

TALC AND PYROPHYLLITE

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The mineral talc is a hydrous magnesium silicate. A massive talcose rock is called steatite, and an impure massive variety is known as soapstone. Talc is used commercially because of its fragrance retention, luster, purity, softness, and whiteness. Other commercially important properties of talc are its chemical inertness, high dielectric strength, high thermal conductivity, low electrical conductivity, and oil and grease adsorption. The major markets for talc are ceramics, paint, paper, and plastics.

Pyrophyllite is a hydrous aluminum silicate with a structure similar to talc. Such properties as chemical inertness, high dielectric strength, high melting point, and low electrical conductivity make it useful for ceramic and refractory applications.

In 2003, production of talc increased from that of 2002 to 869,000 metric tons (t) valued at \$24.1 million (table 1). Domestic sales increased to 875,000 t valued at \$78.6 million. Exports and imports increased to 192,000 t and 237,000 t, respectively. Apparent consumption increased to 914,000 t. Production and sales of pyrophyllite increased slightly in 2002.

Legislation and Government Programs

In 2003, the U.S. Department of Defense authorized the disposal of 900 t of block and lump talc and 988 t of ground talc, which is the entire uncommitted inventory, from the National Defense Stockpile. Approximately 33 t was sold in 2003.

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. Responses were received from eight companies. Responses accounted for approximately 99% of the data presented in table 1; the remaining data were estimated from reported prior-year data adjusted according to employment and consuming industry trends.

In 2003, 7 companies operating 11 mines in 5 States mined soapstone, steatite, and talc. All were open pit mining operations. The producers, in decreasing order of production, were Luzenac America Inc., Wold Talc Co., Barrett's Minerals Inc., Gouverneur Talc Co., Milwhite Inc., Suzorite Mineral Products Inc. (owned by Zemex Corp.), and Steatite of Southern Oregon. CalTalc Co., San Bernadino County, CA, and New World Stone Co., Nelson County, VA, did not mine in 2003 but worked from stockpiles. The four largest domestic producers collectively accounted for more than 80% of the U.S. tonnage mined.

In 2003, U.S. mine production increased to 869,000 t valued at \$24.1 million compared with 828,000 t valued at \$22.2 million in 2002 (tables 1, 2). Production increased in Montana,

New York, Texas, and Vermont, and remained unchanged in Oregon. Montana led all States in the tonnage and value of talc produced, followed by Texas, Vermont, New York, and Oregon. Mines operating in Montana, New York, Texas, and Vermont accounted for nearly all the domestic talc production.

Zemex has agreed to be bought by Cementos Pacasmayo SAA, which is a major South American cement producer based in Lima, Peru. The acquisition was valued at about \$100 million. Zemex is involved in mining attapulgite, barite, feldspar, kaolin, mica, and silica as well as talc. Cementos Pacasmayo sought to diversify its operations with the acquisition (Industrial Minerals, 2003d; Mining Engineering, 2003).

Pyrophyllite.—Domestic production data were acquired through a voluntary USGS survey of the three U.S. companies that mined pyrophyllite. One company responded to the survey; the remaining data were estimated from reported prior-year data adjusted according to employment and consuming industry trends. Data were withheld to avoid disclosing company proprietary data.

Piedmont Minerals Co. Inc. and Standard Mineral Co. Inc. operated three mines in North Carolina. Standard Industrial Minerals Inc. operated one mine in California. Production of pyrophyllite increased slightly from that of 2002.

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 11 companies operating 14 mills in 7 States for talc and 3 companies operating 3 mills in 2 States for pyrophyllite. Respondents accounted for 99% of the talc data presented in table 3. The remaining data were estimated from reported prior-year data adjusted according to employment and consuming industry trends. One pyrophyllite producer responded.

