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2012 Minerals Yearbook

ASBESTOS

U.S. Department of the Interior
U.S. Geological Survey

August 2016

Published by AsbestosClaims.Law
asbestosclaims.law/library/11047/1

Asbestos

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Domestic survey tables were prepared by Richard H. Kraft, statistical assistant, and the world production table was prepared by Glenn J. Wallace, international data coordinator.

Asbestos has not been mined in the United States since 2002 with imports meeting the needs of the domestic marketplace. Estimated U.S. apparent consumption was 1,020 metric tons (t) in 2012, a 14% decrease from 1,180 t in 2011. World production was 1.97 million metric tons (Mt) in 2012, a slight decrease from 2.02 Mt in 2011 (table 1).

Consumption

In 2012, U.S. apparent consumption of asbestos decreased by 14% from that in 2011 (table 1). The chloralkali industry was the leading consumer of asbestos with an estimated 67% of the market; followed by roofing products, 30%; coatings and compounds, plastics, and other, 3%. The chloralkali industry increased its share of the overall asbestos sales owing mainly to the decreased use of asbestos in roof coating formulations. Only a few U.S. companies manufacture asbestos-based products. The departure of even one company from the market, therefore, can significantly affect U.S. asbestos consumption. Asbestos use in roof coatings has been declining since 1993 because of the widespread availability of nonasbestos roof coatings. More recently, rising asbestos prices also were likely to have contributed to decreased use of asbestos in roofing coatings. The leading consumer, the chloralkali industry, used asbestos to manufacture semipermeable diaphragms that separate chlorine generated at the cell anode from the starting brine in the electrolytic cell.

Chrysotile was the only type of asbestos used in the United States in 2012. Of the asbestos imported for use by industry, an estimated 19% of the quantity was grade 4, 48% was grade 5, 31% was grade 7, and 2% was of unspecified grade (table 2).

Prices

The average free alongside ship (f.a.s.) unit value of unmanufactured asbestos fiber exports was $1,468 per metric ton in 2012, an increase from $1,225 per ton in 2011. The average U.S. customs unit value for all grades of imported asbestos increased by 68% to $1,566 per ton in 2012 from $931 per ton in 2011 because of higher valued chrysotile imports from Brazil. The average value of imports of milled, grade 4 chrysotile increased by 7% to $1,744 per ton in 2012 from $1,625 per ton in 2011.

Foreign Trade

The following section summarizes significant trade statistics on asbestos and asbestos-containing products as reported by the U.S. Census Bureau. Detailed trade statistics, by country and individual U.S. port districts, are available from the U.S. International Trade Commission's Interactive Tariff and Trade DataWeb Web site (U.S. International Trade Commission, undated).

In 2012, U.S. exports of asbestos fiber were 47 t with an f.a.s. value of $69,000, a decrease from 169 t valued at $207,000 in 2011 (tables 3, 4). Asbestos was exported to Mexico, the Republic of Korea, and Egypt, in decreasing order by quantity. Reported exports probably consisted of reexports of imported fiber or improperly classified products. The United States exported and reexported $26.4 million of asbestos products in 2012, a slight decrease from that of 2011. Mexico was the leading destination for asbestos products, followed by the Republic of Korea, Canada, United Kingdom, and Venezuela. These five countries accounted for 45% of the value of asbestos products exported and reexported from the United States in 2012 (table 3). The United Kingdom banned the use of asbestos in 1999, so imports from the United States probably were reexported from the United Kingdom or the exports were 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 30% of the value of manufactured products exported in 2012 (table 4). Because there were no asbestos brake components under Harmonized Tariff Schedule of the United States (HTS) code 6813.20 nor asbestos-cement products under HTS code 6811.40 that were manufactured in the United States, shipments under these two HTS code categories probably represented reexports of asbestos products and (or) exports of products incorrectly classified under these HTS codes.

