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2009 Minerals Yearbook

ASBESTOS

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ASBESTOS

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Asbestos has not been mined in the United States since 2002, and imports, mostly from Canada, satisfied the needs of domestic consumers. U.S. apparent consumption declined to 869 metric tons (t) in 2009 from 1,460 t in 2008 because of decreased sales to the roofing products industry. World production was 2.07 million metric tons (Mt) in 2009, a decrease from 2.15 Mt in 2008.

Legislation and Government Programs

Health research and asbestos cleanup continued in Libby, MT, where vermiculite contaminated with asbestos was mined and processed, and at several vermiculite processing plants across the country. The Agency for Toxic Substances and Disease Registry announced plans to invest $8 million in projects to compare the health of people exposed to Libby asbestos in childhood against those not exposed. The study was expected to determine if effects other than lung disease can occur following exposure to Libby asbestos, improve public health records to better track exposure and health outcome, and compare digital-versus-film chest x-rays for efficiency in assessing lung conditions. The U.S. Environmental Protection Agency continued its remedial activities in Libby (Agency for Toxic Substances and Disease Registry, 2009; U.S. Environmental Protection Agency, 2010).

The National Institute of Occupational Safety and Health (NIOSH) released its roadmap for asbestos research in 2008. This plan was reviewed by the National Academy of Sciences and the organization provided recommendations for changes. Some of the recommendations included more focus on the mineralogy of the elongate particles under study, removal of potentially confusing terms from the roadmap glossary section, development of a mineral repository for health research, and further elaboration on its strategy for assessing the health effects of elongate mineral particles (National Academy of Sciences, 2009).

Consumption

U.S. consumption of asbestos was 869 t in 2009, a 41% decrease from 1,460 t in 2008 (table 1). Roofing products accounted for 42% of U.S. consumption; coating and compounds, 30%; diaphragms for the chloralkali industry, 18%; and other, 10%. Most of the asbestos reported under "coating and compounds" probably was used in roofing products. Consequently, roofing applications, which comprised bituminous roof coatings and roof sealants, accounted for 72% of the total U.S. asbestos end-use market (table 2).

Chrysotile was the only type of asbestos used in the United States in 2009, 66% of which was grade 7; the rest consisted of grades 5, 4, and 3, in descending order of percentage.

Prices

The average free alongside ship (f.a.s.) unit value of asbestos fiber exports and reexports was $1,169 per metric ton in 2009, an increase from $938 per ton in 2008 (table 4). The average U.S. customs unit value for all grades of imported asbestos increased to $787 per ton in 2009 from $746 per ton in 2008 (table 5). The average value of imported crude chrysotile, all from Canada, was $200 per ton in 2009, a decrease from $700 per ton in 2008. The average unit value for imports of milled, grade 4 chrysotile was $1,843 per ton in 2009, a decrease from $2,062 per ton in 2008. The unit value of all other grades of asbestos combined was $630 per ton in 2009, an increase from $455 per ton in 2008 (table 5). Unit values of imported chrysotile have fluctuated in recent years because of the small quantities of asbestos being used by industry.

Foreign Trade

The following section summarizes significant trade statistics on asbestos and products manufactured using asbestos. Detailed trade statistics, by country and individual U.S. port districts, are available from the International Trade Commission's Interactive Tariff and Trade Dataweb Web site (U.S. International Trade Commission, undated).

In 2009, U.S. exports of asbestos fiber were 59 t with an f.a.s. value of $69,000, a decrease in tonnage from 368 t valued at $345,000 in 2008. Asbestos has not been produced in the United States since 2002; thus, reported exports probably consisted of reexports of imported fiber or improperly classified products (table 4). The United States exported and reexported $24.5 million of asbestos products in 2009, a decrease from $33.2 million in 2008. Canada was the leading importer, followed by Mexico, the United Kingdom, China, and the Republic of Korea. These five countries accounted for 67% of the value of asbestos products exported and reexported from the United States in 2009 (table 3). The United Kingdom banned the use of asbestos in 1999, so their imports from the United States probably were reexported from the United Kingdom, or they were nonasbestos products misclassified as asbestos products. The same applies to several other countries listed in table 3 that have banned the use of asbestos or asbestos products.

Friction products, including brake linings, clutch linings, and disk pads, accounted for 55% of the value of manufactured products exported in 2009 (table 4). Because no asbestos brake components under Harmonized Tariff Schedule of the United States (HTS) code 6813.20 or asbestos-cement products under HTS code 6811.40 are manufactured in the United States, the values for these two HTS code categories probably represent exports from stocks, reexports of asbestos products, or products incorrectly classified under the HTS codes.

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In 2009, the United States imported 869 t of asbestos valued at $684,000. Canada supplied 91% of the tonnage. Asbestos also was imported from Brazil and Zimbabwe (table 5). Only chrysotile was imported into the United States in 2009. Based on the import source, asbestos listed under "other, unspecified asbestos type" in table 5 probably represented chrysotile.