Talc.—Producers reported that 875,000 t of talc valued at \$78.6 million was sold, used, or exported in 2003, an increase from 793,000 t valued at \$78.3 million in 2002. Domestic sales by U.S. producers increased to 732,000 t in 2003 from 631,000 t in 2002. Talc was sold for ceramics (sanitaryware, tiles, etc.), paint, other (unspecified) applications, paper, roofing, plastics, rubber, and cosmetics, in decreasing order of consumption (table 3). Agricultural, ceramic, and construction applications accounted for most of the increase in domestic sales in 2003. Agricultural applications were combined with the "Other" category in table 3. Producers indicated that sales for paint applications declined, although some sales probably were included in the "Other" category as unspecified. Producers reported increased exports in 2003 (table 1).

Talc sales reported by domestic producers for plastics applications have declined since the late 1980s, although the use

of talc in plastics probably has increased annually. Imported talc is thought to have filled much of this expanding market demand. Total sales of talc (domestic plus imported) for plastics applications are estimated to be as much as 120,000 t based on the increased use of mineral fillers and extenders in plastics in recent years.

Sales of talc to manufacturers of paint, roofing, sanitaryware, and tile generally are tied to the housing industry. Construction starts for new privately owned housing units increased to 1.85 million in 2003 from 1.7 million in 2002 (U.S. Census Bureau, 2004^{§1}). Shipments of architectural paint (the major paint market for talc) increased to 2.96 billion liters (781 million gallons) from 2.72 billion liters (719 million gallons) in 2002 (U.S. Census Bureau, 2004). Data on sales of vitreous china plumbing fixtures (commodes, sinks, urinals, water tanks, etc.) are not available from the U.S. Census Bureau after 1999. With the continued increase in housing starts and commercial construction, sales of vitreous china plumbing fixtures probably have increased since then. Domestic sales to ceramics markets also must compete with imports of finished ceramic products. The U.S. Census Bureau 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 to 26.8 million square meters valued at \$185 million in 2003 from 24.5 million square meters valued at \$171 million in 2002.

Most of the 237,000 t of imported talc listed in table 6 was not included in the domestic end-use data listed in table 3. An estimated end-use breakdown of sales of imports in 2003 based on countries of origin, ports of entry, regional end-use patterns, and current domestic markets is plastics, 93,000 t; cosmetics, 37,000 t; paint, 36,000 t; unknown, 35,000 t; ceramics and refractory products, 18,000 t; paper, 12,000 t; and rubber, 6,000 t.

Markets for talc products with particle sizes in the 0.05-to-0.1- micrometer size range have developed in the past 2 years, primarily as filler material for plastics. The nanometer-sized talc particles increase impact and scratch resistance, increase product stiffness, and reduce shrinkage, while reducing loading levels and resin consumption. Markets are still small, but they could increase to 100,000 to 150,000 t worldwide by 2006 (Industrial Minerals, 2003b).

Pyrophyllite.—In 2003, domestic consumption of pyrophyllite increased slightly from that of 2002. Pyrophyllite was used in refractory products, ceramics, paint, unspecified applications, insecticides, and rubber in decreasing order of consumption. Markets remained relatively unchanged in 2003. Ceramic and refractory uses accounted for more than 70% of domestic pyrophyllite sales.

Pyrophyllite deposits in the United States usually contain such accessory minerals as andalusite, diaspore, kaolinite, mica, and quartz. The largest markets for pyrophyllite ores are in ceramics and refractory applications. The next largest market is paint applications. The platy morphology of kaolin, mica, and pyrophyllite provide good dispersion in paints. The platy morphology also inhibits cracking of the paint film and prevents settling of pigments. Quartz in products improves the abrasion

resistance of the paint film. Besides being used in textured paints and exterior latex paints, pyrophyllite use in powder coatings and traffic paints has been investigated (Ciullo and Robinson, 2003).

Prices

The unit value of crude talc was estimated to be \$28 per metric ton. 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 \$90 per ton, a decrease from an estimated \$99 per ton in 2002. Increased sales into lower value markets probably accounted for much of the decline in unit values compared with those of 2002. The average unit values of crude and processed pyrophyllite were essentially unchanged from those of 2002.

