



2007 Minerals Yearbook

TALC AND PYROPHYLLITE

TALC AND PYROPHYLLITE

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In 2007, production and sales of talc decreased to 769,000 metric tons (t) and 720,000 t, respectively (table 1). U.S. apparent consumption decreased to 807,000 t in 2007. The decline in the housing market, upon which many talc-based products are dependent, probably was the leading factor in the decline in sales and consumption of talc in the United States. Exports of talc increased to 183,000 t and imports decreased to 221,000 t in 2007. The devalued U.S. dollar probably contributed to the change in the U.S. talc trade in 2007. U.S. production and sales of pyrophyllite decreased slightly in 2007. World production of talc and pyrophyllite declined to 7.62 million metric tons (Mt) in 2007.

Legislation and Government Programs

In 2007, the U.S. Department of Defense authorized the disposal of 867 t of block and lump talc and 1,050 t of ground talc, which was the entire uncommitted inventory, from the National Defense Stockpile (NDS). There were no sales, however, from the NDS in 2007.

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 10 companies that mined talc and responses were received from 7 companies. Responses accounted for approximately 95% of the production data presented in table 1. Data for nonrespondents were estimated from preliminary reported data based on 9 months of production in 2007, reported prior-year data adjusted according to employment and consuming industry trends, and data obtained from associated milling operations.

In 2007, five companies operating nine mines in six States mined soapstone (an impure massive variety of talc), steatite (a massive talc ore rock), and talc. All were open pit mining operations. The producers were, in decreasing order of production, Luzenac America Inc., American Talc Co., Barretts Minerals Inc. (a subsidiary of Minerals Technologies Inc.), Gouverneur Talc Co., and Protech Minerals Inc. CalTalc Co. and New World Stone Co. worked from stockpiles in 2007. One producer in Oregon ceased operations. The four leading domestic producers collectively accounted for more than 90% of the U.S. tonnage mined.

In 2007, U.S. mine production decreased to 769,000 t valued at \$24.4 million compared with 895,000 t valued at \$27.4 million in 2006 (table 1). Production increased in Montana and decreased in California, New York, Oregon, Texas, Vermont, and Virginia. Texas and Vermont accounted for the bulk of the decline in U.S. production. Montana led all States in the tonnage

of talc produced, followed by Texas, Vermont, New York, and California.

The talc industry in Texas underwent further consolidation with American Talc's purchase of the talc mill and customer base of Milwhite Inc. The mill had a capacity of 25,000 metric tons per year (t/yr). The purchase of the Milwhite mill in 2007 and the talc assets of Zemex Minerals Group Inc. in 2006 allowed American Talc to diversify its markets beyond ceramics into such markets as agriculture, paint, plastics, putties, and roofing (Industrial Minerals, 2007a, 2008). With the purchase of Milwhite, American Talc became the sole producer of talc in Texas.

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 that mined pyrophyllite. One company responded to the survey. Data for the other company was estimated from preliminary reported data based on 9 months of production in 2007. Data are withheld to avoid disclosing company proprietary data.

Piedmont Minerals Co. Inc. and Standard Mineral Co. Inc. operated three mines in North Carolina. Production of pyrophyllite decreased slightly from that of 2006.

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 9 companies operating 11 mills in 6 States for talc and 2 companies operating 2 mills in 1 State for pyrophyllite. Responses from eight companies accounted for more than 90% of the talc data presented in table 2. The remaining data were estimated from preliminary reported data based on 9 months of production in 2007 and reported prior-year data adjusted according to employment and consuming industry trends. One pyrophyllite producer responded and data for the other were estimated.

Talc.—Sales and use were 720,000 t of talc valued at \$82.0 million in 2007, a decrease from 900,000 t valued at \$81.3 million in 2006 (table 1). Domestic sales of talc by U.S. producers decreased to 681,000 t in 2007 from 760,000 t in 2006. Talc was sold by U.S. producers for ceramics (mainly ceramic tiles), paper, paint, other (unspecified) applications, roofing, plastics, rubber, and cosmetics, in decreasing order of consumption (table 2). The quantity for ceramics given in table 2 probably includes 70,000 to 90,000 t of talc sold into ceramics markets in Mexico. Sales for paper and rubber applications increased in 2007. Sales in other markets declined.

