



2011 Minerals Yearbook

TALC AND PYROPHYLLITE [ADVANCE RELEASE]

TALC AND PYROPHYLLITE

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In 2011, talc production increased to 616,000 metric tons (t) valued at \$21.8 million from 604,000 t valued at \$19.1 million in 2010. The quantity of talc sold remained unchanged at 567,000 t but the value increased to \$87.7 million from \$84.9 million in 2010. U.S. apparent consumption of talc increased by 8% to 653,000 t in 2011 from 606,000 t in 2010. Exports of talc decreased by 3% to 233,000 t valued at \$47.2 million in 2011 from 240,000 t valued at \$54.3 million in 2010. Imports increased 12% to 270,000 t valued at \$70.3 million in 2011 from 242,000 t valued at \$67.1 million in 2010. U.S. production and sales of pyrophyllite decreased slightly in 2011 (data are withheld to avoid disclosing proprietary information).

This was a year of transition for the talc industry with more than 35% of world production capacity changing ownership, following the sale of the two leading global talc producers—Luzenac Group and Mondo Minerals Holding B.V. World production of talc and pyrophyllite increased by 5% to 7.69 million metric tons (Mt) in 2011 from 7.34 Mt in 2010.

Legislation and Government Programs

In 2011, the U.S. Department of Defense authorized the disposal of 865 t of block and lump talc and 621 t of ground talc, the entire uncommitted inventory of the National Defense Stockpile (NDS). There were no sales from the NDS in 2011.

Production

Talc.—Domestic production data were obtained through a voluntary survey of U.S. mining companies conducted by the U.S. Geological Survey (USGS). Survey forms were sent to five talc companies and responses were received from four. Responses accounted for 85% of the production data presented in table 1. Data for the nonrespondent were estimated from reported prior-year data adjusted according to trends in production for reporting talc producers and consuming industries and Mine Safety and Health Administration (MSHA) employment data.

In 2011, four companies operating six mines in four States mined talc. All were open pit mining operations. The producers were, in decreasing order of production, Imerys Talc America (formerly Luzenac America, Inc.) in Montana and Vermont, Specialty Minerals Inc. (a subsidiary of Minerals Technologies Inc.) in Montana, American Talc Co. in Texas, and Alberene Soapstone Co. in Virginia. CAL-TALC, Inc. in California worked from stockpiles in 2011. The three leading domestic producers collectively accounted for nearly all of the U.S. tonnage mined.

U.S. mine production increased slightly to 616,000 t valued at \$21.8 million compared with 604,000 t valued at \$19.1 million in 2010 (table 1). Production increased in Montana and Virginia

and decreased slightly in Texas and Vermont. Montana led all States in the tonnage of talc produced, followed by Texas, Vermont, and Virginia.

Rio Tinto plc sold its talc division, Luzenac Group, to Imerys, a French investment group, for \$340 million. The sale included Luzenac America, with mines and mills in Montana, Texas, and Vermont, as well as other talc mining and milling operations in Australia, Asia, and Europe. Luzenac Group was the world's leading talc producer, accounting for about 20% of global talc production; it had annual sales value of \$395 million (Watts, 2011; Imerys, 2012, p. 26).

Pyrophyllite.—Domestic production data of pyrophyllite (a hydrous aluminum silicate with a structure similar to talc) were acquired through a voluntary USGS survey of the two U.S. companies. One company responded to the survey. Data for the nonrespondent were estimated from reported prior-year data adjusted according to consuming industry trends and MSHA employment data.

Standard Mineral Co., the leading U.S. pyrophyllite producer, operated two mines in North Carolina. Standard Industrial Minerals, Inc. had one mine in California but operated from stocks in 2011. Piedmont Minerals (a division of Resco Products Inc.) mined and sold products containing andalusite with minor amounts of pyrophyllite and sericite. The company did not sell a separate pyrophyllite product in 2011. U.S. pyrophyllite production decreased slightly in 2011. Domestic data were withheld to avoid revealing company proprietary data.

Consumption

Domestic consumption data for talc and pyrophyllite were developed by the USGS from a voluntary survey of U.S. mills. Survey forms were sent to six companies operating nine mills in five States for talc and two companies operating two mills in two States for pyrophyllite. Responses from four companies accounted for 88% of the talc data presented in table 2. The remaining data were estimated from preliminary data based on reported prior-year data adjusted according to trends in production for reporting talc producers and consuming industries and MSHA employment data.

