ASBESTOS

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Asbestos had not been mined in the United States since 2002, so the domestic manufacturing sector was entirely dependent on imported asbestos, most of which came from Canada. U.S. apparent consumption declined to 3,450 metric tons (t) in 2004. World production was estimated to be 2.23 million metric tons (Mt), unchanged from that of 2003.

Legislation and Government Programs

Debate continued in the U.S. Congress on asbestos issues. Key points of discussion were whether or not to ban the use of asbestos and asbestos products in the United States, compensation for workers and the general public who suffer from asbestos-related disease, and foremost, how to deal with the large amount of asbestos litigation in the U.S. court system. While the topic was debated in committee, no new bills on these issues were introduced onto the floor of the U.S. House of Representatives or the U.S. Senate in 2004.

The Agency for Toxic Substances and Disease Registry, part of the U.S. Department of Health and Human Services, and the U.S. Environmental Protection Agency (EPA) continued health studies of residents and former vermiculite miners and millers in Libby, MT. The EPA continued its cleanup of asbestos-contaminated properties in Libby, MT, as well as its health studies of workers at vermiculite exfoliation plants located throughout the United States. The studies were initiated when asbestos-related diseases were diagnosed in mine workers and portions of the population in Libby, MT, where they were exposed to vermiculite that was contaminated with asbestos (Agency for Toxic Substances and Disease Registry, 2004§[1]; U.S. Environmental Protection Agency, 2004§).

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/cm^3) from 2 f/cm^3 for asbestos. A decision had not yet been made on this proposal at the time of publication (U.S. Department of Labor, 2004§).

A United Nations committee decided not to include chrysotile under the prior informed consent (PIC) procedure of the Rotterdam Convention for Certain Hazardous Chemicals and Pesticides in International Trade. 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 committee voted to add actinolite asbestos, amosite, anthophyllite asbestos, and tremolite asbestos to its PIC list, which already included crocidolite (Chrysotile Institute, 2004§).

A study by the U.S. Geological Survey determined that geologic setting is a good indicator of whether or not amphibole asbestos may be present in a talc deposit. Talc deposits formed when siliceous hydrothermal fluids altered dolostone generally did not contain amphiboles or their content is negligible. Talc deposits formed by contact or regional metamorphism consistently contained amphiboles, many of which may be asbestiform. This relation between mode of formation and amphibole content is useful as a screening tool when evaluating talc deposits for their potential to contain asbestos minerals (Van Gosen, Lowers, and Sutley, 2004, p. 936-937).

Consumption

U.S. consumption of asbestos was 3,450 t in 2004, a decrease from 4,650 t in 2003 (table 1). Coating and compounds accounted for 21% of U.S. consumption, roofing products accounted for 43% of consumption, and other uses for 36%. The other uses category was larger than in prior years because end uses were not known for the 1,190 t of asbestos imported from Germany, South Africa, and Zimbabwe. As for the past 2 to 3 years, it is believed that roofing product applications, primarily in the form of asphalt roof coatings and sealants, were the leading U.S. markets. Chrysotile was the only type of asbestos used in the United States. More than 80% of the chrysotile used in 2004 was grade 7, followed by grades 5 and 4 (table 2).

Prices

The average free alongside ship (f.a.s.) unit value of asbestos fiber exports and reexports was $211 per metric ton in 2004, a decrease from $326 per ton in 2003. The unit value of exports declined because of low-value shipments to Mexico, which accounted for 98% of the export tonnage and 95% of the export value. The average U.S. customs unit value for all grades of imported asbestos decreased to $234 per ton in 2004 from $1,260 per ton in 2003. The average value of imported crude chrysotile decreased to $46 per ton in 2004 from $172 per ton in 2003 because of unusually low-value transshipments through Germany. The average unit value for imports of spinning-grade chrysotile from all sources was $150 per ton in 2004, unchanged from that of 2003. The unit value of other grades of chrysotile from all sources decreased to $318 per ton in 2004 from $1,380 per ton in 2003 because of low-value shipments from Canada (table 6). Average prices for chrysotile imported from Canada, which compose 66% of U.S. imports, are given in table 3.