The average free alongside ship unit value for exports of unmilled talc was \$310 per ton. The high average unit value for unmilled talc resulted because there were many small shipments, probably of finished products, such as body powders or sculpting-grade talc, whose values exceeded \$1,000 per ton. Additionally, the high unit value of several large-tonnage shipments of talc suggests that milled talc may also have been reported under the HTS code for unmilled talc. The unit value for milled talc exports was \$206 per ton in 2003 compared with \$219 per ton in 2002. The unit value of all exports was \$204 per ton in 2003 compared with \$215 per ton in 2002.

The average customs unit value for imports was \$134 per ton for unground talc compared with \$141 per ton in 2002. The average customs value was \$198 per ton for ground talc compared with \$172 per ton in 2002. The average customs value was \$870 per ton for cut or sawed talc compared with \$955 per ton in 2002. The unit value for all talc imports was \$226 per ton in 2003 compared with \$227 per ton in 2002.

Prices for talc ranged between \$87 and \$415 per ton (Industrial Minerals, 2003a; table 4). Quoted prices should be used only as a guideline because actual prices depend on the terms of the contract between seller and buyer.

Specialty Minerals Inc. (the parent company of Barrett's Minerals) announced energy surcharge price increases of 5% on its talc products (Minerals Technologies Inc., 2003).

Foreign Trade

Talc exports increased in tonnage to 192,000 t valued at \$39.1 million in 2003 compared with 166,000 t valued at \$35.7 million in 2002. Canada, with 72,200 t, was the leading importer of talc from the United States, followed by Mexico (23,600 t), China (11,100 t), Belgium (10,300 t), Colombia (8,840 t), Germany (6,690 t), and Japan (5,090 t) (table 5). Much of the talc exported to Mexico was shipped to U.S. affiliates operating across the Mexican border and was not reported by the U.S. Census Bureau. Total talc exported to Mexico in 2003, including shipments to U.S. affiliates, exceeded 50,000 t.

Talc imports reported by the U.S. Census Bureau increased in tonnage to 237,000 t valued at \$53.5 million in 2003 compared

¹A reference that includes a section mark (§) is found in the Internet Reference Cited section.

with 232,000 t valued at \$52.7 million in 2002. China was the leading source for imported talc (114,000 t), followed by Canada (80,400 t), and Italy (18,300) (table 6).

About 218,000 t of the talc imported into the United States was crude or milled. Slightly more than 112,000 t entered the United States through the customs district of New Orleans, LA. This talc was shipped from Australia (6,310 t) and China (106,000 t). The next leading customs districts were Detroit, MI, with imports of 39,100 t (nearly all from Canada); Buffalo, NY, with imports of 24,400 t (nearly all from Canada); and New York, NY, with 20,400 t (about 90% from Italy). These four port districts accounted for 90% of the tonnage of U.S. talc imports in 2003.

World Review

World production of talc and pyrophyllite was estimated to be 8.92 million metric tons (Mt) in 2003. China remained the world's leading producer of talc, followed by the United States, India, Brazil (crude), France (crude), and Australia. The Republic of Korea was the largest producer of pyrophyllite, followed by Japan and Brazil. Brazil, China, India, Japan, the Republic of Korea, and the United States produced 80% of the world's talc and pyrophyllite (table 7).

The largest talc producer in the world was Luzenac Group, a subsidiary of Rio Tinto plc. The company sells about 1.43 million metric tons per year and has mines and facilities in Australia, Austria, Belgium, Canada, France, Italy, Spain, the United Kingdom, and the United States. Omya Group is another major consortium with mines and facilities in Finland, the Netherlands, and Norway. Capacity for the Omya operations is 725,000 metric tons per year (t/yr). China is the largest producing country, but production is from hundreds of small companies. The largest companies, at most, have production capacities of 200,000 t/yr or less. In North America, Luzenac America, Minerals Technologies Inc. (owner of Barrett's Minerals), and R.T. Vanderbilt Co. Inc. dominate filler-grade talc production, while in India, Golcha Associated dominated with 150,000 t of production (Taylor, 2003).