Talc.—Sales and use remained unchanged at 567,000 t of talc valued at \$87.7 million in 2011, compared with 567,000 t valued at \$84.9 million in 2010 (table 1). U.S. producers reported that talc sold for domestic use increased slightly to 461,000 t in 2011 from 454,000 t in 2010. Ceramics (mainly ceramic tiles) was the leading market, followed by paper, paint, other and (or) unknown uses, roofing, plastics, cosmetics, and rubber, in decreasing order of tonnage (table 2). Sales to all markets, except paper, increased slightly.

Specialty Minerals reported that revenue from talc sales increased by 7% to \$46.9 million in 2011 from \$44 million in

2010. Sales tonnages also increased by 7% as a result of slight improvements in residential and commercial construction and moderate increases in automotive manufacturing (Minerals Technologies Inc., 2012, p. 20–21).

Sales of talc to manufacturers of ceramics (mainly tile), paint, and roofing were tied to commercial and home construction and renovation. Construction starts for new privately owned housing increased to 609,000 units in 2011 from 586,000 units in 2010, but the value of all construction (residential and commercial) decreased to \$790 billion in 2011 from \$804 billion in 2010 (U.S. Census Bureau, 2011; undated).

The U.S. International Trade Commission (undated) reported that imports of ceramic tile under Harmonized Tariff Schedule of the United States (HTS) codes 6907.10.00, 6908.10.10, 6908.10.20, and 6908.10.50 increased in quantity to 7.80 million square meters valued at \$71.5 million in 2011 from 7.10 million square meters valued at \$68.4 million in 2010. Ceramic tile is a major market for talc, and U.S. producers sell their talc to domestic tile manufacturers, whose tile competes with imported ceramic tile.

Most of the 270,000 t of imported talc listed in table 4 was not included in the domestic end-use data in table 2. An estimated end-use breakdown of sales of imports in 2011 is plastics, 145,000 t; cosmetics, 30,000 t; paint, 28,000 t; ceramics and refractory products, 15,000 t; paper, 13,000 t; rubber, 10,000 t; and other (unspecified or unknown), 29,000 t. Combining domestic sales by U.S. producers (table 2) with sales of imported talc, markets in the United States were, in decreasing order of consumption, plastics, ceramics, paint, paper, cosmetics, roofing, and rubber.

Pyrophyllite.—In 2011, domestic consumption of pyrophyllite remained unchanged from that of 2010; data are withheld to avoid disclosing company proprietary data. Pyrophyllite was used in refractory products, paint, ceramics, and unspecified applications, in decreasing order of consumption. Refractory uses accounted for more than 50% of domestic pyrophyllite sales.

Prices

In 2011, the unit value of crude talc was estimated to be \$35 per metric ton compared with \$32 per ton in 2010. Nearly all talc sold in the United States was sold only after crushing and grinding. Following sorting to remove waste, primary crushing, and screening, the unit value of the unmilled talc would likely range from \$50 to \$60 per ton. The average reported unit value of processed talc was \$155 per ton in 2011, a 3% increase from the unit value of \$150 per ton in 2010. The unit values of crude and processed pyrophyllite were essentially unchanged in 2010.

The average free alongside ship unit value of all exports decreased to \$202 per ton in 2011 from \$226 per ton in 2010. The unit value for milled talc [Harmonized Tariff Schedule (HTS) code 2526.20.00] exports decreased to \$196 per ton in 2011 from \$210 per ton in 2010. Unit values ranged from \$48 per ton to \$3,600 per ton. The average free alongside ship unit value for exports of unmilled talc (HTS code 2526.10.00) decreased to \$420 per ton in 2011 from \$465 per ton in 2010. Unit values ranged from \$157 per ton to \$5,742 per ton. In general, larger unit values for the unmilled and mill talc exports

always were associated with low tonnage exports. The average unit value of unmilled talc was greater than that of milled talc because of a large number of high-value, low-tonnage exports relative to the total export tonnage of unmilled talc.

The average Customs unit value for all talc imports was \$260 per ton in 2011 compared with \$278 per ton in 2010. The average unit value for imports of unground talc (HTS code 2526.10.00.00) was \$207 per ton in 2011, a slight increase from \$206 per ton in 2010. The average customs value for ground talc (HTS code 2526.20.00) was \$199 per ton in 2011, a decrease from \$235 per ton in 2010. The decrease in unit value took place because there were more import shipments of low-tonnage, high-value talc in 2010 than in 2011. The average customs value for cut or sawed talc (HTS code 6815.99.20.00) was \$1,070 per ton, an increase from \$975 per ton in 2010.