The United States also imported $13.3 million of products with a basis of asbestos and products with a basis of asbestos and magnesium carbonate (U.S. International Trade Commission, undated). Some nonasbestos products probably are included under the asbestos HTS codes based on reported asbestos imports from countries that have banned asbestos use (table 6).

World Review

World production of asbestos was estimated to be 2.07 Mt in 2009, a decrease from 2.15 Mt in 2008. Russia was the leading producer of asbestos, followed by China, Brazil, Kazakhstan, and Canada. These five countries accounted for 99% of the world production (table 7).

Korea, Republic of.—The Republic of Korea enacted the final stage of a ban on the use of asbestos in manufactured products, effective September 2009. Under the ban, asbestos may not be used to manufacture any children's products or products in which asbestos particles may come loose and contact skin. For all other manufactured products, the asbestos content must be less than 0.1%. Under the ban, talc used in the manufacture of paint and wallpaper must be certified to contain less than 1% asbestos (The Chosun Ilbo, 2009).

Zimbabwe.—Workers at the Shabanie Mashaba Mine, a chrysotile mine that is administered by the government, went on strike on August 31, 2009, because of salary issues. The company reportedly also had its electricity disconnected for failure to pay its electric bills. The loss of electrical power resulted in the flooding of the mine (Mpofu, 2010; Whiz, 2010).

Outlook

U.S. consumption continued to decline as markets for asbestos weakened. This trend is likely to continue in the United States as the use of products and technologies that do not require asbestos are further implemented. World production, however, remained nearly 2.0 Mt because of continued demand for asbestos products in many regions of the world. As additional national bans are enacted, world consumption may be further concentrated in fewer regions of the world and world production may begin to decline slightly.

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TABLE 1

SALIENT ASBESTOS STATISTICS[1]

		2005	2006	2007	2008	2009
United States:						
Exports and reexports:[2]						
Unmanufactured, value	thousands	$398	$866	$421	$345	$69
Asbestos products, value[3]	do.	$374,000	$443,000	$29,200	$33,200	$24,500
Imports for consumption, unmanufactured:						
Quantity	metric tons	2,530	2,230	1,730	1,460	869
Value[4]	thousands	$1,420	$1,000	$819	$1,090	$684
Consumption, apparent[5]	metric tons	2,530	2,230	1,730	1,460	869
World, production	do.	2,210,000 r	2,150,000 r	2,240,000 r	2,150,000 r	2,070,000

rRevised. do. Ditto.

[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.

[3]Product export data prior to 2007 also included nonasbestos products.

[4]U.S. customs declared value.

[5]Consumption assumed to equal imports.

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 7	Unspecified grade	Total
2008	4	52	226	932	248	1,460
2009:						
Coatings and compounds[3]	--	--	124	139	--	263
Chlorine industry	2	65	28	--	65	160
Roofing products	--	--	--	365	--	365
Other	--	--	--	72	9	81
Total	2	65	152	576	74	869

-- 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.

[3]Most of the asbestos reported under “Coating and compounds” probably was used in roofing products.

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TABLE 3

VALUE OF U.S. EXPORTS AND REEXPORTS OF ASBESTOS FIBERS AND ASBESTOS–BASED PRODUCTS[1, 2, 3]

(Thousand dollars)

	2008			2009		
Country	Unmanufactured fiber[4]	Manufactured products	Total	Unmanufactured fiber[4]	Manufactured products	Total
Australia	--	380	380	--	194	194
Brazil	--	837	837	--	165	165
Canada	--	6,630	6,630	--	5,560	5,560
China	52	3,570	3,620	--	1,610	1,610
France	--	53	53	--	218	218
Germany	--	334	334	--	269	269
Italy	--	170	170	--	72	72
Japan	--	529	529	--	477	477
Korea, Republic of	--	2,700	2,700	--	1,520	1,520
Mexico	51	7,290	7,340	--	4,430	4,430
Netherlands	--	34	34	--	9	9
United Kingdom	--	375	375	--	3,240	3,240
Venezuela	--	191	191	--	294	294
Other	242	10,100	10,300	69	6,450	6,520
Total	345	33,200	33,500	69	24,500	24,600

-- Zero.

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

[2]Free alongside ship value.

[3]Data may include some nonasbestos products based on destination countries that have banned the use of asbestos.

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

Source: U.S. Census Bureau.

TABLE 4

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

	2008		2009	
	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Unmanufactured, asbestos[3]	368	$345	59	$69
Manufactured:				
Cement products[4]	NA	457	NA	427
Friction products[5]	NA	16,000	NA	13,500
Gaskets, packing and seals	NA	1,730	NA	1,270
Paper and millboard	NA	1,560	NA	317
Other articles[6]	NA	13,400	NA	9,040
Total	NA	33,200	NA	24,500

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]May include reexports and also cellulose fiber panel, sheet, tile, and tube cement products because asbestos-cement products are not manufactured in the United States.

[5]May include some nonasbestos brake and clutch shipments.

[6]May also include some nonasbestos materials.

Source: U.S. Census Bureau.