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

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Foreign Trade

Imports of asbestos products and products manufactured using asbestos substitutes are reported under the same Harmonized Tariff Schedule (HTS) codes (U.S. Census Bureau, 2001§). 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 products manufactured using asbestos substitutes account for a significant portion of the product imports under some HTS categories. This fact must be taken into consideration when evaluating the trade data that follow.

The f.a.s. value of exported asbestos fibers decreased to $333,000 in 2004 from $920,000 in 2003. Mexico was the leading importer 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, Thailand, the Republic of Korea, Germany, the United Kingdom, Saudi Arabia, Brazil, and Australia. These ten countries accounted for 83% of the value of manufactured products reexported from the United States in 2004 (table 4).

In 2004, approximately 1,580 t of asbestos was exported (U.S. International Trade Commission, 2004§). The exports included asbestos crudes, fiber, sand, refuse, and stucco. There has been no U.S. production since 2002 so exports were either from stockpiles or were reexports of imported fiber (table 5).

Brake linings, clutch linings, disk pads, mounted brake linings manufactured using asbestos, other mineral substances, or cellulose accounted for 81% of the value of manufactured products that were exported or reexported in 2004 (table 5). Products in these categories composed more than 80% of the value of exports to Australia, Brazil, Canada, Germany, Japan, the Republic of Korea, Mexico, Saudi Arabia, Thailand, and the United Kingdom.

In 2004, Canada supplied 66% of the asbestos imported by the United States. Asbestos also was imported from Germany (1,020 t), South Africa (122 t), and Zimbabwe (45 t) (table 6). There were probably only transshipments through Germany. Only chrysotile was imported into the United States in 2004. Asbestos listed under "Other, unspecified asbestos type" in table 6 probably was chrysotile based on the import sources.

The United States also imported $615 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§) (table 7).

World Review

World production of asbestos was estimated to be 2.23 Mt in 2004, unchanged from that of 2003. Russia continued to be the leading producer of asbestos, followed by China, Kazakhstan, Canada, Brazil, and Zimbabwe. These countries accounted for 95% of the world production (table 8). LAB Chrysotile Inc. announced that it would close its Black Lake asbestos mine near Thetford Mines, Quebec, Canada, for an indefinite time period. Reasons for the decision include increasingly strict exposure standards and increased international competition (Mining Engineering, 2004).

Outlook

Domestic use of asbestos probably will continue its downward trend in the United States because of liability issues. Although asbestos-based products continue to be imported into the United States, their use probably will decline because of public opposition to asbestos use 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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U.S. Department of Health and Human Services:
National Institutes of Health.
National Institute for Occupational Safety and Health.
U.S. Department of Labor:
Mine Safety and Health Administration.
Occupational Safety and Health Administration.
U.S. Environmental Protection Agency.

TABLE 1
SALIENT ASBESTOS STATISTICS[1]

		2000	2001	2002	2003	2004
United States:						
Production, sales	metric tons	5,260	5,260	2,720	--	--
Exports and reexports:[2]						
Unmanufactured, value	thousands	$7,220	$4,890	$2,020	$920	$333
Asbestos products, value	do.	$288,000	$298,000	$203,000	$290,000	$341,000
Imports for consumption, unmanufactured:						
Quantity	metric tons	14,600	13,100	6,850	4,650	3,450
Value[3]	thousands	$2,510	$2,640	$1,770	$5,840	$806
Consumption, apparent[4]	metric tons	14,600	13,100	6,850	4,650	3,450
World, production	do.	2,110,000	2,080,000 r	2,050,000	2,230,000 r	2,230,000 e

eEstimated. rRevised. -- 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 material
[3]U.S. customs declared value.
[4]Production plus imports minus producer exports of asbestos fiber plus adjustments in Government and industry stocks.