The decline in the housing market, upon which many talc-based products are dependent, probably was the leading factor

in the decline of talc sales in 2007. Some losses in sales also were attributed to a decline in the automotive industry (Minerals Technologies, Inc., 2008, p. 18).

Minerals Technologies, the parent company of Barretts Minerals, announced that it would sell its grinding mills in Mt. Vernon, IN, and Wellsville, OH. Mineral Technologies acquired the plants from Polar Minerals Inc. in 2002 primarily to process talc imported from China. Minerals Technologies decided to sell its talc processing plants to focus on its core competencies (Industrial Minerals, 2007b; Minerals Technologies Inc., 2007).

Sales of talc to manufacturers of ceramics, paint, roofing, and tile generally were tied to the housing industry. Construction starts for new privately owned housing decreased to 1.35 million units in 2007 from 1.80 million units in 2006 (U.S. Census Bureau, 2008b). The value of all construction (residential and commercial) decreased to \$1.16 trillion in 2007 from \$1.19 trillion in 2006 (U.S. Census Bureau, 2008a).

Shipments of architectural paint (the major paint market for talc) decreased to 2.63 billion liters (696 million gallons) in 2007 from 2.84 billion liters (749 million gallons) in 2006 (U.S. Census Bureau, 2008c). The U.S. International Trade Commission (2008) reported that imports of ceramic tile under Harmonized Tariff Schedule of the United States codes 6907.10.00, 6908.10.10, 6908.10.20, and 6908.10.50 decreased in quantity to 19.9 million square meters valued at \$154 million in 2007 from 30.9 million square meters valued at \$227 million in 2006.

Most of the 221,000 t of imported talc listed in table 5 was not included in the domestic end-use data listed in table 2. An estimated end-use breakdown of sales of imports in 2007 is plastics, 140,000 t; cosmetics, 30,000 t; paint, 20,000 t; ceramics and refractory products, 10,000 t; paper and rubber, 5,000 t each, and other (unspecified), 11,000 t.

Combining domestic sales by U.S. producers with import sales, overall markets in the United States were, in decreasing order of consumption, plastics, paint, paper, ceramics, other (unspecified), roofing, cosmetics, and rubber.

Pyrophyllite.—In 2007, domestic consumption of pyrophyllite decreased slightly from that of 2006; data are withheld to avoid disclosing company proprietary data. Pyrophyllite was used in refractory products, ceramics, paint, and unspecified applications, in decreasing order of consumption. Ceramic and refractory uses accounted for more than 50% of domestic pyrophyllite sales. The largest decline was in sales for refractory products.

Prices

In 2007, the unit value of crude talc was estimated to be \$32 per metric ton, which was slightly greater than that in 2006. Most of the 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 probably would be in the range of \$50 to \$60 per ton at the mill. The average reported unit value of processed talc was \$114 per ton in 2007, an increase from the unit value of \$90 per ton in 2006. One producer appeared to have inaccurately reported the value of its talc sales in 2006 and, consequently, the unit value

of processed talc likely increased by about 6% in 2007 rather than by 27%. The average unit values of crude and processed pyrophyllite were essentially unchanged from those of 2006.

The average free alongside ship unit value for exports of unmilled talc [Harmonized Tariff Schedule (HTS) code 2526.10.00.00] increased to \$677 per ton in 2007 from \$213 per ton in 2006. The high unit value resulted from the inclusion of high-value, low-tonnage specialty shipments under this export code. The unit value for milled talc (HTS code 2526.20.00.00) exports decreased to \$227 per ton in 2007 from \$239 per ton in 2006. The unit value of all exports decreased to \$255 per ton in 2007 from \$258 per ton in 2006 (table 4).

The average customs unit value for imports of unground talc (HTS code 2526.10.00.00) was \$187 per ton in 2007, an increase from \$162 per ton in 2006. The average customs value for ground talc was \$264 per ton in 2007, an increase from \$151 per ton in 2006. The average customs value for cut or sawed talc (HTS code 6815.99.20.00) was \$953 per ton, an increase from \$933 per ton in 2006. The unit value for all talc imports was \$290 per ton in 2007 compared with \$213 per ton in 2006 (table 5).

