

## CLAYS

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** In 2006, clay and shale production was reported in 42 States. About 220 companies operated approximately 800 clay pits or quarries. The leading 20 firms supplied about 50% of the tonnage and 80% of the value for all types of clay sold or used in the United States. In 2006, domestic producers estimated that sales or use will be 41.3 million tons valued at \$1.62 billion, excluding attapulgite-type fuller's earth. Major uses for specific clays were estimated to be as follows: ball clay—40% floor and wall tile, 31% sanitaryware, and 29% other uses; bentonite—26% absorbents, 23% foundry sand bond, 22% drilling mud, 13% iron ore pelletizing, and 16% other uses; common clay—61% brick, 16% lightweight aggregate, 15% cement, and 8% other uses; fire clay—46% refractories and 54% heavy clay products; fuller's earth—86% absorbent uses and 14% other uses; and kaolin—61% paper and 39% other uses.

<b>Salient Statistics—United States:</b> <sup>1</sup>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006<sup>e</sup></b>
Production, mine:					
Ball clay	1,120	1,310	1,220	1,210	1,200
Bentonite	3,970	3,770	4,550	4,710	4,620
Common clay	23,000	23,100	24,600	24,500	24,400
Fire clay	446	345	307	353	350
Fuller's earth	2,730	3,610	3,260	<sup>2</sup> 2,990	<sup>2</sup> 2,980
Kaolin	<u>8,010</u>	<u>7,680</u>	<u>7,760</u>	<u>7,800</u>	<u>7,740</u>
Total <sup>3</sup>	39,300	39,800	41,700	<sup>2</sup> 41,600	<sup>2</sup> 41,300
Imports for consumption:					
Artificially activated clay and earth	27	21	25	16	16
Kaolin	158	224	205	262	290
Other	<u>32</u>	<u>34</u>	<u>21</u>	<u>23</u>	<u>24</u>
Total <sup>3</sup>	217	279	251	301	330
Exports:					
Ball clay	127	139	107	141	137
Bentonite	722	721	915	847	1,230
Fire clay <sup>4</sup>	251	285	332	368	350
Fuller's earth	60	48	49	55	73
Kaolin	3,350	3,520	3,640	3,580	3,480
Clays, not elsewhere classified	<u>449</u>	<u>416</u>	<u>586</u>	<u>634</u>	<u>620</u>
Total <sup>3</sup>	4,960	5,130	5,630	5,620	5,890
Consumption, apparent	34,600	34,900	36,300	36,300	35,700
Price, average, dollars per ton:					
Ball clay	42	43	44	44	45
Bentonite	45	44	45	46	47
Common clay	6	6	7	7	7
Fire clay	24	28	28	30	31
Fuller's earth	90	96	101	104	108
Kaolin	119	122	121	110	114
Stocks, yearend <sup>5</sup>	NA	NA	NA	NA	NA
Employment, number: <sup>e</sup>					
Mine	1,350	1,320	1,250	1,270	1,270
Mill	5,200	5,000	4,980	5,000	5,100
Net import reliance <sup>6</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** Insignificant.

**Import Sources (2002-05):** Brazil, 74%; Mexico, 6%; United Kingdom, 6%; Canada, 4%; and other, 10%.

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<b>Tariff:</b> Item	Number	Normal Trade Relations <u>12-31-06</u>
Kaolin and other kaolinitic clays, whether or not calcined	2507.00.0000	Free.
Bentonite	2508.10.0000	Free.
Fuller's and decolorizing earths	2508.20.0000	Free.
Fire clay	2508.30.0000	Free.
Common blue and other ball clays	2508.40.0010	Free.
Other clays	2508.40.0050	Free.
Chamotte or dina's earth	2508.70.0000	Free.
Activated clays and earths	3802.90.2000	2.5% ad val.
Expanded clays and mixtures	6806.20.0000	Free.

**Depletion Allowance:** Ball clay, bentonite, fire clay, fuller's earth, and kaolin, 14% (Domestic and foreign); clay used in the manufacture of common brick, lightweight aggregate, and sewer pipe, 7.5% (Domestic and foreign); clay used in the manufacture of drain and roofing tile, flower pots, and kindred products, 5% (Domestic and foreign); clay used for alumina and aluminum compounds, 22% (Domestic).

**Government Stockpile:** None.

**Events, Trends, and Issues:** Domestic sales or use of clays was estimated to be 41.3 million tons, excluding attapulgite-type fuller's earth, a decrease from 41.6 million tons in 2005. Imports for consumption increased to 330,000 tons. The major sources of imported clay were Brazil (kaolin), Canada (bentonite), Mexico (activated clay), and the United Kingdom (kaolin). Exports increased to 5.89 million tons. Major markets for exported clays, by descending order of tonnage, were Canada, Japan, Mexico, Republic of Korea, France, India, and Germany.

**World Mine Production, Reserves, and Reserve Base:**<sup>7</sup> Reserves and reserve base are large in major producing countries, but data are not available.

	Bentonite		Mine production Fuller's earth		Kaolin	
	2005	2006 <sup>e</sup>	2005	2006 <sup>e</sup>	2005	2006 <sup>e</sup>
United States (sales)	4,710	4,620	<sup>2</sup> 2,990	<sup>2</sup> 2,980	7,800	7,740
Brazil (beneficiated)	227	221	—	—	2,200	2,400
Commonwealth of Independent States (crude)	750	800	—	—	6,240	6,240
Czech Republic (crude)	200	200	—	—	4,000	4,000
Germany (sales)	410	400	<sup>8</sup> 500	—	3,750	3,770
Greece (crude)	950	950	—	—	60	60
Italy	500	500	30	30	10	10
Korea, Republic of (crude)	—	—	—	—	2,770	3,000
Mexico	426	450	107	110	877	900
Spain	150	150	720	700	350	350
Turkey	925	900	—	—	580	600
United Kingdom (sales)	—	—	140	140	2,400	2,400
Other countries	<u>2,450</u>	<u>2,610</u>	<u>1,120</u>	<u>1,200</u>	<u>13,700</u>	<u>13,300</u>
World total (rounded)	11,700	11,800	5,610	5,160	44,700	44,800

**World Resources:** Resources of all clays are extremely large.

**Substitutes:** Alternatives, such as calcium carbonate and talc, are available for filler and extender applications.

<sup>e</sup>Estimated. E Net exporter. NA Not available. — Zero.

<sup>1</sup>Excludes Puerto Rico.

<sup>2</sup>Does not include attapulgite-type fuller's earth.

<sup>3</sup>Data may not add to totals shown because of independent rounding.

<sup>4</sup>Also includes some refractory-grade kaolin.

<sup>5</sup>Data on stocks are not available and are assumed to be zero for apparent consumption and net import reliance calculations.

<sup>6</sup>Defined as imports – exports + adjustments for Government and industry stock changes.

<sup>7</sup>See Appendix C for definitions.

<sup>8</sup>May represent double counting of bentonite as fuller's earth.