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	Unspecified grade	Total
2003	12	607	160	--	3,870	--	4,650
2004:							
Coatings and compounds	--	--	240	--	484	--	724
Roofing products	--	--	--	--	1,470	--	1,470
Other	--	29	--	--	39	1,190	1,250
Total	--	29	240	--	1,990	1,190	3,450

-- 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 Chrysotile Institute, Montreal, Quebec, Canada.

TABLE 3
CUSTOMS UNIT VALUE OF IMPORTED ASBESTOS

(Dollars per metric ton)

	2003	2004
Canada, chrysotile:		
Crude	171	193
Spinning	134	157
Other	1,380	213

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	2003			2004		
	Unmanufactured fiber[3]	Manufactured products[4]	Total	Unmanufactured fiber[3]	Manufactured products[4]	Total
Australia	12	2,740	2,750	--	3,470	3,470
Brazil	--	4,670	4,670	--	4,760	4,760
Canada	--	135,000	135,000	--	169,000	169,000
Germany	--	4,690	4,690	--	9,180	9,180
Japan	357	13,800	14,100	--	15,100	15,100
Korea, Republic of	51	12,200	12,200	--	11,500	11,500
Kuwait	--	1,040	1,040	--	999	999
Mexico	476	39,000	39,400	317	44,200	44,500
Saudi Arabia	17	5,720	5,730	--	5,040	5,040
Thailand	--	6,110	6,110	--	13,000	13,000
Turkey	--	47	47	--	129	129
United Kingdom	7	7,760	7,760	--	7,360	7,360
Venezuela	--	803	803	--	1,410	1,410
Other	--	56,900	56,900	16	56,300	56,300
Total	920	290,000	291,000	333	341,000	342,000

-- 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]

	2003		2004	
	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Unmanufactured, asbestos[3]	2,820	$920	1,580	$333,000
Manufactured:				
Brake linings and disk brake pads[4]	NA	238,000	NA	275,000
Clutch facings and linings[5]	NA	17,700	NA	23,300
Clothing, cord, fabric, yarn	NA	946	NA	2,110
Gaskets, packing and seals	NA	2,240	NA	1,810
Panel, sheet, tile, tube[6]	NA	19,900	NA	27,700
Paper and millboard	NA	691	NA	860
Other articles[7]	NA	10,700	NA	10,200
Total	NA	290,000	NA	341,000

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.

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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)
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
2004:								
Chrysotile:								
Crude	254	49	--	--	1,020	10	1,270	59
Spinning fibers	20	3	--	--	--	--	20	3
All other	1,650	258	122	239	45	82	1,820	579
Other, unspecified asbestos type	334	165	--	--	--	--	334	165
Total	2,260	475	122	239	1,060	92	3,450	806

-- 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.