Published prices for talc ranged from \$92 to \$489 per ton (table 3). Prices for pyrophyllite from the Republic of Korea, free on board, were \$110 to \$115 per ton for filler grade, \$59 to \$65 per ton for fiberglass and refractory manufacturing, and \$27 to \$44 per ton for ceramic grade. The price for filler grades from Australia was \$342 per ton (Industrial Minerals, 2007d). Quoted prices should be used only as a guideline because actual prices depend on the terms of the contract between seller and buyer.

Foreign Trade

The following section summarizes significant trade statistics on talc. Detailed 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, 2008).

Talc exports increased in tonnage to 183,000 t valued at \$46.7 million in 2007 from 163,000 t valued at \$42.1 million in 2006. Canada was the leading importer of talc from the United States, followed by Mexico and Singapore (table 4). More than 99% of talc exports was milled. Much of the talc exported to Mexico was not reported by the U.S. Census Bureau. Talc exports to Mexico in 2007 probably were 80,000 to 90,000 t (United Nations, 2008).

Talc imports reported by the U.S. Census Bureau decreased in tonnage to 221,000 t valued at \$64.1 million in 2007 from 314,000 t valued at \$66.7 million in 2006. Much of this large decrease resulted from a combination of a slower U.S. economy, drawdown from supplier stocks, and the decreased value of the U.S. dollar relative to other currencies. China was the leading source for imported talc, followed by Canada (table 5). Imports from Japan were likely pyrophyllite rather than talc.

World Review

World production of talc and pyrophyllite was estimated to be 7.62 Mt in 2007, a decrease from the 7.75 Mt produced in 2006.

China was the world's leading producer of talc, followed by the United States, India, Finland, and France (crude). The Republic of Korea was the leading producer of pyrophyllite, followed by Japan and Brazil. Brazil, China, Finland, France, India, Japan, the Republic of Korea, and the United States together produced 81% of the world's talc and pyrophyllite (table 6).

Finland.—In September, HgCapital Trust plc, a European investment group, purchased Mondo Minerals Oy (a subsidiary of Omya AG). Mondo Minerals was formed through a merger of Dutch, Finnish, and Norwegian talc producers in 1998. It was the second ranked world talc producer with a total mill capacity of 760,000 t/yr. Mondo Minerals sells talc in Europe for adhesive, paper, plastics, rubber, sealants, and various other industries. HgCapital plans to expand its market share worldwide, particularly in Asia (HgCapital Trust plc, 2007; Industrial Minerals, 2007c).

Outlook

Based on current trends, U.S. mining and sales of talc probably will be between 750,000 to 825,000 t for the next 2 to 3 years. Talc imports have increased significantly in the past 20 years and accounted for 25% to 30% of U.S. apparent consumption in the past 3 years. Talc imported from China accounted for 14% of U.S. consumption. The decline in the U.S. dollar may provide some advantage for domestic producers by lowering imports of talc from countries whose currencies remain strong. With the slowdown in housing construction in the past 2 years, growth in the sales of talc for such construction-related applications as adhesives, ceramics, joint compounds, paint, and roofing applications may remain unchanged or decline slightly in the next 2 to 3 years. The quantity of talc used in plastics probably will increase again with an increase in the volume of plastics used in consumer products. No major changes were expected in the pyrophyllite markets in the near future.

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TABLE 1
SALIENT TALC AND PYROPHYLLITE STATISTICS¹

(Thousand metric tons and thousand dollars)

	2003	2004	2005	2006
United States:				
Mine production, crude:				
Quantity:				
Talc	840	833	856	895
Pyrophyllite	W	W	W	W
Value:				
Talc	22,700	23,200	24,400	27,400
Pyrophyllite	W	W	W	W
Sold by producers, crude and processed:				
Quantity:				
Talc	845	854	826	900
Pyrophyllite	W	W	W	W
Value:				
Talc	75,200	74,800	71,300	81,300
Pyrophyllite	W	W	W	W
Exports, talc: ²				
Quantity	192	202	198	163 ^r
Value	39,100	39,600	41,800	42,100 ^r
Imports for consumption, talc:				
Quantity	237	226	237	314
Value	53,500	58,400	55,600	66,700
Apparent consumption ³	885	857	895	1,050 ^r
World, production	7,800 ^r	7,840 ^r	7,950 ^r	7,750 ^r

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

TABLE 2
END USES FOR TALC
PRODUCED IN THE UNITED STATES¹

(Thousand metric tons)

	2006	2007
Ceramics ^{2,3}	248	209
Cosmetics	10	16
Paint	153	128
Paper	124	143
Plastics	41	31
Refractories	1	--
Roofing	61	51
Rubber	23	26
Other ⁴	99	77
Total	760	681

-- Zero.