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TABLE 5

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

Type	Canada		Brazil		Other[2]		Total	
	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)	Quantity (metric tons)	Value[3] (thousands)
2008:								
Chrysotile:								
Crude	30	$21	--	--	--	--	30	$21
Milled, grade 4	40	43	--	--	220	$492	260	536
All other	821	252	--	--	28	69	849	321
Other, unspecified asbestos type	324	213	--	--	--	--	324	213
Total	1,220	529	--	--	248	561	1,460	1,090
2009:								
Chrysotile:								
Crude	40	8	--	--	--	--	40	8
Milled, grade 4	106	178	7	$19	14	38	127	234
All other	332	128	53	147	--	--	385	275
Other, unspecified asbestos type	317	167	--	--	--	--	317	167
Total	795	480	60	166	14	38	869	684

-- Zero.

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

[2]Includes South Africa and Zimbabwe in 2008 and Zimbabwe in 2009.

[3]U.S. customs declared value.

Source: U.S. Census Bureau.

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TABLE 6
U.S. IMPORTS OF PRODUCTS WITH BASIS OF ASBESTOS IN 2009

HTS[1] code	Category	Quantity (metric tons)	Value[2]	Major sources[3]	Percentage of category total[4]
2524.00.00.00	Asbestos	389	$684,000	Canada	91% of weight.
6811.40.00.00	Asbestos-cement products	10,600	3,370,000	Mexico, Canada	100% of weight.
6812.80.90.00	Other, fabricated crocidolite fibers; clothing[5]	(6)	2,840	Germany[7]	Do.
6812.91.10.00	Footwear, fabricated asbestos fibers; clothing[8]	1	14,000	Pakistan	Do.
6812.91.90.00	Other, fabricated asbestos fibers; clothing[8]	(6)	13,500	Taiwan, China	Do.
6812.92.00.00	Felt, millboard, and paper[8]	NA	212,000	China, South Korea	100% of value.
6812.93.00.00	Compressed asbestos fiber jointing[8]	NA	476,000	Mexico, India	98% of value.
6812.99.00.01	Other, miscellaneous[8]	33	208,000	Mexico	100% of weight.
6812.99.00.02	Yarn and thread[8]	1	43,000	China	Do.
6812.99.00.03	Cord and string[8]	(6)	6,230	Japan[7]	Do.
6812.99.00.04	Woven or knitted fabric[8]	5	34,000	China, Mexico	Do.
6812.99.00.20	Gaskets, packing, and seals[8]	246	1,710,000	China	94% of weight.
6812.99.00.25	Building materials	NA	22,400	France[7]	100% of weight.
6812.99.00.55	Other, fabricated asbestos fiber[8]	NA	248,000	South Africa	96% of value.
6813.20.00.10	Brake lining and pads, civil aircraft[8]	NA	1,740,000	France[7]	96% of value.
6813.20.00.15	Brake lining and pads, other	NA	4,110,000	China, Japan[7]	57% of value.
6813.20.00.20	Articles for use in civil aircraft	NA	15,600	United Kingdom[7]	100% of value.
6813.20.00.25	Other, friction materials	NA	401,000	Peru, Bolivia, Japan[7]	79% of value.

Do. Ditto. NA Not available.

[1]Harmonized Tariff Schedule of the United States.

[2]U.S. Customs declared value.

[3]Countries are listed in decreasing order.

[4]Percentage contribution of total imports by major import sources, by weight or value.

[5]Products likely to have been inaccurately classified and products probably do not contain crocidolite.

[6]Less than ½ unit.

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

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

Source: U.S. Census Bureau.

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TABLE 7
ASBESTOS: WORLD PRODUCTION, BY COUNTRY[1, 2]

(Metric tons)

Country[3]	2005	2006	2007	2008	2009[e]
Argentina	260	299	282	298 [r]	290
Brazil, fiber	236,047	227,304	254,204	287,673 [r]	288,000 [p]
Bulgaria[e]	-- [r]	-- [r]	-- [r]	--	--
Canada[e]	200,000	200,000	180,000 [4]	160,000 [r]	150,000
China[e]	400,000	360,000	390,000	380,000 [r]	380,000
Colombia, crude ore[e]	-- [r]	-- [r]	-- [r]	-- [r]	--
India[e]	19,000	20,000	21,000	20,000	19,000
Iran[e]	1,300	1,300	-- [r]	-- [r]	--
Kazakhstan	305,500 [r]	314,700	292,600	230,100	230,000
Russia[e]	925,000	925,000	1,025,000 [4]	1,017,000 [4]	1,000,000
Serbia	4,080 [5]	4,500	-- [r]	--	--
Zimbabwe[e]	122,041 [4]	100,000	80,000	50,000	--
Total	2,210,000 [r]	2,150,000 [r]	2,240,000 [r]	2,150,000 [r]	2,070,000

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

[1]World totals, 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 March 30, 2010.

[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.

[5]Montenegro and Serbia formally declared independence in June 2006 from each other and dissolved their union.

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