



# 2016 Minerals Yearbook

---

## TALC AND PYROPHYLLITE [ADVANCE RELEASE]

---

# TALC AND PYROPHYLLITE

By Wallace P. Bolen

Domestic survey data and tables were prepared by Robin C. Kaiser, statistical assistant.

In 2016, mine production of crude talc in the United States decreased by 13% to 536,000 metric tons (t) valued at an estimated \$16.3 million compared with 615,000 t valued at an estimated \$18.1 million during 2015, and the quantity of talc sold decreased slightly to 527,000 t valued at an estimated \$102 million compared with the revised 535,000 t valued at an estimated \$99.8 million (table 1). Owing primarily to lower production, U.S. apparent consumption of talc decreased by 3% to 711,000 t from revised 731,000 t in 2015. Exports of talc in 2016 rose by 16% to 239,000 t valued at \$82.8 million from 206,000 t valued at \$59.4 million, and imports increased by 17% to 378,000 t valued at \$130 million from 322,000 t valued at \$109 million. Domestic production and sales of pyrophyllite were withheld to avoid disclosing company proprietary data but were estimated to have increased from those of 2015. World production of talc, pyrophyllite, and related materials totaled 7.7 million metric tons (Mt) during 2016, slightly lower than the revised 7.8 Mt produced during the prior year. Considering production of talc (including soapstone and steatite) only, the United States ranked fourth globally, following China, India, and Mexico.

Talc is a hydrous magnesium silicate composed of weakly bonded layers that can easily slide past one another, imparting a distinct slippery feel coupled with a low hardness (Mohs scale of 1). Other properties that make talc useful for commercial applications include chemical inertness, high dielectric strength, high fusion point, high thermal conductivity, low electrical conductivity, and low oil and grease absorption. Talc typically forms by hydrothermal alteration of mafic to ultramafic rocks or by low-grade thermal metamorphism of siliceous dolomites. Within the United States, talc has primarily been mined in Montana, New York, Texas, and Vermont (Deer and others, 1966, p. 227–230; McCarthy and others, 2006, p. 972–974; Tomaino, 2016). Pyrophyllite, a hydrous aluminum silicate, exhibits physical and chemical properties similar to those of talc and, within the United States, has predominantly been mined in North Carolina.

Talc production and sales decreased after 1995 as a result of declining domestic demand; in 2016, U.S. mine output was 51% of that in 1995 (fig. 1). Some contributing factors included technological developments that reduced the amount of talc incorporated into ceramic tile; the movement of portions of the domestic ceramics manufacturing industry to countries with lower labor costs; decreased use of oil-based paints, for which talc is ideally suited; decreased paper manufacturing; replacement by chemical agents of some talc used for pitch control; a shift from talc- to corn-starch-based cosmetic products; and increased use of imported talc (McCarthy and others, 2006, p. 981–983). In contrast, sales of U.S. talc for plastics rose by more than 43% from 1995 to 2016, primarily as a result of increased use in automobiles. However, a significant share of the consumption was met with imported talc.

Pyrophyllite followed a similar trend with sales decreasing since 1979 as use in the manufacture of refractory products decreased owing to technological changes and reductions in domestic steelmaking capacity (Roskill Information Services Ltd., 1996, p. 192).

## Production

**Talc.**—Domestic production data were obtained through a voluntary survey of U.S. talc producers conducted by the U.S. Geological Survey (USGS). Survey forms were sent to three companies, and responses were received from two. Production and value for the nonrespondent were estimated from previously reported data adjusted by data for other mining operations and mine employment hours reported by the Mine Safety and Health Administration (MSHA).

Three companies mined talc in the United States during 2016, operating five mines in three States. All were open pit mining operations. The producers were, in alphabetical order, American Talc Co. in Texas, Barretts Minerals Inc. (a subsidiary of Minerals Technologies Inc.) in Montana, and Imerys S.A. in Montana and Vermont. CAL-TALC Inc. in California, which had been working from stockpiled materials in recent years, was idle in 2016.

U.S. mine production of crude talc decreased by 13% to 536,000 t valued at an estimated \$16.3 million from 615,000 t valued at an estimated \$18.1 million in 2015 (table 1). Montana led all States in the tonnage of talc produced, followed by Texas and Vermont. After 4 consecutive years of slightly decreased talc shipments, some operations in 2016 reduced production because stockpiles had been rebuilt over the previous years amid marginally decreased consumption.