China.—Pingdu Talc Co. Ltd. is China's largest talc producer and exporter. The company mines about 180,000 t/yr of talc from its open pit mine in eastern Shandong Province. Pingdu Talc sold about 110,000 t domestically in 2002. About 60% of these sales was for paper manufacture; the remainder was sold for cosmetics, paint, pharmaceuticals, and plastics applications. The company reported the sale of 8,000 t for cosmetics and pharmaceutical applications in 2002. Pingdu Talc exported 70,000 t in 2002, mainly to Japan and the Republic of Korea; however, talc was also exported to other countries in Southeast Asia and Europe (Industrial Minerals, 2003c).

Slovakia.—EuroGas Inc. announced that it had raised the funds required to continue development of its Gemerska Poloma talc deposit in eastern Slovakia. EuroGas Inc. also was negotiating to sell 15% of its shares in Rozmin sro, which owns the Gemerska Paloma talc deposit. The Gemerska Poloma deposit was reported to contain 147 Mt of ore at an average talc grade of 19.68% (EuroGas Inc., 2003).

Outlook

Prospects for the talc industry are more encouraging with the slow but continued improvement in the U.S. economy. The continuing construction boom for residential and commercial buildings should help to maintain current levels of domestic sales of talc for adhesives, ceramics, joint compounds, paint, and roofing applications. Plastics markets probably will continue to provide the greatest opportunity for growth of talc sales in the United States, although imports rather than domestic production appear to have filled this demand lately. Talc imports probably will remain at about 230,000 t. If the value of the U.S. dollar continues to decline relative to other currencies, imports of talc may decrease slightly. No major changes are anticipated 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)

	1999	2000	2001	2002	2003
United States:					
Mine production, crude:					
Quantity:					
Talc	925	851	863	828 ^r	869
Pyrophyllite	W	W	W	W	W
Value:					
Talc	\$26,100	\$22,300	\$19,500	\$22,200 ^r	\$24,100
Pyrophyllite	W	W	W	W	W
Sold by producers, crude and processed:					
Quantity:					
Talc	881	821	784	793 ^r	875
Pyrophyllite	W	W	W	W	W
Value:					
Talc	\$102,000	\$96,100	\$84,800	\$78,300 ^r	\$78,600
Pyrophyllite	W	W	W	W	W
Exports, talc: ²					
Quantity	147	154	137	166	192
Value	\$27,200	\$32,800	\$28,800	\$35,700	\$39,100
Imports for consumption:					
Quantity	208	270	180	232	237
Value	\$35,300	\$42,500	\$35,800	\$52,700	\$53,500
Apparent consumption ³	986	967	906	894 ^r	914
World, production	9,470	8,660 ^r	8,960 ^r	8,850 ^r	8,920 ^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 powders--talcum (in package), face, and compact.

³Production plus imports minus exports plus adjustments in Government and industry stock. Does not include pyrophyllite.

TABLE 2
CRUDE TALC PRODUCED IN THE UNITED STATES, BY STATE¹

(Thousand metric tons and thousand dollars)

State	2002		2003	
	Quantity	Value	Quantity	Value
Texas	W	W	246	W
Other ²	828 ^{r,2}	22,200 ^{r,2}	623	24,100 ²
Total	828 ^r	22,200 ^r	869	24,100

^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.

²Includes Montana, New York, Oregon, Texas, and Vermont.

TABLE 3
END USES FOR GROUND TALC¹

(Thousand metric tons)

	2002	2003
Ceramics	176 ^r	231
Cosmetics	16	17
Insecticides	--	--
Paint	198 ^r	140
Paper	112	115
Plastics	38	31
Refractories	--	--
Roofing	40	41
Rubber	26	18
Other ²	26 ^r	140
Total	631 ^r	732

^rRevised. -- Zero.

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

²Includes art sculpture, asphalt filler, auto body filler, construction caulks, flooring, joint compounds, and other uses not specified.

TABLE 4
PRICES OF TALC

(Dollars per metric ton)

	Price
New York:	
Paint:	
200 mesh	120
400 mesh	200
Ceramic:	
200 mesh	87
325 mesh	110
Indian, cosmetic-grade	190-195
Chinese, normal (ex-store):	
UK 200 mesh	369-413
UK 350 mesh	380-415

Source: Industrial Minerals, December 2003.

