ASBESTOS

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Asbestos is not mined in the United States so the domestic manufacturing sector is entirely dependent on imported asbestos, most of which comes from Canada. U.S. apparent consumption declined to 4,650 metric tons (t) in 2003. World production was 2.15 million metric tons (Mt).

Legislation and Government Programs

Several bills dealing with asbestos issues were introduced in the U.S. House of Representatives and the U.S. Senate in 2003. Most were similar to those introduced in 2002. Two of the bills proposed a ban on the manufacture and use of asbestos-containing products, a public education program on asbestos, expanding research on asbestos-related diseases, and a mesothelioma treatment program (Congressional Record, 2003e§[1], f§). Five bills were introduced that addressed compensation of individuals suffering personal injury and death resulting from exposure to asbestos (Congressional Record, 2003a§-d§). Another bill proposed revisions to the Internal Revenue Code of 1986 to prevent tax attributes from being reduced by discharge of indebtedness in Chapter 11 cases (Congressional Record, 2003h§). These bills were under review and had not been scheduled for floor debate in the House or Senate at yearend. Bill S. 1125, which also dealt with asbestos claims resolution, was placed on the Senate calendar for 2004 and attracted considerable media attention. This bill would have established an asbestos injury claims resolution fund and determined contribution levels required by companies facing asbestos-related lawsuits. The bill also would have established a panel of judges to review asbestos claims, set medical and asbestos exposure criteria for claimants, and established compensation levels for claimants. The bill did not receive sufficient votes to move forward in the Senate although Senate leaders planned to meet to determine if a bipartisan solution could be reached (Crenshaw, 2004; Congressional Record, 2003g§).

The U.S. Environmental Protection Agency (EPA) continued its work in Libby, MT. Activities focused on asbestos analysis, medical examinations, and asbestos cleanup (U.S. Environmental Protection Agency, 2004§). In connection with the issue of asbestos in vermiculite from Libby, MT, EPA initiated a consumer awareness program to educate homeowners about potential dangers of older vermiculite insulations that may contain asbestos (U.S. Environmental Protection Agency, 2003). The Agency for Toxic Substances and Disease Registry also continued its health studies in Libby, MT, and began an evaluation of health risks posed by exposure to asbestos-contaminated vermiculite at exfoliation plants throughout the United States (Agency for Toxic Substances and Disease Registry, 2003§).

The Mine Safety and Health Administration continued to evaluate its proposed reduction of the 8-hour time-weighted average permissible exposure level to 0.1 fiber per cubic centimeter (f/cc) from 2 f/cc. The agency is scheduled to make a final decision by May 2004 (U.S. Department of Labor, 2003§).

A United Nations (UN) committee met on November 17 to vote on whether or not to include actinolitic asbestos, amosite, anthophyllite asbestos, chrysotile, and tremolite asbestos under the Prior Informed Consent (PIC) Procedure of the Rotterdam Convention. The PIC procedure recommends that countries exporting PIC-listed chemicals notify importing countries of the hazardous content before shipment occurs. The importing country would then decide whether or not to accept the shipment. The UN committee had recommended that these varieties of asbestos be placed on the hazardous chemicals list in 2001. Crocidolite already was on the PIC list. At the November meeting, the UN committee decided to exclude chrysotile from the PIC list of hazardous chemicals but included the other asbestos varieties (International Centre for Trade and Sustainable Development, 2003§; United Nations, 2003§).

Consumption

U.S. consumption of asbestos was 4,650 t in 2003, a decrease from 6,850 t in 2002 (table 1). Current consumption was less than 0.6% of the amount used in 1973, the peak year for U.S. asbestos consumption. Asbestos was reported by major asbestos suppliers to have been used in roofing products (60% of domestic consumption), coatings and compounds (25%), and other applications (15%) in 2003 (table 2). Most of the asbestos reported under “coatings and compounds” probably was used in roofing applications. Roofing products, primarily in the form of asphalt roof coatings and sealants, are believed to compose more than 80% of U.S. consumption. Coatings and compounds not used in roofing applications probably compose less than 5% of U.S. consumption.

Chrysotile was the only type of asbestos used in the United States. Of the chrysotile used in 2003, 83% was grade 7, followed by grades 4, 5, and 3 (table 2).

[1]References that include a section mark (§) are found in the Internet References Cited section.