**Pyrophyllite.**—Domestic production data were obtained through a voluntary survey of U.S. pyrophyllite producers conducted by the USGS. The only producer, The Standard Mineral Division of R.T. Vanderbilt Holding Co., Inc., operated two pyrophyllite mines in North Carolina during 2016. Because of incomplete reporting, pyrophyllite output was estimated from previously reported data adjusted according to MSHA mine employment hours but was withheld to avoid disclosing company proprietary data; production rose by an estimated 10% in 2016. Standard Industrial Minerals Inc. owned a pyrophyllite mine in California that has been idle for the past several years.

## Consumption

The USGS sent survey forms to four companies that operated seven talc mills in four States and one company with a pyrophyllite mill in North Carolina. Three companies responded to the talc and pyrophyllite survey. Sales for the nonrespondents were estimated using previously reported data adjusted according to responses from other milling operations, trends in consuming industries, and MSHA mill employment hours.

**Talc.**—Total sales of talc (domestic and export) by U.S. producers were 527,000 t valued at an estimated \$102 million in 2016, a slight decrease from the revised 535,000 t valued at an estimated \$99.7 million during the prior year (table 1). Ceramics (mainly for catalytic converter bodies, ceramic tile, and sanitaryware) were the leading identified end use and accounted for 21% of sales, followed by paint (as a filler and extender), 19%; paper (mainly for pitch control), 16%; plastics (as a filler and extender), 9%; rubber (as a filler and dusting agent), 5%; roofing (as a bitumen filler and surface coating), 4%; and cosmetics, 3%. Unclassified end uses and exports accounted for the remainder of U.S. talc sales and included animal feed, construction caulks, food, insecticides, joint compounds, pharmaceuticals, sculpture, and other miscellaneous applications (table 2).

Compared with those in 2015, U.S. talc sales during 2016 decreased by 30% for roofing, 16% for paint, 11% for ceramics, 10% for cosmetics, and 7% for plastics (table 2). Sales of talc rose by 35% for other uses (attributed mostly to increased exports), 7% for rubber, and 4% for paper.

Most of the 378,000 t of imported talc listed in table 4 was not included in the domestic end use data in table 2. An estimated 50% of talc imports were used for manufacturing plastic components. Combining domestic sales by U.S. producers (table 2) with imported talc, major markets in the United States were thought to be, in decreasing order of consumption, plastics, ceramics, paint, paper, roofing, rubber, cosmetics, and other unspecified end uses.

**Pyrophyllite.**—Domestic sales of pyrophyllite were withheld to avoid disclosing company proprietary data but were estimated to have increased by about 10% from those in 2015. Pyrophyllite was used in refractory products, paint, and ceramics, in decreasing order of consumption. Refractory uses likely accounted for more than 50% of domestic sales.

## Prices

In 2016, the unit value of mine-run crude talc was estimated to be \$30 per metric ton, slightly higher than \$29 per ton in 2015, and the estimated unit value of processed talc was \$193 per ton compared with revised \$186 per ton in 2015 (table 1). Sufficient information was not available to estimate the change in value of any type of pyrophyllite.

The average free alongside ship unit value of all talc exports during 2016 rose by 20% to an estimated \$347 per metric ton from an estimated revised \$289 per ton in 2015 (table 3). Crushed or powdered (milled) talc that was shipped under Harmonized Tariff Schedule of the United States (HTS) code 2526.20.0000 had an estimated average unit value of \$353 per ton in 2016, a 19% increase from an estimated \$285 per ton in 2015. The average unit value of exports that were not crushed or powdered (unmilled talc) under HTS code 2526.10.0000 declined by 19% to an estimated \$456 per ton in 2016 from an estimated \$544 per ton in 2015. High unit values for some unground talc shipments during 2015 and 2016 indicate that specialty products, such as surface-treated milled talc and (or) consumer talc products, such as talcum powder, may have been classified using the same HTS code.

The average customs unit value for total talc imports was \$343 per metric ton in 2016 compared with \$338 per ton in 2015 (table 4). The average unit value for imports of unground (not crushed or powdered) talc decreased by 78% to \$212 per ton from \$378 per ton because of reduced deliveries of high-value talc during 2016. As with exports, high unit values of individual shipments indicate that some imports may have been misclassified and consisted of specialty talc products or talc-based consumer goods. Milled (crushed or powdered) talc had an average customs unit value of \$331 per ton in 2016, a 16% increase compared with \$278 per ton in 2015. The average unit value of cut or sawed talc (HTS code 6815.99.2000) was \$1,290 in 2016, a 4% increase compared with \$1,240 per ton during the previous year.