TABLE 5
U.S. EXPORTS OF TALC^{1,2}

(Thousand metric tons and thousand dollars)

Country	2002		2003	
	Quantity	Value ³	Quantity	Value ³
Belgium	10	1,880	10	2,840
Canada ⁴	80	15,400	72	14,400
Germany	7	1,200	7	1,310
Japan	7	1,410	5	1,260
Mexico	14	1,570	24	2,720
Singapore	6	1,970	4	1,220
Other ⁵	39	12,200	70	15,400
Total	166	35,700	192	39,100

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 61 countries in 2002 and 62 countries in 2003.

Source: U.S. Census Bureau.

TABLE 6
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)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2002:								
Brazil	18	\$20	78	\$34	104	\$132	200	\$186
Canada	20	7	69,000	18,500	13,300	10,700	82,400	29,100
China	79,300	11,200	673	238	2,300	2,280	82,200	13,700
France	5,910	691	20,000	1,290	3,280	4,170	29,200	6,150
Japan	--	--	401	912	238	279	639	1,190
Other ²	26	71	36,400	773	483	1,350	36,900	2,200
Total	85,200	12,000	127,000	21,800	19,800	18,900	232,000	52,700
2003:								
Brazil	3	5	130	27	268	235	401	267
Canada	5	14	66,900	17,500	13,400	10,300	80,400	27,800
China	100,000	13,400	11,900	1,750	1,900	1,780	114,000	16,900
France	--	--	894	1,820	3,020	3,290	3,920	5,110
Japan	--	--	3,550	864	35	41	3,590	905
Other ²	36	57	34,300	1,440	521	1,020	34,900	2,520
Total	100,000	13,400	118,000	23,400	19,200	16,700	237,000	53,500

-- Zero.

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

²Includes 19 countries in 2002 and 22 countries in 2003.

Source: U.S. Census Bureau.