In 2012, the United States imported 1,610 t of chrysotile valued at $2.52 million. All imports were from Brazil (table 5). The United States also imported $8.61 million of products with a basis of asbestos and products with a basis of asbestos and magnesium carbonate, an increase from $5.66 million in 2011 (table 6). In 2012, unit values of products imported under several HTS code categories increased compared with those of 2011. Consequently, the increase in the total value of imports in 2012 does not correspond to a proportional increase in the number of imported product units. In addition, some nonasbestos products likely were included under the asbestos HTS codes based on reported asbestos imports from countries that have banned asbestos use.

World Review

World production of asbestos was estimated to be 1.97 Mt in 2012, a slight decline from 2.02 Mt in 2011. Russia was thought to be the leading producer of asbestos, followed by China, Brazil, and Kazakhstan. These four countries accounted for 99% of world asbestos production (table 8).

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The International Agency for Research on Cancer (IARC), issued an update of its monograph on carcinogenic risks to humans. The monograph provided background information on asbestos, modes of exposure to asbestos, and the results of health studies. The conclusions reached by IARC were the same as in previous IARC monographs with all forms of asbestos being considered Group I carcinogens (International Agency for Research on Cancer, 2012, p. 294).

Estimates of world consumption, by country, are presented in table 7. Consumption was calculated as production plus imports minus exports. Changes in stocks, which are not available, were not factored into the calculation. In 2011, China was the leading consumer of asbestos, followed by India, Russia, Brazil, Kazakhstan, Indonesia, Thailand, Sri Lanka, Vietnam, and Ukraine. These 10 countries accounted for 94% of global asbestos consumption (table 7). Data for 2012 were not available at the time of publication.

Outlook

U.S. consumption continues to decline as substitutes, alternative materials, and new technology slowly displace the last vestiges of the domestic asbestos market. The chloralkali industry is likely to remain the leading U.S. market in the future, with roofing products and other markets declining over time. World production remained at nearly 2 Mt as a result of continued demand for asbestos products in many regions of the world.

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TABLE 1
SALIENT ASBESTOS STATISTICS[1]

		2008	2009	2010	2011	2012
United States:						
Exports and reexports:						
Unmanufactured:						
Quantity[2]	metric tons	368	59	171	169	47
Value[3]	thousands	$345	$69	$121	$207	$69
Asbestos products, value[3]	do.	$33,200	$24,500	$27,000	$27,000	$26,400
Imports for consumption, unmanufactured:						
Quantity	metric tons	1,460	869	1,040	1,180	1,610
Value[4]	thousands	$1,090	$684	$821	$1,100	$2,520
Consumption, apparent[5]	metric tons	1,460	869	1,040	1,180	1,020 e
World production	do.	2,090,000 r	2,110,000 r	2,020,000 r	2,020,000 r	1,970,000

eEstimated. rRevised. do. Ditto.
[1]Data are rounded to no more than three significant digits.
[2]May include reexports and nonasbestos material.
[3]Free alongside ship value; includes exports of crudes, fibers, stucco, sand, and refuse.
[4]U.S. customs declared value.
[5]Consumption assumed to equal imports except in 2012, when an estimated 592 metric tons of imports was likely put into company stocks for future use.

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

(Metric tons)

	Chrysotile				
End use	Grade 4	Grade 5	Grade 7	Unspecified grade	Total
2011:[2]					
Coatings and compounds	--	--	19	--	19
Chloralkali industry	140	190	--	275 r	605 r
Plastics	--	--	5	--	5
Roofing products	--	--	486	--	486
Other	--	--	63	-- r	63 r
Total	140	190	573	275	1,180
2012:e					
Coatings and compounds	--	--	10	--	10
Chloralkali industry	194	486	--	--	680
Plastics	--	--	5	--	5
Roofing products	--	--	300	--	300
Other	--	--	--	20	20
Total	194	486	315	20	1,020 [3]

eEstimated. rRevised. -- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Enduse distribution based upon data provided by the Chrysotile Institute, Montreal, Quebec, Canada.
[3]Excludes 592 metric tons of imported chrysotile that went into company stocks, likely by the chloralkali producers, for future use.