## Foreign Trade

The tonnage of United States talc exports rose by 16% to 239,000 t valued at \$82.8 million in 2016 from 206,000 t valued at \$59.4 million in 2015, primarily owing to an increase of 20% in shipments to Mexico (table 3). Canada (32% of exports by quantity) and Mexico (35%) were the leading destinations for domestic talc, and the remainder was distributed among 59 additional countries. More than 98% of U.S. talc shipments in 2016 consisted of nominally milled material.

U.S. talc imports totaled 378,000 t valued at \$130 million, 17% higher than the 322,000 t valued at \$109 million imported in 2015 (table 4). An increase of 33% in talc deliveries from China (including material transshipped through Hong Kong) and 14% from Canada accounted for most of the increase. China was the leading source for imported talc by tonnage, representing 34% of the total, followed by Pakistan (33%) and Canada (27%), with the remainder distributed among 25 other countries. Shipments from Pakistan likely included large quantities of talc mined in Afghanistan. About 75% of talc imports was crushed or powdered, 21% was not crushed or powdered, and 4% was cut or sawed. Pakistan (55%) and China (35%) were the predominant sources of the not-crushed-or-powdered talc imports in 2016. China, Canada, and Pakistan accounted for 35%, 31%, and 28%, respectively, of crushed or powdered talc imports, and Canada supplied 80% of cut or sawed imports, followed by Brazil (10%) and China (5%).

## World Review

World production of talc, pyrophyllite, and related materials was estimated to be 7.7 Mt in 2016, slightly less than the revised 7.83 Mt produced in 2015 (table 5). Brazil, Canada, China, Finland, France, India, Italy, Japan, the Republic of Korea, Mexico, and the United States collectively accounted for about 91% of the global output. China was the world's leading producer of talc (including soapstone and steatite), followed by, in decreasing order of quantity, India, Mexico, and the United States. The Republic of Korea and Japan were the two leading producers of pyrophyllite. In addition to the countries listed in table 5, Afghanistan likely produced a significant tonnage of talc that was exported via Pakistan, but available information was inadequate to make a reliable estimate of output. In Afghanistan, Amin Karimzai Ltd. reported a mine production capacity of 400,000 metric tons per year of talc; talc

also was mined through artisanal and small- to medium-scale operations (Hughes, 2013; Renaud, 2016).

## Outlook

Manufacturing sectors that consume talc and pyrophyllite, including motor vehicles; paints, coatings, and adhesives; plastics; and rubber, have mostly increased their output in the years since the 2008–9 recession (Federal Reserve Board, 2016). These trends and projections of continued growth in the U.S. economy (International Monetary Fund, 2016) indicate that sales of talc for automotive body and underhood components (plastics), catalytic converter bodies (ceramics), paint, plastics, and rubber products may continue to rise. Sales of talc for such items as adhesives, caulks, ceramics (mainly tile), joint compounds, paint, putties, and roofing materials are strongly tied to commercial and residential construction activity. Housing starts for new privately owned units have consistently increased since 2009, implying that sales for construction-related markets may continue to increase as well (U.S. Census Bureau, 2018). Global demand for talc is also expected to rise as increases in plastics and automotive ceramics outpaces sales declines for paper and traditional ceramics (Wilson, 2016). Sales of pyrophyllite also may increase slightly as the economy expands.

## References Cited

- Deer, W.A., Howie, R.A., and Zussman, J., 1966, *An introduction to the rock forming minerals*: London, United Kingdom, Longman Group Ltd., 528 p.
- Federal Reserve Board, 2016, Data download program—Industrial production and capacity utilization: Washington, DC, Federal Reserve Board, December 14. (Accessed January 10, 2017, via <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=G17>.)
- Hughes, Emma, 2013, Afghan-Pakistani talc JV has potential to produce 640,000 tpa: *Industrial Minerals*, July 2. (Accessed July 12, 2013, via <http://www.indmin.com>.)
- International Monetary Fund, 2016, World economic outlook—Too slow for too long: Washington, DC, International Monetary Fund, April, 208 p. (Accessed June 17, 2016, at <http://www.imf.org/external/pubs/ft/weo/2016/01/>.)
- McCarthy, E.F., Genco, N.A., and Reade, E.H., Jr., 2006, Talc, in Kogel, J.E., Trivedi, N.C., Barker, J.M., and Krukowski, S.T., eds., *Industrial minerals and rocks* (7th ed.): Littleton, CO, Society for Mining, Metallurgy, and Exploration Inc., p. 971–986.
- Renaud, K.M., 2016, The mineral industry of Afghanistan [advance release], in *Area reports—International—Asia and the Pacific*: U.S. Geological Survey Minerals Yearbook 2013, v. III, p. 2.1–2.8. (Accessed January 23, 2017, via <https://minerals.usgs.gov/minerals/pubs/country/asia.html#af>.)

