Free(CA,E,IL, J,MX)	(3)	2
2937.99.4000	Nandrolone decanoate; and Pipecuronium bromide	3.2%	Free(A*,CA,E,IL,J) 2.8%(MX)	(3)	(2)
2937.99.6000	Nandrolone phenpropionate	6.9%	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2937.99.8010	Anabolic agents and androgens	3.2%	Free(CA,E,IL,J) 2.8%(MX)	(3)	4
2937.99.8050	Other hormones and their derivatives and other steroids	3.2%	Free(CA,E,IL,J) 2.8%(MX)	(3)	16
2938.10.0000	Rutoside (Rutin) and its derivatives	1.5%	Free(A*,CA,E,IL, J,MX)	(2)	1
2938.90.0000	Other glycosides, natural or reproduced by synthesis, and their salts, ethers, esters, and other derivatives	3.7%	Free(A*,CA,E,IL, J,MX)	54	33
2939.10.1000	Papaverine and its salts	11.6%	Free(CA,E,IL, J,MX)	(3)	(2)
2939.10.2000	Synthetic alkaloids of opium and their derivatives; salts thereof	7.0%	Free(CA,E,IL, J,MX)	(3)	(2)
2939.10.5000	Other alkaloids of opium and their derivatives; salts thereof	3.5¢/g	Free(A*,CA,E,IL, J,MX)	(3)	(2)
2939.21.0000	Quinine and its salts	Free		(2)	9
2939.29.0010	Quinidine and its salts	Free		(3)	14
2939.29.0050	Other alkaloids of cinchona and their derivatives; salts thereof	Free		(3)	(2)
2939.30.0000	Caffeine and its salts	6.0% ⁴	Free(A*,CA,E,IL, J,MX)	3	26
2939.40.1000	Pseudoephedrine and its salts	7.6%	Free(A*,CA,E,IL, J,MX)	(3)	24
2939.40.5000	Other ephedrine and their salts	3.7%	Free(A*,CA,E,IL, J,MX)	(3)	20
2939.50.0000	Theophylline and aminophylline (Theophylline-ethylenediamine) and their derivatives; salts thereof	3.7%	Free(A*,CA,E,IL, J,MX)	1	14
2939.60.0000	Alkaloids of rye ergot and their derivatives; salts thereof	3.7%	Free(A*,CA,E,IL, J,MX)	(2)	28
2939.70.0000	Nicotine and its salts	3.7%	Free(A*,CA,E,IL, J,MX)	(2)	1
2939.90.1000	Other natural vegetable alkaloids and their salts, ethers, esters, and other derivatives	1.8% ⁴	Free(A*,CA,E,IL, J,MX)	(3)	3
2939.90.5000	Other vegetable alkaloids and their salts, ethers, esters, and other derivatives	3.7% ⁴	Free(A*,CA,E,IL, J,MX)	(3)	34
2942.00.0500	Other aromatic or modified aromatic organic drugs	6.7%	Free(CA,E,IL, J,MX)	(3)	(2)
3001.10.0010	Liver, dried, whether or not powdered	1.5%	Free(A*,E,IL,J,MX) 0.6%(CA)	(3)	1

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
<i>Million dollars</i>					
3001.10.0050	Other glands and other organs, dried, whether or not powdered	1.5%	Free(A*,E,IL,J,MX) 0.6%(CA)	(³)	1
3001.20.0000	Extracts of glands or other organs or of their secretions	1.5%	Free(A*,E,IL,J,MX) 0.6%(CA)	51	6
3001.90.0000	Heparin and its salts; other human or animal substances prepared for therapeutic or prophylactic uses, not elsewhere specified or included			53	74
3002.10.0010	Human blood plasma	Free		250	29
3002.10.0020	Normal human blood sera, whether or not freeze-dried	Free		179	1
3002.10.0030	Human immune blood sera	Free		30	(²)
3002.10.0050	Other antisera and blood fractions	Free		(³)	242
3002.20.0000	Vaccines for human medicine	Free		113	182
3002.31.0000	Vaccines against foot and mouth disease	Free		(²)	(²)
3002.39.0000	Other vaccines for veterinary medicine	Free		101	3
3002.90.1000	Ferments	5%	Free(A*,CA,E,IL, J,MX)	3	6
3002.90.5010	Whole human blood	Free		1	1
3002.90.5020	Antiallergenic preparations	Free		4	(²)
3002.90.5050	Other blood products; other toxins, cultures of micro-organisms (excluding yeasts) and similar products	Free		352	54
3003.31.0000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of two or more constituents which have been mixed together not put up in measured doses or in forms or packings for retail sale: Containing insulin but not antibiotics	3.7%	Free(A*,E,IL,J,MX) 1.4%(CA)	3	(²)
3003.39.1000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of two or more constituents which have been mixed together not put up in measured doses or in forms or packings for retail sale: Containing artificial mixtures of natural hormones, but not antibiotics	3.7%	Free(A*,E,IL,J,MX) 1.4%(CA)	(³)	3
3003.39.5000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of two or more constituents which have been mixed together not put up in measured doses or in forms or packings for retail sale: Containing other hormones, but not antibiotics	4.9%	Free(E,IL,J) 1.9%(CA) 4.4%(MX)	(³)	(²)

See footnotes at end of table.