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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)

	2011			2012		
Country	Unmanufactured fiber[4]	Manufactured products	Total	Unmanufactured fiber[4]	Manufactured products	Total
Australia	--	73	73	--	91	91
Brazil	--	17	17	--	35	35
Canada	--	1,820	1,820	--	2,120	2,120
China	--	644	644	--	295	295
France	--	734	734	--	88	88
Germany	--	368	368	--	203	203
Italy	--	317	317	--	25	25
Japan	--	211	211	--	510	510
Korea, Republic of	--	3,300	3,300	30	2,260	2,290
Mexico	104	2,450	2,550	31	4,350	4,390
Netherlands	--	15	15	--	35	35
United Kingdom	--	6,530	6,530	--	2,000	2,000
Venezuela	--	351	351	--	1,300	1,300
Other	103	10,200	10,300	8	13,100	13,100
Total	207	27,000	27,200	69	26,400	26,500

-- 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]

	2011		2012	
	Quantity (metric tons)	Value[2] (thousands)	Quantity (metric tons)	Value[2] (thousands)
Unmanufactured, asbestos[3]	169	$207	47	$69
Manufactured:				
Cement products[4]	NA	157	NA	133
Friction products[5]	NA	11,900	NA	7,810
Gaskets, packing and seals	NA	3,190	NA	3,400
Paper and millboard	NA	85	NA	253
Other articles[6]	NA	11,700	NA	14,800
Total	NA	27,000	NA	26,400

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 becaus 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		South Africa		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)
2011:								
Amosite[3]	40	$33	--	--	--	--	40	$33
Chrysotile:								
Crude	142	125	--	--	--	--	142	125
Milled, grade 4	49	60	263	$446	--	--	312	507
All other	613	408	--	--	--	--	613	408
Other, unspecified asbestos type	59	18	--	--	12	$6	71	24
Total	903	644	263	446	12	6	1,180	1,100
2012:								
Chrysotile:								
Milled, grade 4	--	--	384	670	--	--	384	670
All other	--	--	1,220	1,850	--	--	1,220	1,850
Total	--	--	1,610	2,520	--	--	1,610	2,520

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]U.S. customs declared value.
[3]All imported from Canada; likely chrysotile misclassified as amosite.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF PRODUCTS WITH BASIS OF ASBESTOS IN 2012

HTS[1] code	Category	Quantity (metric tons)	Value[2]	Major sources[3]	Percentage of category total[4]
2524.90.00.00	Asbestos	1,610	$2,520,000	Brazil	100% of weight.
6811.40.00.00	Asbestos-cement products	1,090	549,000	Canada	99% of weight.
6812.80.90.00	Other, fabricated asbestos fibers, crocidolite	(5)	7,140	United Kingdom[6]	100% of weight.
6812.91.90.00	Other, fabricated asbestos fibers; clothing[7]	5	71,000	Austria[6]	99% of weight.
6812.92.00.00	Paper, millboard, and felt	NA	13,700	Switzerland[6], China, Japan[6]	100% of weight.
6812.93.00.00	Compressed asbestos fiber jointing[7]	NA	361,000	Mexico	91% of value.
6812.99.00.01	Other, miscellaneous[7]	3	8,460	China	100% of weight.
6812.99.00.02	Yarn and thread[7]	138	1,080,000	Mexico	99% of weight.
6812.99.00.03	Cord and string[7]	4	30,100	Italy[6]	84% of weight.
6812.99.00.20	Gaskets, packing, and seals[7]	8	149,000	China, Japan[6]	89% of weight.
6812.99.00.25	Building materials[7]	NA	26,900	India, Germany[6], Canada, Hungary[6]	100% of weight.
6812.99.00.55	Other, fabricated asbestos fiber[7]	NA	177,000	Peru, China	67% of value.
6813.20.00.10	Brake lining and pads, civil aircraft	NA	297,000	Brazil	59% of value.
6813.20.00.15	Brake lining and pads, other	NA	2,160,000	China, Canada, Germany[6]	72% of value.
6813.20.00.20	Articles for use in civil aircraft	NA	24,600	United Kingdom[6]	58% of value.
6813.20.00.25	Other, friction materials	NA	1,140,000	Canada, China	83% of value.