- Roskill Information Services Ltd., 1996, *The economics of talc* (8th ed.): London, United Kingdom, Roskill Information Services Ltd., 237 p.
- Tomaino, G.P., 2016, Talc and pyrophyllite, in *Annual review 2016: Mining Engineering*, v. 68, no. 7, July, p. 75–78.
- U.S. Census Bureau, 2018, New residential construction—Historical data: Washington, DC, U.S. Census Bureau. (Accessed April 13, 2018, via [http://www.census.gov/construction/nrc/historical\\_data/index.html](http://www.census.gov/construction/nrc/historical_data/index.html).)
- Wilson, Ian, 2016, Global talc production and markets: *Industrial Minerals*, July 22. (Accessed January 19, 2017, via <http://www.indmin.com>.)

## GENERAL SOURCES OF INFORMATION

### U.S. Geological Survey Publications

- Historical Statistics for Mineral and Material Commodities in the United States. Data Series 140.
- Talc. Ch. in *United States Mineral Resources*, Professional Paper 820, 1973.
- Talc and Pyrophyllite. Ch. in *Mineral Commodity Summaries*, annual.
- Talc Resources of the Conterminous United States. Open-File Report 95–586, 1995.
- USGS Study of Talc Deposits and Associated Amphibole Asbestos Within Mined Deposits of the Southern Death Valley Region, California, A. Open-File Report 2004–1092, 2004.
- U.S. Talc—Baby Powder and Much More. Fact Sheet 065–00, 2000.

### Other

- Ceramic Industry.
- Paint and Coatings Industry.
- Talc. Ch. in *Industrial Minerals and Rocks* (7th ed.), Society for Mining, Metallurgy, and Exploration Inc., 2006.
- Talc and Pyrophyllite. Ch. in *Mineral Facts and Problems*, U.S. Bureau of Mines Bulletin 675, 1985.
- Talc Industry—An Overview, The. U.S. Bureau of Mines Information Circular 9220, 1989.
- Using the Geologic Setting of Talc Deposits as an Indicator of Amphibole Asbestos Content. *Environmental Geology*, 2004.

TABLE 1  
SALIENT TALC AND PYROPHYLLITE STATISTICS<sup>1</sup>

(Thousand metric tons and thousand dollars)

	2012	2013	2014	2015	2016
United States:					
Mine production, crude:					
Quantity:					
Talc	515	542	608	615 <sup>r</sup>	536
Pyrophyllite	W	W	W	W	W
Value:					
Talc	17,100	20,800	16,700 <sup>e</sup>	18,100 <sup>r</sup>	16,300
Pyrophyllite	W	W	W	W	W
Sold by producers, processed:					
Quantity:					
Talc	575	560	551	535 <sup>r</sup>	527
Pyrophyllite	W	W	W	W	W
Value:					
Talc	87,200	91,300	94,000 <sup>e</sup>	99,700 <sup>r</sup>	102,000
Pyrophyllite	W	W	W	W	W
Exports, talc: <sup>2</sup>					
Quantity	270	196	190	206	239
Value	56,800	56,900	55,500	59,400	82,800
Imports for consumption, talc: <sup>2</sup>					
Quantity	350	275	308	322	378
Value	109,000	111,000	102,000	109,000	130,000
Apparent consumption <sup>3</sup>	595	621	726	731 <sup>r</sup>	711
World, production	7,620 <sup>r</sup>	8,130 <sup>r</sup>	8,240 <sup>r</sup>	7,830 <sup>r</sup>	7,700 <sup>e</sup>

<sup>e</sup>Estimated. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data.

<sup>1</sup>Table includes data available through May 24, 2018. Data are rounded to no more than three significant digits.

<sup>2</sup>Excludes powder—talcum (in packages), face, and compact.

<sup>3</sup>Mine production plus imports minus exports. Company stockpiles were not considered because data were unavailable.

TABLE 2  
END USES FOR TALC PRODUCED IN THE UNITED STATES<sup>1</sup>

(Metric tons)

End use	2015	2016
Ceramics <sup>2</sup>	123,000 <sup>r</sup>	109,000
Cosmetics	17,600 <sup>r</sup>	15,800
Paint	117,000 <sup>r</sup>	98,000
Paper	83,000 <sup>r</sup>	86,600
Plastics	50,800 <sup>r</sup>	47,200
Roofing	27,200 <sup>r</sup>	19,100
Rubber	26,300 <sup>r</sup>	28,100
Other <sup>3</sup>	91,000 <sup>r</sup>	123,000
Total	535,000 <sup>r</sup>	527,000

<sup>r</sup>Revised.