Table B-1—*Continued*

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<hr/> Million dollars <hr/>					
3003.40.0000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of two or more constituents which have been mixed together not put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof, but not containing hormones or other products of heading 2937 or antibiotics	3.4%	Free(A*,E,IL,J,MX) 1.3%(CA)	2	2
3003.90.0000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of two or more constituents which have been mixed together not put up in measured doses or in forms or packings for retail sale: Containing other products	6.0% ⁴	Free(A*,E,IL,J,MX) 2.4%(CA)	147	100
3004.31.0000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing insulin but not antibiotics	3.7%	Free(A*,E,IL,J,MX) 1.4%(CA)	54	48
3004.32.0000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing adrenal cortical hormones but not antibiotics	6.0%	Free(A*,E,IL,J,MX) 2.4%(CA)	24	25
3004.39.0010	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing hormones or other products of heading 2937 for veterinary use, but not antibiotics	3.9%	Free(A*,E,IL,J,MX) 1.5%(CA)	3	23
3004.39.0050	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing other hormones or other products of heading 2937 but not antibiotics	3.9%	Free(A*,E,IL,J,MX) 1.5%(CA)	57	209

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

		Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
HTS subheading	Description	General	Special ¹		
<hr/> <i>Million dollars</i> <hr/>					
3004.40.0005	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof for veterinary use but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	(²)	4
3004.40.0010	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof for cardiovascular use but not containing hormones, other products of heading 2937, or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	10	46
3004.40.0020	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof for use as anticonvulsants, hypnotics, and sedatives but not containing hormones, other products of heading 2937 or antibiotics	3.4 ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	8	2
3004.40.0030	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof for use as antidepressants, tranquilizers, and other psychotherapeutic agents but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	14	(²)
3004.40.0040	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing other alkaloids or derivatives thereof primarily affecting the central nervous system, but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	5	(²)

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
<hr/> <i>Million dollars</i> <hr/>					
3004.40.0050	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof for use as dermatological agents and local anesthetics, but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	7	(²)
3004.40.0060	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing alkaloids or derivatives thereof medicaments primarily affecting the eyes, ears, or respiratory system, but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	28	4
3004.40.0070	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing other alkaloids or derivatives thereof, but not containing hormones, other products of heading 2937 or antibiotics	3.4% ⁴	Free(A*,E,IL,J,MX) 1.3%(CA)	119	7
3004.50.1000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing vitamin B ₂	7.8%	Free(E,IL,J) 3.1%(CA) 7.0%(MX)	(³)	(²)
3004.50.2000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing vitamin B ₁₂	16.2%	Free(E,IL,J) 6.4%(CA) 14.5%(MX)	(³)	(²)
3004.50.3000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing vitamin E	7.9%	Free(A*,E,IL,J,MX) 3.1%(CA)	(³)	3

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<hr/> Million dollars <hr/>					
3004.50.4000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing other vitamins synthesized wholly or in part from aromatic or modified aromatic industrial organic compounds	6.9%	Free(E,IL,J) 2.7%(CA) 6.2%(MX)	(³)	1
3004.50.5005	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing other vitamins for veterinary use	3.1%	Free(A*,E,IL,J,MX) 1.2%(CA)	2	1
3004.50.5010	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing single vitamins combined with minerals or other nutrients	3.1%	Free(A*,E,IL,J,MX) 1.2%(CA)	5	2
3004.50.5020	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing single vitamins	3.1%	Free(A*,E,IL,J,MX) 1.2%(CA)	13	3
3004.50.5030	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing multiple vitamins combined with minerals or other nutrients	3.1%	Free(A*,E,IL,J,MX) 1.2%(CA)	39	3
3004.50.5040	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing multiple vitamins	3.1%	Free(A*,E,IL,J,MX) 1.2%(CA)	26	2