Foreign Trade

Detailed talc trade statistics, by country and U.S. port districts, are available from the U.S. International Trade Commission on its Interactive Tariff and Trade Dataweb Website (U.S. International Trade Commission, undated). U.S. talc exports decreased slightly in tonnage to 233,000 t valued at \$47.2 million in 2011 from 240,000 t valued at \$54.3 million in 2010. By tonnage, Mexico was the leading destination for talc from the United States with 39% of the tonnage, followed by Canada with 26% (table 3). The remainder was exported to 55 other countries. About 97% of talc exports were milled. Mexico (39%) and Canada (26%) were the leading destinations for milled talc. Mexico (33%), Canada (28%), China (15%), Japan (11%), and Belgium (10%) were the leading destinations for unmilled talc.

U.S. talc imports increased to 270,000 t valued at \$70.3 million in 2011 from 242,000 t valued at \$67.1 million in 2010. By tonnage, China was the leading source for imported talc, accounting for 46% of the tonnage, followed by Canada with 28% of the tonnage (table 4). The remainder was imported from 33 other countries. Much of the imported tonnage from Japan was likely to have been pyrophyllite rather than talc. China was the source of 80% of the unmilled talc imports in 2011. Canada and China accounted for 31% and 41%, respectively, of milled talc imports. Canada accounted for 74% of cut or sawed talc imports.

World Review

World production of talc and pyrophyllite was estimated to be 7.69 Mt in 2011, a 5% increase from 7.34 Mt in 2010. China accounted for 57% and Canada accounted for 15% of the 348,000-t increase in world talc and pyrophyllite production. China was the world's leading producer of talc, followed by, in decreasing order of quantity, the United States, India, Finland, and France (crude). The Republic of Korea was the leading producer of pyrophyllite, followed by Japan, Brazil, and South Africa. Brazil, China, Finland, France, India, Japan, the Republic of Korea, and the United States together produced 80% of the world's talc and pyrophyllite (table 5).

Advent International Corp. acquired Mondo Minerals, the second leading global talc producer with about 13% of global

talc production, from HgCapital Trust plc. Mondo Minerals had talc mines in Finland and mills in Finland and the Netherlands. Mondo Minerals mined talc for such markets as ceramics, food, paint, paper, personal care products, and plastics. Production was about 800,000 metric tons per year of talc (Advent International Corp., 2011; Feytis, 2011).

Outlook

In 2011, the 2008–09 worldwide recession continued to affect production trends in the talc industry. Global economic growth was 3.9% in 2011, with the strongest growth, 6.2%, in developing and emerging countries. U.S. economic growth was predicted to increase to 2.1% in 2012 from 1.7% in 2011, while global economic growth was predicted to decline slightly to 3.5% (International Monetary Fund, 2012, p. 2). This positive economic growth suggests that markets for talc and pyrophyllite may improve slightly in 2012 compared with those of 2011.

The U.S. gross domestic product increased by 1.7% in 2011 (U.S. Department of Commerce, undated). U.S. industrial production increased 4.7% from May 2011 to May 2012 (Board of Governors of the Federal Reserve System, 2012). The value of manufacturers' shipments increased by 23.1% for automobiles; 34.2% for heavy-duty vehicles; 12.9% for paints, coatings, and adhesives; 10.8% for light trucks and utility vehicles; and 8.2% for plastics and rubber products, comparing statistics for January through April 2012 to the same period in 2011 (U.S. Census Bureau, 2012). This suggests that sales of talc used in catalytic converter bodies (ceramics), automotive and truck body and underhood components (plastics), paint and coatings (fillers and extenders), and plastics and rubber (fillers and extenders in plastic products, tires, and other rubber components) may increase in 2012 compared with those of 2011. The slow growth in commercial and residential construction markets in the United States are likely to result in only slightly increased sales of talc into such markets as adhesives, caulks, ceramics (particularly ceramic tile), joint compounds, architectural paint, and roofing in 2012. Sales of pyrophyllite may increase slightly in 2012 as the economy recovers.

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TABLE 1
SALIENT TALC AND PYROPHYLLITE STATISTICS¹

(Thousand metric tons and thousand dollars)

	2007	2008	2009	2010	2011
United States:					
Mine production, crude:					
Quantity:					
Talc	769	706	511	604	616
Pyrophyllite	W	W	W	W	W
Value:					
Talc	24,400	21,800	14,600	19,100	21,800
Pyrophyllite	W	W	W	W	W
Sold by producers, crude and processed:					
Quantity:					
Talc	720	667	512	567	567
Pyrophyllite	W	W	W	W	W
Value:					
Talc	82,000	83,300	57,200	84,900	87,700
Pyrophyllite	W	W	W	W	W
Exports, talc: ²					
Quantity	271	244	188	240 ^r	233
Value	50,600	46,000	37,600	54,300 ^r	47,200
Imports for consumption, talc:					
Quantity	221	193	134	242	270
Value	64,100	56,400	47,900	67,100	70,300
Apparent consumption ³	719	655	457	606 ^r	653
World, production	7,730	7,680 ^r	7,350 ^r	7,340 ^r	7,690 ^e

^eEstimated. ^rRevised. W Withheld to avoid disclosing company proprietary data.