<sup>1</sup>Table includes data available through May 24, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes automotive catalytic converter bodies, ceramic tile, potteryware, sanitaryware, and technical ceramics.

<sup>3</sup>Includes animal feed, construction caulks, exports, food, insecticides, joint compounds, pharmaceuticals, sculpture, and other uses not specified.

TABLE 3  
U.S. EXPORTS OF TALC, BY COUNTRY OR LOCALITY<sup>1,2</sup>

Country or locality	2015		2016	
	Quantity (metric tons)	Value <sup>3</sup> (thousands)	Quantity (metric tons)	Value <sup>3</sup> (thousands)
Argentina	1,550	\$858	1,360	\$737
Australia	827	703	965	345
Belgium	7,900	2,470	7,700	3,080
Brazil	7,280	3,540	5,230	2,140
Canada <sup>4,5</sup>	76,700 <sup>c</sup>	10,900 <sup>c</sup>	76,300	11,400
Chile	5,770	2,710	6,880	3,320
China	3,890	2,360	13,500	11,700
Colombia	937	593	1,970	1,150
France	882	552	1,120	587
Indonesia	2,330	886	9,240	9,270
Italy	1,540	1,070	1,010	802
Japan	2,620	1,320	3,970	1,850
Malaysia	1,010	535	825	429
Mexico <sup>5</sup>	70,000	19,300	84,200	22,700
Philippines	2,700	819	940	449
Poland	1	5	5,630	3,500
Singapore	3,900	2,250	2,090	1,000
Taiwan	2,740	1,460	2,300	1,180
Thailand	3,020	1,580	2,180	1,200
United Kingdom	1,340	671	1,070	508
Uruguay	1,850	860	1,770	734
Other <sup>6</sup>	6,850	3,950 <sup>r</sup>	8,520	4,730
Total	206,000	59,400	239,000	82,800

<sup>c</sup>Estimated. <sup>r</sup>Revised.

<sup>1</sup>Table includes data available through May 24, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Does not include powder—talcum (in packages), face, and compact—or cut and sawed talc.

<sup>3</sup>Free alongside ship.

<sup>4</sup>Thought to include shipments in transit through Canadian ports.

<sup>5</sup>Data taken from the United Nations Comtrade Database because it is more consistent with data reported by the U.S. Census Bureau in prior years.

<sup>6</sup>Includes 34 countries in 2015 and 40 countries in 2016.

Source: U.S. Census Bureau, except where otherwise noted.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF TALC, BY COUNTRY OR LOCALITY<sup>1</sup>

Country or locality	Not crushed or powdered		Crushed or powdered		Cut and sawed		Total unmanufactured	
	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)	Quantity (metric tons)	Value <sup>2</sup> (thousands)
2015:								
Australia	--	--	21	\$9	--	--	21	\$9
Austria <sup>3</sup>	--	--	436	427	87	\$324	523	751
Brazil	3	\$7	473	290	1,950	2,650	2,430	2,940
Canada	101	300	80,900	40,300	7,770	7,020	88,700	47,700
China	36,800	15,600	56,200	5,330	3,310	4,630	96,300	25,600
France <sup>3</sup>	2,000	447	1,250	662	--	--	3,240	1,110
India <sup>3</sup>	131	108	871	291	545	913	1,550	1,310
Italy <sup>3</sup>	--	--	1,050	1,240	816	632	1,870	1,870
Japan	--	--	8,320	1,340	174	866	8,500	2,210
Netherlands	--	--	3,770	1,750	--	--	3,770	1,750
Pakistan	10,000	2,050	105,000	19,300	17	20	115,000	21,300
Other <sup>4</sup>	10	66	621	874	256	1,500	887	2,440
Total	49,100	18,600	258,000	71,800	14,900	18,600	322,000	109,000
2016:								
Australia	7,560	687	--	--	--	--	7,560	687
Austria	--	--	312	351	3	11	315	362
Brazil	22	47	715	124	1,490	1,910	2,230	2,090
Canada	101	231	89,200	44,900	11,800	12,700	101,000	57,800
China	27,800	8,230	99,900	21,800	773	1,670	128,000	31,700
France <sup>3</sup>	--	--	2,420	2,100	5	9	2,420	2,110
India	64	75	1,590	387	227	562	1,880	1,020
Italy <sup>3</sup>	--	--	1,870	1,800	52	122	1,920	1,920
Japan	--	--	2,010	2,060	218	1,260	2,220	3,320
Netherlands	18	11	4,940	2,560	--	--	4,960	2,570
Pakistan	43,500	7,480	80,800	17,200	--	--	124,000	24,600
Other <sup>4</sup>	10	48	729	801	219	808	958	1,660
Total	79,100	16,800	284,000	94,100	14,700	19,000	378,000	130,000

-- Zero.