TABLE 7
U.S. IMPORTS OF PRODUCTS WITH BASIS OF ASBESTOS, CELLULOSE, OR OTHER MINERALS IN 2004

HTS[1] code	Category	Quantity (metric tons)	Value	Major sources[2]	Percentage of category total[3]
2524.00.00.00	Asbestos	3,450	$805,000	Canada	66% of weight.
6811.10.00.00	Corrugated cement sheet[4]	570	332,000	Finland[5], Denmark[5]	90% of weight.
6811.20.00.00	Flat cement panel, sheet, and tile[4]	73,800	28,100,000	Mexico, Canada, Chile, Malaysia	97% of weight.
6811.30.00.00	Cement pipe, tube, and pipe fittings[4]	427	98,500	Mexico	99% of weight.
6811.90.00.00	Other cement products[4]	3,430	2,250,000	Japan, Mexico	88% of weight.
6812.50.00.00	Fabricated asbestos fibers; clothing[6]	1	33,600	United Kingdom[5], Denmark[5]	97% of value.
6812.60.00.00	Felt, millboard, and paper	NA	39,000	Denmark[5], Singapore	73% of value.
6812.70.00.00	Compressed asbestos fiber jointing	NA	594,000	Canada	85% of value.
6812.90.01.01	Other, miscellaneous[6]	18	4,310	Canada	100% of value.
6812.90.01.02	Yarn and thread[6]	107	350,000	Mexico	79% of value.
6812.90.01.03	Cord and string[6]	5	14,500	Brazil	66% of value.
6812.90.01.04	Woven or knitted fabric[6]	58	464,000	South Africa	99% of value.
6812.90.01.10	Articles for use in civil aircraft[6]	NA	6,960	United Kingdom[5], Germany[5]	100% of value.
6812.90.01.20	Gaskets, packing, and seals[6]	159	702,000	Czech Republic, Japan	71% of value.
6812.90.01.25	Other, building materials[6]	NA	12,100	Canada, China	100% of value.
6812.90.01.55	Other, fabricated asbestos fiber[6]	NA	218,000	Japan, Canada	89% of value.
6813.10.00.10	Brake lining and pads, civil aircraft[7]	NA	4,830,000	France[5], United Kingdom[5]	89% of value.
6813.10.00.50	Brake lining and pads, other[7]	NA	113,000,000	Canada, Brazil, China	72% of value.
6813.90.00.10	Other, articles, civil aircraft[7]	NA	33,400	France[5]	80% of value.
6813.90.00.50	Other, friction materials[7]	NA	32,100,000	United Kingdom[5], Mexico, Japan	86% of value.
8708.31.00.00	Mounted brake linings for tractors	NA	920,000	Canada, Denmark[5], Taiwan	56% of weight.
8708.31.50.00	Mounted brake linings, other	NA	431,000,000	Australia, Canada, Germany[5], Japan, United Kingdom[5]	85% of weight.

See footnotes at end of table.

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NA Not available.
[1]Harmonized Tariff Schedule of the United States.
[2]Countries are listed in decreasing order.
[3]Percentage contribution of total imports by major import sources, by weight or value.
[4]Articles of asbestos-cement, of cellulose fiber-cement or the like.
[5]Source likely a supplier of nonasbestos products only.
[6]Mixtures with basis of asbestos or with a basis of asbestos and magnesium carbonate.
[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]	2000	2001	2002	2003[e]	2004[e]
Argentina	254	203 [r]	155 [r]	166 [r, 4]	170
Brazil, fiber	209,332	172,695 [r]	194,750 [r]	194,350 [r, 4]	194,800 [4]
Bulgaria[e]	350	350	300	300	300
Canada	309,719 [r]	276,790 [r]	240,500 [r]	200,500 [r, 4]	200,000
China[e]	315,000	310,000	270,000	350,000 [r]	355,000
Colombia, crude ore	59,249	96,140	62,785	60,000	60,000
Egypt[e]	2,000	2,000	2,000	2,000	2,000
India[e]	21,000	21,000	18,000	19,000	18,000
Iran[e]	2,000	2,000	1,500	1,500	1,500
Japan[e]	18,000	18,000	18,000	18,000 [r]	18,000
Kazakhstan	233,200	271,300	291,100	354,500 [r, 4]	346,500 [4]
Russia[e]	750,000	750,000	775,000	878,000 [4]	875,000
Serbia and Montenegro	563	194	372	-- [4]	--
South Africa, chrysotile	18,782	13,393	--	6,218 [r, 4]	6,000
Swaziland	12,690	--	--	--	--
United States, sold or used by producers	5,260	5,260	2,720	--	--
Zimbabwe	152,000	136,327	168,000 [e]	147,000 [r]	150,000
Total	2,110,000	2,080,000 [r]	2,050,000	2,230,000 [r]	2,230,000

[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, 2005.
[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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