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

²Excludes powder—talcum (in package), face, and compact.

³Production plus imports minus exports plus adjustments in Government and industry stocks.

TABLE 2
END USES FOR TALC PRODUCED IN THE UNITED STATES¹

(Thousand metric tons)

	2010	2011
Ceramics ²	111	118
Cosmetics	16	17
Paint	88	92
Paper	101	92
Plastics	40	40
Roofing	41	41
Rubber	11	13
Other ³	47	48
Total	454	461

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

²Includes tile.

³Includes art sculpture, construction caulks, insecticides, joint compound, and other uses not specified.

TABLE 3
U.S. EXPORTS OF TALC^{1,2}

(Thousand metric tons and thousand dollars)

Country	2010		2011	
	Quantity	Value ³	Quantity	Value ³
Belgium	9 ^r	2,370 ^r	2	842
Brazil	6	1,870	8	1,770
Canada ⁴	55 ^r	10,900 ^r	61	12,500
China	16	6,760	7	2,420
Chile	8	3,090	7	3,270
France	2	356	3	512
Japan	5	1,180 ^r	4	1,250
Mexico	80 ^r	8,270 ^r	90	9,240
Singapore	11	3,820 ^r	9	2,910
Other ⁵	48 ^r	15,700 ^r	41	12,500
Total	240 ^r	54,300 ^r	233	47,200

^rRevised.

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

²Excludes powders—talcum (in package), face, and compact.

³Free alongside ship.

⁴Probably includes shipments in transit through Canadian ports.

⁵Includes 53 countries in 2010 and 54 countries in 2011.

Source: U.S. Census Bureau; data adjusted by the U.S. Geological Survey.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF TALC, BY COUNTRY¹

Country	Not crushed or powdered		Crushed or powdered		Cut and sawed		Total unmanufactured	
	Quantity (metric tons)	Value ² (thousands)						
2010:								
Brazil	31	\$41	147	\$35	973	\$1,210	1,150	\$1,280
Canada	14	19	76,600	19,300	15,100	13,400	91,700	32,700
China	77,900	15,500	26,400	3,630	833	935	105,000	20,100
France	--	--	1,910	726	--	--	1,910	726
Japan	--	--	3,000	1,460	40	106	3,040	1,570
Other ³	6,010	1,670	32,200	7,780	425	1,290	38,600	10,700
Total	84,000	17,300	140,000	32,900	17,400	16,900	242,000	67,100
2011:								
Brazil	--	--	211	61	1,570	1,910	1,780	1,970
Canada	17	24	61,100	21,300	15,500	14,500	76,700	35,800
China	42,800	8,820	80,500	13,000	716	954	124,000	22,700
France	--	--	2,660	445	--	--	2,660	445
Japan	--	--	5,180	2,080	45	194	5,230	2,280
Other ³	10,900	2,300	48,400	2,590	655	2,140	60,000	7,030
Total	53,700	11,100	198,000	39,400	18,500	19,700	270,000	70,300

-- Zero.

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

²U.S. Customs declared value.

³Includes 29 countries in 2010 and 33 countries in 2011.

Source: U.S. Census Bureau.