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Prices

The average free alongside ship (f.a.s.) unit value of asbestos fiber exports and reexports was $326 per ton in 2003, an increase from $308 per ton in 2002. The average U.S. customs unit value for all grades of imported asbestos increased to $1,260 per ton in 2003 from $258 per ton in 2002. The average value of imported crude chrysotile increased to $171 per ton in 2003 from $123 per ton in 2002. The average unit value for imports of spinning-grade chrysotile from all sources decreased to $134 per ton in 2003 from $479 per ton in 2002. The unit value of other grades of chrysotile from all sources increased to $1,380 per ton in 2003 from $198 per ton in 2002 because of the high-value shipments from Canada (table 6). In addition, a shipment of 1 t valued at $3,060 per ton was received from Sweden in 2003. Average prices for chrysotile imported from Canada, which compose 97% of U.S. imports, are given in table 3.

Prices for Canadian chrysotile were $144 to $300 per ton for group 7, $293 to $420 per ton for group 6, $472 per ton to $655 per ton for group 5, $710 to $995 per ton for group 4, and $1,030 to $1,244 per ton for group 3. Prices for South African chrysotile were $200 to $290 per ton for group 7, $300 to $350 per ton for group 6, and $360 to $440 per ton for group 5 (Industrial Minerals, 2002). Quoted prices should be used only as a guideline because actual prices depend on the terms of the contract between the seller and buyer.

Foreign Trade

The U.S. Census Bureau (2001§) reported imports of asbestos products and products manufactured using asbestos substitutes under the same Harmonized Tariff Schedule (HTS) codes. With the decline in use of asbestos products in the United States and bans on the manufacture of asbestos products in many other countries, it is likely that nonasbestos products now account for a larger portion of the product imports under some HTS categories.

The f.a.s. value of exported asbestos fibers and products containing asbestos or asbestos substitutes increased to $291 million in 2003 from $205 million in 2002. Japan and Mexico were the leading importers of asbestos fiber from the United States. Canada was the leading importer of U.S. products manufactured using asbestos or asbestos substitutes, followed by Mexico, Japan, the Republic of Korea, the United Kingdom, Thailand, Saudi Arabia, Germany, and Brazil. These nine countries accounted for 79% of the value of manufactured products exported from the United States in 2003 (table 4).

In 2003, approximately 2,820 t of asbestos was exported (U.S. International Trade Commission, 2004§). The exports included asbestos crudes, fiber, refuse, sand, and stucco. Since there has been no U.S. production since 2002, exports were either from stockpiles or were exports of imported fiber.

Exports and reexports of brake linings, disk pads, and mounted brake linings accounted for 82% of the value of manufactured products (table 5). Products in these categories composed 95% of the value of goods manufactured using asbestos and asbestos substitutes that were exported to Brazil, 98% of that exported to Saudi Arabia, 98% of that exported to Thailand, 94% of that exported to Mexico, 88% of that exported to the United Kingdom, 85% of that exported to the Republic of Korea, 84% of that exported to Canada, 80% of that exported to Germany, and 32% of that exported to Japan (with another 65% for clutches and other friction materials). Brake, disk pad, and mounted brake lining exports were manufactured with a basis of asbestos, other mineral substances, or cellulose.

In 2003, Canada supplied 97% of the asbestos imported by the United States. Asbestos also was imported from Brazil (7 t), South Africa (55 t), Sweden (1 t), and Zimbabwe (77 t) (table 6). There were probably only transshipments through Sweden. Only chrysotile was imported into the United States in 2003. Asbestos listed under “Other, unspecified asbestos type” in table 6 probably was chrysotile based on the import sources.

The United States also imported $570 million worth of products with a basis of asbestos, asbestos and magnesium carbonate, cellulose fiber, or other mineral substances (U.S. International Trade Commission, 2004§). This included approximately 66,600 t of asbestos- and cellulose-fiber cement products valued at $29 million, including panels, pipe, and tile. The bulk of these products were imported in the form of flat sheets and panels (92%), followed by miscellaneous products (7%), corrugated sheet (1%), and fittings, pipe, and tubing (less than 1%) (table 7). Although imports of asbestos-cement pipe were reported, this product apparently was reexported because no asbestos-cement pipe has been installed in the United States for the past few years (B. Pigg, President, Asbestos Information Association/North America, oral commun., February 2004).