<sup>1</sup>Table includes data available through May 24, 2018. Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>U.S. customs declared value.

<sup>3</sup>Data taken from the United Nations Comtrade Database because it is more consistent with data reported by the U.S. Census Bureau in prior years.

<sup>4</sup>Includes 17 countries.

Source: U.S. Census Bureau, except where otherwise noted.

TABLE 5  
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY OR LOCALITY AND PRODUCT<sup>1</sup>

(Metric tons)

Country or locality <sup>2</sup>	2012	2013	2014	2015	2016
Argentina, talc and related materials	13,372 <sup>r</sup>	25,847 <sup>r</sup>	40,011 <sup>r</sup>	32,900 <sup>r,c</sup>	30,000 <sup>c</sup>
Australia, chlorite, pyrophyllite, steatite, talc <sup>c</sup>	83,400 <sup>r</sup>	104,000 <sup>r</sup>	115,000 <sup>r</sup>	80,000 <sup>r</sup>	85,000
Austria, talc, including leucophyllite	134,665 <sup>r</sup>	134,814	131,108	122,306 <sup>r</sup>	125,000 <sup>c</sup>
Bhutan, talc	16,063	9,584	12,601	5,807 <sup>r</sup>	6,000 <sup>c</sup>
Brazil, talc and pyrophyllite					
Beneficiated	133,601	145,106	198,641	200,000 <sup>c</sup>	200,000
Crude	459,539	592,844	644,478	645,000 <sup>c</sup>	645,000
Total	593,140	737,950	843,119	845,000	845,000
Canada, pyrophyllite, soapstone, talc	130,000 <sup>c</sup>	175,000 <sup>c</sup>	90,000 <sup>c</sup>	175,000 <sup>r</sup>	180,000 <sup>c</sup>
Chile, pyrophyllite	730	--	--	--	-- <sup>c</sup>
China, talc and related materials	2,060,000 <sup>r</sup>	1,970,000 <sup>r</sup>	1,870,000 <sup>r</sup>	1,800,000 <sup>r,c</sup>	1,800,000 <sup>c</sup>
Egypt, pyrophyllite, soapstone, talc <sup>c</sup>	22,000	63,000	31,100 <sup>r</sup>	24,400 <sup>r</sup>	25,000
Finland, talc	396,000 <sup>r</sup>	362,000 <sup>r</sup>	380,000 <sup>r</sup>	332,000 <sup>r</sup>	340,000 <sup>c</sup>
France, talc, crude <sup>c</sup>	420,000	450,000	450,000	450,000	450,000
Guatemala, talc	2,311	7,084	7,250	3,779 <sup>r</sup>	4,000 <sup>c</sup>
India:					
Pyrophyllite <sup>3</sup>	257,704 <sup>r</sup>	386,660 <sup>r</sup>	401,347 <sup>r</sup>	167,000 <sup>r,c</sup>	170,000 <sup>c</sup>
Soapstone and steatite	997,000 <sup>r</sup>	821,000 <sup>r</sup>	936,000 <sup>r</sup>	803,000 <sup>r</sup>	810,000 <sup>c</sup>
Total	1,254,947 <sup>r</sup>	1,207,823 <sup>r</sup>	1,337,608 <sup>r</sup>	970,000 <sup>r</sup>	980,000 <sup>c</sup>
Iran, talc	116,000	92,958	52,492 <sup>r</sup>	150,965 <sup>r</sup>	150,000 <sup>c</sup>
Italy, steatite and talc	140,000 <sup>c</sup>	162,234	165,000 <sup>c</sup>	165,000 <sup>c</sup>	165,000 <sup>c</sup>
Japan:					
Pyrophyllite	340,000	350,000 <sup>r</sup>	350,000 <sup>r</sup>	350,000 <sup>r</sup>	350,000
Talc <sup>c</sup>	25,000	25,000	25,000	25,000	25,000
Total	365,000	375,000 <sup>r</sup>	375,000 <sup>r</sup>	375,000 <sup>r</sup>	375,000
Korea, Republic of:					
Pyrophyllite	483,133	524,881	622,865	596,860 <sup>r</sup>	600,000 <sup>c</sup>
Talc	21,625	2,808	5,484	6,371 <sup>r</sup>	6,500 <sup>c</sup>
Total	505,000 <sup>r</sup>	528,000 <sup>r</sup>	628,000 <sup>r</sup>	603,000 <sup>r</sup>	607,000 <sup>c</sup>
Macedonia, talc	286	621	483	598	715
Mexico, talc	463,214	846,813	752,077	752,100 <sup>r</sup>	700,000 <sup>c</sup>
Nepal, talc <sup>4</sup>	5,140	5,703	3,183	1,643	1,700 <sup>c</sup>
Norway, soapstone, steatite, talc	7,983	--	--	--	--
Pakistan, soapstone <sup>5</sup>	110,000 <sup>r</sup>	78,000 <sup>r</sup>	80,300 <sup>r</sup>	114,000 <sup>r</sup>	110,000 <sup>c</sup>
Peru:					
Pyrophyllite	30,399	31,678	17,859	26,209	17,872
Talc	31,559	32,899	28,847	26,758 <sup>r</sup>	11,507
Total	61,958	64,577	46,706	52,967 <sup>r</sup>	29,379
Portugal, talc	15,131	11,348 <sup>r</sup>	14,942	11,204	12,000 <sup>c</sup>
Saudi Arabia, pyrophyllite	8,000	6,000	7,000	8,000	8,000 <sup>c</sup>
Slovakia, talc	2,000	10,000	3,000	3,000 <sup>c</sup>	3,000 <sup>c</sup>
South Africa:					
Pyrophyllite	18,734	17,336	22,500	16,801	19,114
Talc	4,765	4,924	4,827	4,497	4,462
Total	23,499	22,260	27,327	21,298	23,576
Spain, steatite and talc	8,857	--	--	--	--
Taiwan, talc	778	362	133	162	250
Thailand:					
Pyrophyllite	35,000	26,800 <sup>r,c</sup>	49,100	45,500	40,000 <sup>c</sup>
Talc	5,856	7,880	8,208	6,768	7,000 <sup>c</sup>
Total	40,856	34,700 <sup>r</sup>	57,308	52,268	47,000 <sup>c</sup>
Turkey:					
Pyrophyllite	85,251	101,872	100,000 <sup>c</sup>	50,000 <sup>r</sup>	50,000 <sup>c</sup>
Talc	14,537	1,132	5,048	9,681	10,000 <sup>c</sup>
Total	99,788	103,004	105,048	59,681 <sup>r</sup>	60,000 <sup>c</sup>