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

²Includes tile.

³May include exports to Mexican ceramic markets.

⁴Includes art sculpture, asphalt filler, auto body filler, construction caulks, flooring, insecticides, joint compound, and other uses not specified.

TABLE 3
PRICES OF TALC

(Dollars per metric ton)

	Price
New York:	
Paint-grade:	
200 mesh	126
400 mesh	210
Ceramic-grade:	
200 mesh	92
325 mesh	115
Indian, cosmetic-grade	190–195
Chinese, normal (ex-store United Kingdom):	
200 mesh	429–469
350 mesh	439–489

Source: Industrial Minerals, December 2007.

TABLE 4
U.S. EXPORTS OF TALC^{1,2}

(Thousand metric tons and thousand dollars)

Country	2006		2007	
	Quantity	Value ³	Quantity	Value ³
Belgium	10	2,090 ^r	4	1,090
Canada ⁴	79	14,300 ^r	86	14,500
Germany	4	1,040	2	540
Japan	3	720 ^r	3	679
Mexico ⁵	18	4,560 ^r	22	6,060
Singapore	3	1,040	9	3,030
Other ⁶	46 ^r	18,300 ^r	57	20,800
Total	163 ^r	42,100 ^r	183	46,700

^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.

⁵Exports likely to be in the range of 80,000 to 90,000 t.

⁶Includes 66 countries in 2006 and 2007.

TABLE 5

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 (thousands)						
2006:								
Brazil	15	\$14	153	\$41	931	\$939	1,100	\$994
Canada	42	34	85,200	19,000	16,900	13,900	102,000	33,000
China	139,000	20,700	1,600	814	1,880	1,720	142,000	23,300
France	--	--	28,900	679	530	656	29,400	1,340
Japan	--	--	30,500	1,130	407	311	30,900	1,440
Other ²	4,950	2,460	934	573	2,140	3,670	8,020	6,700
Total	144,000	23,300	147,000	22,300	22,800	21,200	314,000	66,700
2007:								
Brazil	14	24	138	35	1,740	2,340	1,890	2,400
Canada	27	12	59,900	21,400	14,100	11,400	74,000	32,900
China	105,000	18,800	1,190	429	2,740	2,630	109,000	21,800
France	--	--	976	953	--	--	976	953
Japan	--	--	22,800	1,250	50	108	22,800	1,360
Other ²	33	743	11,400	1,370	1,440	2,590	12,800	4,700
Total	105,000	19,600	96,400	25,500	20,000	19,100	221,000	64,100

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.²Includes 25 countries in 2006 and 2007.

Source: U.S. Census Bureau.