World Review

World production of asbestos was estimated to be 2.15 Mt in 2003, an increase from 2.05 Mt in 2002. Russia continued to be the leading producer of asbestos, followed by Kazakhstan, China, Canada, Brazil, and Zimbabwe. These countries accounted for 95% of the world production. Only Russia and Kazakhstan significantly increased production in 2003; production in other countries remained essentially unchanged or declined (table 8).

With regard to world production and consumption, the United States has produced about 3.28 Mt of asbestos fiber and used approximately 31.5 Mt between 1900 and 2000. About one-half of this amount was used since 1960. Cumulative world production during that same time period was about 173 Mt. The United States and Western European nations were the largest consumers of asbestos during the first two-thirds of the 20th century. They were surpassed by the collective production and consumption of States within the Soviet Union by the 1970s. With the onset of the health issues concerning asbestos in the late 1960s and early 1970s, world production and consumption began to decline during the 1980s. In 2000, world consumption, estimated to be 1.48 Mt, was only 31% that of 1980. Countries in Asia and South America and the Commonwealth of Independent States remain the largest users of asbestos.

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Specifically, Brazil, China, India, Japan, Russia, and Thailand are the only countries that consumed more than 60,000 t of asbestos in 2000. These six countries accounted for more than 80% of the world's apparent consumption in 2000 (Virta, 2003).

Australia began enforcing its ban on new uses of asbestos and products containing asbestos on December 31, 2003. The law prohibits the use, re-reuse, or sale of any products containing asbestos. The ban requires replacement of asbestos products with nonasbestos alternatives when replacement occurs (National Occupational Health and Safety Commission, 2003).

Outlook

Domestic use of asbestos should continue to decline. There are few applications for which asbestos substitutes have not displaced asbestos in the United States. Asbestos-based products continue to be imported into the United States, but these imports also are likely to decline in use because of public opposition and liability issues. Efforts to ban the use of asbestos are continuing worldwide but chrysotile producers and consumers are working to counteract these initiatives.

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TABLE 1
SALIENT ASBESTOS STATISTICS[1]

		1999	2000	2001	2002	2003
United States:						
Production, sales	metric tons	7,190	5,260	5,260	2,720	--
Exports and reexports:[2]						
Unmanufactured, value	thousands	$7,960	$7,220	$4,890	$2,020	$920
Asbestos products, value	do.	$237,000	$288,000	$298,000	$203,000 r	$290,000
Imports for consumption, unmanufactured:						
Quantity	metric tons	15,800	14,600	13,100	6,850	4,650
Value[3]	thousands	$3,150	$2,510	$2,640	$1,770	$5,840
Consumption, apparent[4]	metric tons	15,800	14,600	13,100	6,850	4,650
World, production	do.	1,940,000 r	2,110,000	2,040,000 r	2,050,000 r	2,150,000 e

[e]Estimated. [r]Revised. -- Zero.

[1]Data are rounded to no more than three significant digits.

[2]Free alongside ship value; includes exports of crudes, fibers, stucco, sand, and refuse. May also include nonasbestos materials.

[3]U.S. Customs declared value.

[4]Production plus imports minus producer exports of asbestos fiber plus adjustments in Government and industry stocks.

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TABLE 2

U.S. ASBESTOS CONSUMPTION BY END USE, GRADE, AND TYPE[1, 2]

(Metric tons)

	Chrysotile					
End use	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Total
2002	6	462	131	24	6,230	6,850
2003:						
Coatings and compounds	6	--	160	--	1,010	1,170
Roofing products	--	--	--	--	2,800	2,800
Other	6	607	--	--	64	677
Total	12	607	160	--	3,870	4,650

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Estimated distribution based upon data provided by the Asbestos Institute, Montreal, Quebec, Canada.

TABLE 3
CUSTOMS UNIT VALUE OF
IMPORTED ASBESTOS

(Dollars per metric ton)

	2002	2003
Canada, chrysotile:		
Crude	122	171
Spinning	479	134
Other	389	1,380

Source: U.S. Census Bureau.