See footnotes at end of table.



TABLE 5—Continued  
TALC AND PYROPHYLLITE: WORLD PRODUCTION, BY COUNTRY OR LOCALITY AND PRODUCT<sup>1</sup>

(Metric tons)

Country or locality <sup>2</sup>	2012	2013	2014	2015	2016
United Kingdom, pyrophyllite, soapstone, talc	3,667	2,947	4,907	5,000 <sup>e</sup>	5,000 <sup>e</sup>
United States:					
Pyrophyllite	W	W	W	W	W
Talc	515,000	542,000	608,000	615,000 <sup>r</sup>	536,000
Total	515,000	542,000	608,000	615,000 <sup>r</sup>	536,000
Uruguay, pyrophyllite, soapstone, steatite, talc	370	708	360	400 <sup>e</sup>	400 <sup>e</sup>
Grand total	7,620,000 <sup>r</sup>	8,130,000 <sup>r</sup>	8,240,000 <sup>r</sup>	7,830,000 <sup>r</sup>	7,700,000
Of which:					
Chlorite, pyrophyllite, steatite, talc	83,400 <sup>r</sup>	104,000 <sup>r</sup>	115,000 <sup>r</sup>	80,000 <sup>r</sup>	85,000
Pyrophyllite	1,260,000 <sup>r</sup>	1,450,000 <sup>r</sup>	1,570,000 <sup>r</sup>	1,260,000 <sup>r</sup>	1,250,000
Pyrophyllite, soapstone, talc	156,000 <sup>r</sup>	241,000 <sup>r</sup>	126,000 <sup>r</sup>	204,000 <sup>r</sup>	210,000
Pyrophyllite, soapstone, steatite, talc	370 <sup>r</sup>	708 <sup>r</sup>	360 <sup>r</sup>	400 <sup>r</sup>	400
Soapstone	110,000 <sup>r</sup>	78,000 <sup>r</sup>	80,300 <sup>r</sup>	114,000 <sup>r</sup>	110,000
Soapstone and steatite	997,000 <sup>r</sup>	821,000 <sup>r</sup>	936,000 <sup>r</sup>	803,000 <sup>r</sup>	810,000
Soapstone, steatite, talc	7,980 <sup>r</sup>	-- <sup>r</sup>	-- <sup>r</sup>	-- <sup>r</sup>	--
Steatite and talc	149,000 <sup>r</sup>	162,000 <sup>r</sup>	165,000 <sup>r</sup>	165,000 <sup>r</sup>	165,000
Talc	2,190,000 <sup>r</sup>	2,550,000 <sup>r</sup>	2,490,000 <sup>r</sup>	2,520,000 <sup>r</sup>	2,390,000
Talc and pyrophyllite	593,000 <sup>r</sup>	738,000 <sup>r</sup>	843,000	845,000 <sup>r</sup>	845,000

<sup>e</sup>Estimated. <sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data. -- Zero.