TABLE 5
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	2007	2008	2009	2010	2011 ^c
Argentina, talc and related materials	24,836	22,218	22,762 ^r	24,820 ^r	25,000
Australia: ^{c,4}					
Pyrophyllite	1,200	1,200	1,200	1,200	1,200
Talc	120,000	120,000	120,000	120,000	120,000
Austria, soapstone and talc, crude	153,409	154,577	111,388	138,367 ^r	140,000
Bhutan, talc	62,015	56,077	64,381 ^r	26,302 ^r	30,000
Brazil, talc and pyrophyllite	401,204	513,433 ^r	577,935 ^r	655,436 ^r	656,000
Canada, pyrophyllite, soapstone, talc	79,000	70,000 ^e	44,000	96,000	147,000 ^p
Chile, talc	2,104	2,108	1,202	1,364 ^r	1,500
China, unspecified ^c	2,000,000	2,200,000	2,300,000	2,000,000	2,200,000
Egypt, pyrophyllite, soapstone, steatite, talc	67,000	69,000	44,000 ^{r,e}	80,000 ^{r,e}	90,000
Finland, talc ^e	550,000	550,000	500,000	500,000	500,000
France, talc, crude ^c	420,000	420,000	420,000	420,000	420,000
Guatemala, talc	1,291	1,030	6,355	2,175 ^r	3,000
Hungary, talc ^e	500	500	500	500	500
India: ^c					
Pyrophyllite	87,000	87,000	88,000	90,000 ^r	90,000
Steatite	555,000	560,000	550,000	550,000	560,000
Iran, talc ^{e,5}	90,889 ⁶	89,110 ^{r,6}	66,383 ^{r,6}	80,000 ^r	90,000
Italy, steatite and talc ^c	140,000	140,000	140,000	140,000	140,000
Japan: ^c					
Pyrophyllite	345,000	350,000	340,000	340,000	350,000
Talc	26,000	26,000	25,000	24,000	24,000
Korea, North, unspecified ^c	50,000	50,000	50,000	50,000	50,000
Korea, Republic of:					
Pyrophyllite	798,054	892,625	617,411	673,936 ^r	700,000
Talc	9,557	6,438	5,996	5,729 ^r	6,000
Macedonia, talc	1,775	977	--	--	--
Mexico, talc	9,800 ^e	17,577	33,421	870 ^r	800
Morocco ^c	2,000	2,000	2,000	2,000	2,000
Nepal, talc ⁷	9,043	7,996 ^r	6,601 ^r	9,000 ^e	7,500
Norway, soapstone, steatite, talc ^c	28,000	28,000	28,000	26,000	25,000
Pakistan, pyrophyllite	32,675	26,000 ^r	34,000 ^r	35,000 ^r	36,000
Paraguay, pyrophyllite, soapstone, talc ^c	200	200	200	200	200
Peru:					
Pyrophyllite	-- ^r	-- ^r	-- ^r	-- ^r	--
Talc	23,096 ^r	17,984	13,359 ^r	13,296 ^r	17,792 ⁶
Portugal, talc	12,367	11,220 ^r	11,567 ^r	11,951 ^r	12,000
Romania, talc ^c	1,513 ⁶	1,700	500	1,000	1,000
Russia, talc ^c	170,000	160,000	160,000	160,000	160,000
South Africa:					
Pyrophyllite	123,573	80,704	114,889	122,511	130,000
Talc	14,281	5,145	4,718	3,150	4,400
Spain, steatite and talc ^c	100,000	100,000	100,000	100,000	100,000
Sweden, soapstone and talc ^c	14,000	14,000	14,000	14,000	14,000
Thailand:					
Pyrophyllite	415,420	106,600	200,000	200,000	200,000
Talc	3,508	3,264	3,000 ^e	3,000	3,000
Turkey, talc and pyrophyllite	12,722	3,364	6,887	8,000	8,000
United Kingdom, pyrophyllite, soapstone, talc ^c	6,000	6,000	6,000	6,000	6,000

See footnotes at end of table.

TABLE 5—Continued
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	2007	2008	2009	2010	2011 ^e
United States:					
Pyrophyllite	W	W	W	W	W
Talc	769,000	706,000	511,000	604,000	616,000 ⁵
Uruguay, pyrophyllite, soapstone, talc ^c	1,150	1,150	1,150	1,150	1,150
Zimbabwe, talc ^c	200	200	200	-- ^r	--
Grand total	7,730,000	7,680,000 ^r	7,350,000 ^r	7,340,000 ^r	7,690,000
Of which:					
Pyrophyllite	1,800,000 ^r	1,540,000 ^r	1,400,000 ^r	1,460,000 ^r	1,510,000
Steatite	555,000	560,000	550,000	550,000	560,000
Talc	2,300,000 ^r	2,200,000	1,950,000 ^r	1,990,000 ^r	2,020,000
Unspecified	3,080,000	3,370,000 ^r	3,450,000 ^r	3,340,000 ^r	3,600,000

^eEstimated. ^pPreliminary. ^rRevised. W Withheld to avoid disclosing company proprietary data; not included in "Total." -- Zero.

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

²Table includes data available through April 27, 2012.

³In addition to the countries listed, Nigeria may produce talc, but information is inadequate to estimate output.

⁴Data based on fiscal year ending June 30 of year stated.

⁵Data based on fiscal year beginning March 21 of year stated.

⁶Reported figure.

⁷Data based on fiscal year beginning mid-July of year stated.