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TABLE 4

VALUE OF U.S. EXPORTS AND REEXPORTS OF ASBESTOS FIBERS AND PRODUCTS[1, 2]

(Thousand dollars)

Country	2002			2003		
	Unmanufactured fiber[3]	Manufactured products[r, 4]	Total[r]	Unmanufactured fiber[3]	Manufactured products[4]	Total
Australia	38	1,810	1,850	12	2,740	2,750
Brazil	47	600	647	--	4,670	4,670
Canada	--	98,200	98,200	--	135,000	135,000
Germany	--	15,200	15,200	--	4,690	4,690
Japan	994	3,840	4,830	357	13,800	14,100
Korea, Republic of	127	1,110	1,240	51	12,200	12,200
Kuwait	--	551	551	--	1,040	1,040
Mexico	748	28,300	29,100	476	39,000	39,400
Saudi Arabia	--	4,580	4,580	17	5,720	5,730
Thailand	--	138	138	--	6,110	6,110
Turkey	--	43	43	--	47	47
United Kingdom	--	4,070	4,070	7	7,760	7,760
Venezuela	--	749	749	--	803	803
Other	65	44,200	44,300	--	56,900	56,900
Total	2,020	203,000	205,000	920	290,000	291,000

[r]Revised. -- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Free alongside ship value.

[3]Includes exports of crudes, fibers, stucco, sand, and refuse. May also include nonasbestos materials.

[4]Includes products manufactured using asbestos, cellulose fiber, and other asbestos substitutes.

Source: U.S. Census Bureau.

TABLE 5

U.S. EXPORTS AND REEXPORTS OF ASBESTOS AND ASBESTOS PRODUCTS[1]

	2002		2003	
	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Unmanufactured, asbestos[3]	6,550	$2,020	2,820	$920
Manufactured:				
Brake linings and disk brake pads[4]	NA	165,000 r	NA	238,000
Clutch facings and linings[5]	NA	9,030 r	NA	17,700
Clothing, cord, fabric, yarn	NA	2,420	NA	946
Gaskets, packing and seals	NA	1,890 r	NA	2,240
Panel, sheet, tile, tube[6]	NA	14,900	NA	19,900
Paper and millboard	NA	2,160	NA	691
Other articles[7]	NA	7,630 r	NA	10,700
Total	NA	203,000	NA	290,000

rRevised. NA Not available.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Free alongside ship value.

[3]Includes crudes, fibers, stucco, sand, and refuse. May also include nonasbestos materials.

[4]Includes asbestos and cellulose fiber brakes and similar materials.

[5]Includes clutches and other friction materials, excluding brakes and brake pads.

[6]Includes asbestos cement and cellulose fiber cement products.

[7]Includes asbestos and cellulose fiber products.

Source: U.S. Census Bureau.

TABLE 6

U.S. IMPORTS FOR CONSUMPTION OF ASBESTOS FIBERS, BY TYPE AND ORIGIN [1]

Type	Canada		South Africa		Other		Total	
	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
2002:								
Chrysotile:								
Crude	1,550	$190	--	--	--	--	1,550	$190
Spinning fibers	63	30	--	--	--	--	63	30
All other	4,670	970	176	$340	46	$106	4,890	1,420
Other, unspecified asbestos type	339	130	--	--	1	2	340	132
Total	6,630	1,320	176	340	47	108	6,850	1,770
2003:								
Chrysotile:								
Crude	302	52	--	--	--	--	302	52
Spinning fibers	20	3	--	--	--	--	20	3
All other	3,990	5,440	55	102	84	152	4,130	5,690
Other, unspecified asbestos type	201	94	--	--	1	3	202	98
Total	4,510	5,590	55	102	85	155	4,650	5,840

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]U.S. customs declared value.

Source: U.S. Census Bureau.

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TABLE 7
U.S. IMPORTS OF PRODUCTS WITH BASIS OF ASBESTOS, CELLULOSE, OR OTHER MINERALS IN 2003