TABLE 7
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	1999	2000	2001	2002	2003 ^e
Argentina:					
Pyrophyllite	3,400	3,877 ^r	2,754 ^r	2,341 ^r	2,500
Steatite ^e	300	300	300	300	300
Talc	10,542	6,730 ^r	7,267 ^r	6,177 ^r	6,000
Australia: ⁴					
Pyrophyllite	347	1,727	1,500 ^e	868 ^r	1,000
Talc	190,037	178,545	173,446 ^r	173,741 ^r	174,000
Austria, soapstone and talc, crude					
	129,516	130,000	140,000 ^e	135,000 ^e	135,000
Bhutan, talc ^e					
	3,400	3,700	3,800	3,900 ^r	3,900
Brazil:					
Pyrophyllite, crude	160,000	150,000	189,500 ^r	200,000 ^r	200,000
Talc:					
Crude	294,000 ^r	300,000	370,500 ^r	390,000 ^r	400,000
Marketable product ⁵	2,000 ^e	7,049 ^r	6,300 ^r	5,617 ^r	6,000
Canada, pyrophyllite, soapstone, talc					
	79,000	86,000	90,000 ^r	90,000 ^{r,e}	90,000
Chile, talc					
	2,231	2,421	4,177	3,537 ^r	3,600
China, unspecified ^e					
	3,900,000	3,500,000	3,500,000	3,600,000	3,600,000
Colombia, pyrophyllite, soapstone, talc ^e					
	15,000	15,000	15,000	15,000	15,000
Egypt, pyrophyllite, soapstone, steatite, talc ^e					
	40,000	40,000	40,000	40,000	40,000
Finland, talc ^e					
	469,000 ⁶	--	--	--	--
France, talc, crude ^e					
	370,000	350,000	350,000	350,000	350,000
Germany, steatite and talc, marketable ^e					
	9,000	8,000	10,000	10,000	10,000
Hungary, talc ^e					
	500	500	500	500	500
India: ^e					
Pyrophyllite	85,000	85,000	86,000	85,000	85,000
Steatite	450,000	460,000	460,000	465,000	470,000
Iran, talc ^{e,7}					
	25,000	25,000	25,000	25,000	25,000
Italy, steatite and talc ^e					
	140,000	140,000	140,000	140,000	140,000
Japan:					
Pyrophyllite	694,317	692,998	623,097 ^r	600,000 ^{r,e}	600,000
Talc	50,000	50,000	45,000	40,000 ^r	40,000
Korea, North, unspecified ^e					
	120,000	120,000	120,000	110,000 ^r	110,000
Korea, Republic of:					
Pyrophyllite	754,657	917,973	1,101,825	889,961 ^r	900,000
Talc	15,313	11,344	47,712	37,863 ^r	40,000
Macedonia, talc ^e					
	9,000	10,000	10,000	10,000	10,000
Mexico, talc					
	18,981	20,569	77,650	82,077 ^r	85,000
Morocco					
	14,655	12,522	27,246 ^r	39,612 ^r	40,000
Nepal, talc ⁸					
	6,157	5,852	3,923 ^r	2,621 ^r	2,500
Norway, soapstone, steatite, talc ^e					
	26,000	27,000	27,000	28,000	28,000
Pakistan, pyrophyllite					
	67,670	54,365	55,000 ^e	57,500 ^r	55,000
Paraguay, pyrophyllite, soapstone, talc ^e					
	200	200	200	200	200
Peru:					
Pyrophyllite ^e	8,000	8,000	8,000	8,000	8,000
Talc	12,085	9,668	11,165	10,685 ^r	11,000
Portugal, talc ^e					
	8,200	8,200	8,200	8,200	8,200
Romania, talc					
	8,289	7,850	7,270 ^r	7,292 ^r	7,300
Russia, talc ^e					
	90,000	100,000	100,000	100,000	100,000
Slovakia, talc					
	1,900	1,800	2,600 ^r	2,290 ^r	2,500
South Africa:					
Pyrophyllite	13,277	11,989	14,386	15,587 ^r	13,968 ⁶
Talc	7,873	5,600	3,218	2,511	4,472 ⁶
Spain, steatite and talc ^e					
	110,000	100,000	100,000	100,000	100,000
Sweden, soapstone and talc					
	25,000 ^e	20,000 ^e	15,000	15,000	15,000
Taiwan, talc					
	201	--	130	27	500

See footnotes at end of table.

TABLE 7--Continued
 TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY AND PRODUCT^{1,2}

(Metric tons)

Country ³	1999	2000	2001	2002	2003 ^e
Thailand:					
Pyrophyllite	38,053	46,011	59,602 ^f	103,496 ^f	103,000
Talc	4,960	7,390	6,838 ^f	1,702 ^f	1,700
Turkey	48,378	54,278	883 ^f	98 ^f	--
United Kingdom, pyrophyllite, soapstone, talc ^e	5,000	5,000	5,000	5,000	5,000
United States:					
Pyrophyllite	W	W	W	W	W
Talc	925,000	851,000	863,000	828,000 ^f	869,000 ⁶
Uruguay, pyrophyllite, soapstone, talc	2,905	2,903	1,694 ^f	1,700 ^{f, e}	1,750
Zimbabwe, talc	1,000 ^e	989	1,273	911 ^f	700
Grand total	9,470,000	8,660,000 ^f	8,960,000 ^f	8,850,000 ^f	8,920,000
Of which:					
Pyrophyllite	1,820,000	1,970,000	2,140,000 ^f	1,960,000 ^f	1,970,000
Steatite	450,000	460,000	460,000	465,000	470,000
Talc	2,530,000	1,960,000	2,130,000 ^f	2,090,000 ^f	2,150,000
Unspecified	4,660,000	4,260,000	4,230,000 ^f	4,330,000 ^f	4,330,000

^eEstimated. ^fRevised. 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 23, 2004.

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

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

⁵Direct sales and/or beneficiated (marketable product).

⁶Reported figure.

⁷Data based on Iranian fiscal year beginning March 21 of year stated.

⁸Data based on Nepalese fiscal year beginning mid-July of year stated.