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
Million dollars					
3004.90.1000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Containing antigens or hyaluronic acid or its sodium salt	Free		4	59
3004.90.3000	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Cough drops	3.9%	Free(A*,E,IL,J,MX) 1.5%(CA)	6	56
3004.90.6003	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: For veterinary use	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	28	15
3004.90.6005	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Anti-infective sulfonamides	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	2	25
3004.90.6010	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other anti-infective agents	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	89	76
3004.90.6015	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Antineoplastic and immunosuppressive medicaments	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	89	14
3004.90.6020	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Cardiovascular medicaments	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	134	134

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
<hr/> <i>Million dollars</i> <hr/>					
3004.90.6022	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Tolmetin	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	(³)	0
3004.90.6024	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Tolmetin sodium dihydrate	6.3 ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	(³)	(²)
3004.90.6026	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Tolmetin sodium (anhydrous)	6.3 ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	(³)	1
3004.90.6028	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Medicaments for use as other analgesic, antipyretics, and nonhormonal anti-inflammatory agents	6.3 ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	(³)	22
3004.90.6030	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Medicaments for use as anticonvulsants, hypnotics, and sedatives	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	19	25
3004.90.6035	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Medicaments for use as antidepressants, tranquilizers, and other psychotherapeutic agents	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	12	9
3004.90.6040	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other medicaments primarily affecting the central nervous system	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	17	169

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<hr/> <i>Million dollars</i> <hr/>					
3004.90.6045	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other medicaments for use as dermatological agents and local anesthetics	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	16	35
3004.90.6050	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Laxatives	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	10	2
3004.90.6055	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Antacids	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	17	4
3004.90.6060	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other medicaments primarily affecting the digestive system	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	58	20
3004.90.6065	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Diuretics	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	2	(²)
3004.90.6070	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other preparations primarily affecting electrolytic, caloric, or water balance	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	25	(²)
3004.90.6075	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Cough and cold preparations	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	12	3

See footnotes at end of table.

Table B-1—Continued

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. Imports, 1993
		General	Special ¹		
Million dollars					
3004.90.6080	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Antihistamines	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	67	2
3004.90.6085	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other medicaments primarily affecting the eyes, ears, or respiratory system	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	36	105
3004.90.6090	Medicaments (excluding goods of heading 3002, 3005, or 3006) consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses or in forms or packings for retail sale: Other medicaments, n.e.s.	6.3% ⁴	Free(A*,E,IL,J,MX) 2.5%(CA)	204	99
3006.20.0000	Blood-grouping reagents	Free		108	14
3006.30.1000	Opacifying preparations for X-ray examinations and diagnostic reagents designed to be administered to the patient, containing antigens or antisera	Free		(³)	7
3006.30.5000	Other opacifying preparations for X-ray examinations and diagnostic reagents designed to be administered to the patient	6.9%	Free (E,IL,J) 2.7%(CA) 6.2%(MX)	(³)	156
3006.60.0000	Chemical contraceptive preparations based on hormones or spermicides	4.4%	Free(A*,E,IL,J,MX) 1.7%(CA)	25	19
3822.00.1090	Composite diagnostic or laboratory reagents other than those of heading 3002 or 3006, containing antigens or antisera but not containing methyl chloroform or carbon tetrachloride		Free	(³)	92
3822.00.5010	Other composite diagnostic or laboratory reagents other than those of heading 3002 or 3006, containing methyl chloroform or carbon tetrachloride	5.0%	Free(A*,CA,E,IL,J) 4.5%(MX)	(³)	1

See footnotes at end of table.

Table B-1—*Continued*

Medicinal chemicals, except antibiotics: Harmonized Tariff Schedule subheading; description; U.S. col. 1 rate of duty as of Jan. 1, 1994; U.S. exports, 1993; and U.S. Imports, 1993

HTS subheading	Description	Col. 1 rate of duty as of Jan. 1, 1994		U.S. exports, 1993	U.S. imports, 1993
		General	Special ¹		
<hr/> <i>Million dollars</i> <hr/>					
3822.00.5090	Other composite diagnostic or laboratory reagents other than those of heading 3002 or 3006, not containing methyl chloroform or carbon tetrachloride	5.0%	Free(A*,CA,E,IL,J) 4.5%(MX)	(³)	97

¹ Programs under which special tariff treatment may be provided, and the corresponding symbols for such programs as they are indicated in the "Special" sub-column, 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); United States-Israel Free Trade Area (IL); Andean Trade Preference Act (J); and North American Free Trade Agreement ((CA) or (MX)).

² Less than \$500,000.

³ Official statistics for U.S. exports of those products classified under this HTS subheading are not collected at a similar level of aggregation.

⁴ Certain temporary reduced duty or duty-free provisions apply to one or more of the products classified under this HTS subheading.

⁵ Data not available.

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