HTS code	Category	Quantity (metric tons)	Value	Major sources[1]	Percentage of category total[2]
2524.00.00.00	Asbestos	4,650	$5,840,000	Canada	97% of weight.
6811.10.00.00	Corrugated cement sheet[3]	803	404,000	Finland[4]	88% of weight.
6811.20.00.00	Flat cement panel, sheet, and tile[3]	61,000	25,400,000	Mexico, Canada, Chile, Malaysia	97% of weight.
6811.30.00.00	Cement pipe, tube, and pipe fittings[3]	469	275,000	Mexico	89% of weight.
6811.90.00.00	Other cement products[3]	4,340	2,940,000	Japan, Mexico	79% of weight.
6812.50.00.00	Fabricated asbestos fibers; clothing[5]	(6)	5,440	United Kingdom[4]	100% of value.
6812.60.00.00	Felt, millboard, and paper	NA	74,300	Japan, Hong Kong	85% of value.
6812.70.00.00	Compressed asbestos fiber jointing	NA	533,000	Canada	79% of value.
6812.90.01.01	Other, miscellaneous[5]	1	10,200	China	53% of value
6812.90.01.02	Yarn and thread[5]	44	187,000	Mexico	92% of value.
6812.90.01.03	Cord and string[5]	10	101,000	Brazil, China	81% of value.
6812.90.01.04	Woven or knitted fabric[5]	27	197,000	South Africa	97% of value.
6812.90.01.20	Gaskets, packing, and seals[5]	132	504,000	Brazil, Japan	67% of value.
6812.90.01.25	Other, building materials[5]	NA	177,000	China	84% of value.
6812.90.01.55	Other, fabricated asbestos fiber[5]	NA	351,000	Japan, Canada, Germany	85% of value.
6813.10.00.10	Brake lining and pads, civil aircraft[7]	NA	4,420,000	France[4], United Kingdom[4]	88%of value.
6813.10.00.50	Brake lining and pads, other[7]	NA	115,000,000	Canada, Brazil, China	72% of value.
6813.90.00.10	Other, articles, civil aircraft[7]	NA	440,000	United Kingdom[4]	60% of value.
6813.90.00.50	Other, friction materials[7]	NA	28,200,000	United Kingdom[4], Mexico, Japan	86% of value.
8708.31.00.00	Mounted brake linings for tractors	53	570,000	Taiwan, Canada	79% of weight.
8708.31.50.00	Mounted brake linings, other	65,200	391,000,000	Canada, Japan, Spain, China, United Kingdom[4]	81% of weight.

NA Not applicable.

[1]Countries are listed in decreasing order.

[2]Percent contribution of total imports by major import sources, by weight or value.

[3]Articles of asbestos-cement, of cellulose fiber-cement or the like.

[4]Source likely a supplier of nonasbestos products only.

[5]Mixtures with basis of asbestos or with a basis of asbestos and magnesium carbonate.

[6]Less than 1/2 unit.

[7]Articles with a basis of asbestos, of other mineral substances, or of cellulose.

Source: U.S. Census Bureau.

TABLE 8

ASBESTOS: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country[3]	1999	2000	2001	2002	2003[e]
Argentina	259	254	210 [r]	178 [r]	170
Brazil, fiber	188,386	209,332	132,695 [r]	194,732 [r]	195,000
Bulgaria[e]	350	350	350	300	300
Canada	337,000	307,000	277,000 [r]	241,000 [r]	241,000
China[e]	329,000 [r]	315,000 [r]	310,000 [r]	270,000 [r]	260,000
Colombia, crude ore	61,125	59,249	96,140	62,785	60,000
Egypt[e]	1,000	2,000	2,000	2,000	2,000
India[e]	20,000	21,000	21,000	18,000 [r]	19,000
Iran[e]	2,000	2,000	2,000	1,500	1,500
Japan[e]	18,000	18,000	18,000	18,000	15,000
Kazakhstan	139,300	233,200	271,300	291,100	353,000 [4]
Russia[e]	675,000	750,000	750,000	775,000 [r]	878,000 [4]
Serbia and Montenegro	361	563	194	372 [r]	-- [4]
South Africa, chrysotile	18,836	18,782	13,393	-- [r]	--
Swaziland	22,912	12,690	--	--	--
United States, sold or used by producers	7,190	5,260	5,260	2,720	--
Zimbabwe	115,000	152,000	136,327	168,000 [r, e]	130,000
Total	1,940,000 [r]	2,110,000	2,040,000 [r]	2,050,000 [r]	2,150,000

[e]Estimated. [r]Revised. -- Zero.

[1]World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

[2]Marketable fiber production. Table includes data available through April 8, 2004.

[3]In addition to the countries listed, Afghanistan, North Korea, Romania, and Slovakia also produce asbestos, but output is not officially reported, and available general information is inadequate for the formulation of reliable estimates of output levels.

[4]Reported figure.

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