NA Not available.
[1]Harmonized Tariff Schedule of the United States.
[2]U.S. Customs declared value.
[3]Countries are listed in decreasing order of value or quantity.
[4]Percentage contribution of total imports by major import sources, by weight or value.
[5]Less than ½ unit.
[6]Material likely misclassified as asbestos or transshipment.
[7]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
ESTIMATED ASBESTOS CONSUMPTION, BY COUNTRY, 2008–11[1, 2]

(Metric tons)

Region	2008	2009	2010	2011
Africa:				
Angola	605	1,660	1,660	1,320
Ghana	307	200	1,670	1,380
Nigeria	2,370	1,650	1,820	2,150
South Africa	695	130	-11	4,210
Zimbabwe	5,000	56	9,890	3,990
Other[3]	4,050	3,330	1,630	1,490
Total	13,000	7,010	16,800	14,500
Asia and the Middle East:				
Bangladesh	2,400	1,990	2,020	4,370
China	665,000	565,000	614,000	638,000
India	349,000	341,000	426,000	322,000
Indonesia	78,000	82,300	112,000	124,000
Iran	36,400	22,500	35,100	6,740
Kazakhstan	186,000	40,200	-1,370	155,000
Kyrgyzstan	3,130	7,320	6,810	8,220
Malaysia	13,600	8,630	11,500	6,760
North Korea	2,160	1,550	1,140	1,690
Pakistan	9,200	12,600	13,300	9,390
Philippines	2,900	2,880	3,960	3,250
Russia	360,000	277,000	263,000	251,000
Sri Lanka	58,100	16,000	47,900	61,100
Thailand	69,300	103,000	79,300	81,400
Turkmenistan	4,430	4,140	3,200	5,240
Uzbekistan	17,800	98,600	98,600	17,100
Vietnam	50,000	80,900	67,400	60,400
Other[3]	32,500	27,500	-4,630	842
Total	1,940,000	1,690,000	1,780,000	1,760,000
Central America and North America:				
Cuba	5,480	8,180	7,720	5,860
Mexico	15,400	17,100	13,800	10,200
Other[3]	-11,800	-649	-34,300	-22,300
Total	9,010	24,700	-12,800	-6,300
Europe:				
Belarus	27,300	29,300	26,700	25,100
Ukraine	64,300	63,600	60,300	55,900
Other[3]	24,500	30,900	23,600	25,500
Total	88,800	94,500	83,900	81,400
Oceania	--	--	20	45
South America:				
Bolivia	3,530	3,810	3,750	5,590
Brazil	131,000	140,000	171,000	185,000
Colombia	7,300	8,550	12,300	20,000
Ecuador	6,640	4,510	4,720	6,150
Other[3]	3,170	1,750	1,890	1,670
Total	152,000	159,000	194,000	219,000
Other areas (nonspecified)	-588	-588	2,000	2,000
Grand total	2,200,000	1,980,000	2,060,000	2,070,000

-- Zero.

[1]Calculated as country production plus imports minus exports. Production data were from table 8 and trade data were from the United Nations Commodity Trade database.

[2]Negative values are net exports.

[3]Includes countries with apparent consumption less than 1,000 metric tons or with net exports.

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TABLE 8

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

(Metric tons)

Country[3]	2008	2009	2010	2011	2012
Argentina	298	322 r	341 r	105 r	100 e
Brazil	287,673	288,452	302,257	306,321 r	306,500 p
Canada[e]	160,000	150,000	100,000	50,000	--
China[e]	380,000	440,000	400,000	440,000	420,000
India	304 r	261 r	254 r	250 r, e	245 e
Kazakhstan	230,100	230,000 e	214,100	223,100	241,200
Russia[e]	1,017,000 [4]	1,000,000	1,000,000	1,000,000	1,000,000
Zimbabwe	11,489	4,971	2,400 e	-- e	-- e
Total	2,090,000 r	2,110,000 r	2,020,000 r	2,020,000 r	1,970,000

[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 July 1, 2013.

[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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