TABLE 6
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	2003	2004	2005	2006	2007 ^c
Argentina:					
Pyrophyllite	4,525	12,594	8,470	9,340 ^r	9,500
Steatite ^e	300	300	300	300	300
Talc	1,699 ^r	7,620	12,603 ^r	13,773 ^r	13,800
Australia:^{e,4}					
Pyrophyllite	1,000	1,000	1,200	1,200	1,200
Talc	122,000	150,000	154,000	130,000 ^{r,e}	120,000
Austria, soapstone and talc, crude					
	137,596	138,000 ^e	166,569 ^r	159,447 ^r	160,000
Bhutan, talc					
	23,101	39,797	42,791	45,000 ^e	47,000
Brazil:					
Pyrophyllite, crude ^e	-- ^r	-- ^r	-- ^r	-- ^r	--
Talc:					
Crude	-- ^r	-- ^r	-- ^r	-- ^r	--
Marketable product	-- ^r	-- ^r	-- ^r	-- ^r	--
Talc and pyrophyllite	369,000	417,716	401,124	401,150	400,000
Canada, pyrophyllite, soapstone, talc^e					
	90,000	90,000	90,000	85,000 ^{r,5}	67,000 ^p
Chile, talc					
	4,374	2,993	4,201	1,961 ^r	2,000
China, unspecified^e					
	2,400,000 ^r	2,200,000 ^r	2,300,000 ^r	2,400,000 ^r	2,400,000
Colombia, pyrophyllite, soapstone, talc^e					
	15,000	15,000	15,000	15,000	15,000
Egypt, pyrophyllite, soapstone, steatite, talc^e					
	40,000	54,145 ^{r,5}	38,780 ^{r,5}	40,000	40,000
Finland, talc					
	460,000	492,000	542,000	550,000 ^e	550,000
France, talc, crude^e					
	394,000 ^r	402,000 ^r	416,000 ^r	420,000 ^r	420,000
Guatemala, talc					
	1,585	2,863	1,631	526 ^r	500
Hungary, talc^e					
	500	500	500	500	500
India:^e					
Pyrophyllite	86,000	86,000	85,000	86,000	87,000
Steatite	552,000	550,000	545,000	560,000	555,000
Iran, talc⁶					
	65,833	187,465	70,600 ^r	70,000 ^{r,e}	70,000
Italy, steatite and talc					
	122,849 ^r	111,887 ^r	112,781 ^r	146,942 ^r	140,000
Japan:					
Pyrophyllite	408,435	405,222	351,111	300,000 ^{r,e}	250,000
Talc	24,328	18,253	25,491	25,000 ^e	25,000
Korea, North, unspecified^e					
	50,000	50,000	50,000	50,000	50,000
Korea, Republic of:					
Pyrophyllite	912,285	827,895	885,559	677,465 ^r	680,000
Talc	47,911	79,313	83,471 ^r	64,118 ^r	64,000
Macedonia, talc^e					
	550 ⁵	600	600	500	500
Mexico, talc					
	114,870	101,896	64,827	9,834 ^r	9,800
Morocco^e					
	1,959 ⁵	2,000	2,000	2,000	2,000
Nepal, talc⁷					
	6,905	3,435	5,832	6,648 ^r	6,800
Norway, soapstone, steatite, talc^e					
	28,000	28,000	29,000	28,000	28,000
Pakistan, pyrophyllite					
	65,813	52,483	20,564	24,000	28,000
Paraguay, pyrophyllite, soapstone, talc^e					
	200	200	200	200 ^r	200
Peru:					
Pyrophyllite	12,291	14,282	-- ^r	-- ^r	--
Talc	10,791	9,548	14,251 ^r	14,618 ^r	23,095 ⁵
Portugal, talc					
	5,459	6,231	5,362	5,517 ^r	5,500
Romania, talc^e					
	10,082 ⁵	10,000	10,000	10,000	10,000
Russia, talc^e					
	130,000 ^r	150,000 ^r	160,000 ^r	160,000 ^r	170,000
Slovakia, talc^e					
	1,000 ⁵	1,500	1,500	1,500	1,500

TABLE 6—Continued
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	2003	2004	2005	2006	2007
South Africa:					
Pyrophyllite	14,350	28,987	60,267	74,886 ^r	123
Talc	6,719	8,141	8,469	10,966 ^r	14
Spain, steatite and talc ^e	115,000	107,829 ⁵	100,000 ^r	100,000 ^r	100
Sweden, soapstone and talc	15,000	14,000	14,000	14,000	14
Taiwan, talc	466	411	--	-- ^e	
Thailand:					
Pyrophyllite	73,556	108,691	177,684 ^r	131,843 ^r	132
Talc	8,501	12,592	10,270 ^r	4,374 ^r	4
Turkey ^e	60 ⁵	60	100	100 ^r	
United Kingdom, pyrophyllite, soapstone, talc	6,494	3,881	6,000 ^r	6,000 ^r	6
United States:					
Pyrophyllite	W	W	W	W	
Talc	840,000	833,000	856,000	895,000	769
Uruguay, pyrophyllite, soapstone, talc	1,095	1,042	1,131	1,150 ^{r,e}	1
Zimbabwe, talc ^e	196 ⁵	--	--	--	
Grand total	7,800,000 ^r	7,840,000 ^r	7,950,000 ^r	7,750,000 ^r	7,620
Of which:					
Pyrophyllite	1,580,000 ^r	1,540,000 ^r	1,590,000 ^r	1,300,000 ^r	1,310
Steatite	552,000	550,000	545,000	560,000	555
Talc	2,280,000 ^r	2,520,000 ^r	2,490,000 ^r	2,440,000 ^r	2,330
Unspecified	3,390,000 ^r	3,230,000 ^r	3,330,000 ^r	3,450,000 ^r	3,420

^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 28, 2008.

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.