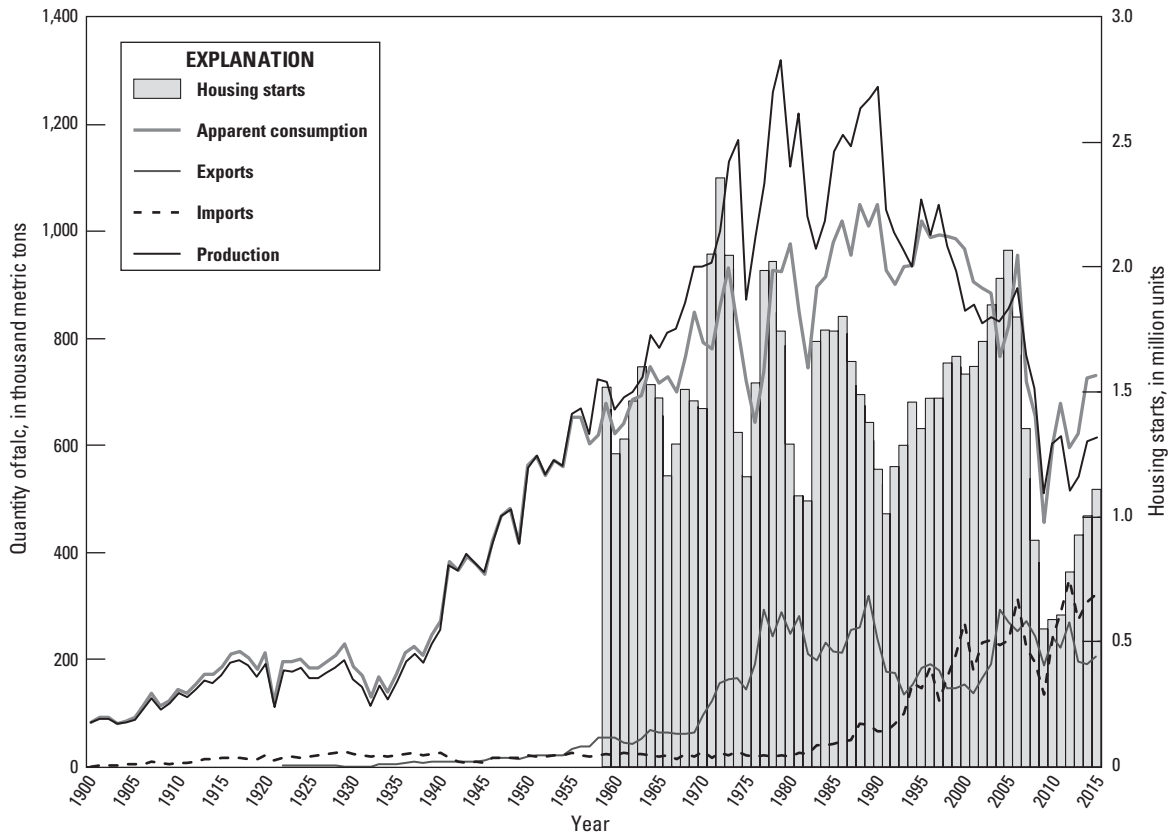
<sup>1</sup>Table includes data available through November 23, 2017. All data are reported unless otherwise noted. Grand totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Talc may have been produced in Nigeria, but available information was inadequate to make reliable estimates of output levels.

<sup>3</sup>Production is based on fiscal year, with a starting date of April 1.

<sup>4</sup>Data based on fiscal year ending mid-July of that stated.

<sup>5</sup>May include talc from Afghanistan but available information was inadequate to estimate the amount produced, if any.



**Figure 1.** Salient U.S. talc statistics from 1900 through 2016 and U.S. housing starts from 1959 through 2016. Pyrophyllite is included with talc production from 1936 through 1990. Production and apparent consumption follow the trend in housing starts owing to use of talc in various construction materials, and the numerous short-term declines in production and apparent consumption often reflect periods of economic recession. Sources: U.S. Census Bureau (2018), U.S. Geological Survey.