

## CLAYS

(Data in thousand metric tons unless otherwise specified)

**Domestic Production and Use:** Production of clays (sold or used) in the United States was estimated to be 26 million tons valued at \$1.7 billion in 2024, with about 120 companies operating clay and shale mines in 38 States. The leading 20 companies produced approximately 66% of the U.S. tonnage and 82% of the value for all types of clay. Principal domestic uses for specific clays were estimated to be as follows: ball clay (61% floor and wall tile), bentonite (48% pet waste absorbents and 23% drilling mud), common clay (47% brick, 25% lightweight aggregate, and 22% cement), fuller's earth (77% absorbents, including oil and grease absorbents, pet waste absorbents, and miscellaneous absorbents), and kaolin (54% fillers, extenders, and binders and 23% ceramics). Fire clay uses were withheld to avoid disclosing company proprietary data.

In 2024, the United States exported an estimated 700,000 tons of bentonite; Canada, Japan, and Mexico, in decreasing order, were the leading destinations. About 1.6 million tons of kaolin was exported mainly as a paper coating and filler; a component in ceramic bodies; and fillers and extenders in paint, plastic, and rubber products; China, Mexico, and Japan, in decreasing order, were the leading destinations. Lesser quantities of ball clay, fire clay, and fuller's earth were exported.

**Salient Statistics—United States:**

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024<sup>e</sup></u>
Production (sold or used):					
Ball clay	985	<sup>e</sup> 1,080	<sup>e</sup> 1,030	<sup>e</sup> 1,000	1,000
Bentonite	4,250	4,580	4,580	4,360	4,800
Common clay	12,900	12,700	12,900	12,500	13,000
Fire clay	635	675	<sup>e</sup> 622	685	670
Fuller's earth <sup>e, 1</sup>	2,120	2,240	2,200	2,260	2,400
Kaolin <sup>e</sup>	<u>4,640</u>	<u>4,360</u>	<u>4,340</u>	<u>4,560</u>	<u>4,500</u>
Total <sup>1, 2</sup>	25,500	25,700	25,700	25,400	26,000
Imports for consumption:					
Artificially activated clays and earths	31	41	58	72	66
Kaolin	224	149	200	125	130
Other	<u>28</u>	<u>47</u>	<u>49</u>	<u>35</u>	<u>66</u>
Total <sup>2</sup>	284	237	306	232	270
Exports:					
Artificially activated clays and earths	127	139	134	92	92
Ball clay	68	139	165	145	170
Bentonite	728	861	830	785	700
Clays, not elsewhere classified	185	186	208	194	180
Fire clay <sup>3</sup>	190	210	158	133	140
Fuller's earth	77	83	87	70	75
Kaolin	<u>1,990</u>	<u>2,330</u>	<u>2,020</u>	<u>1,510</u>	<u>1,600</u>
Total <sup>2</sup>	3,360	3,950	3,610	2,930	2,900
Consumption, apparent <sup>4</sup>	22,400	22,000	22,400	22,700	23,000
Price, average unit value, ex-works, dollars per metric ton:					
Ball clay	46	46	47	44	44
Bentonite	97	100	101	102	99
Common clay	17	17	17	18	18
Fire clay	12	12	12	15	15
Fuller's earth <sup>1</sup>	90	88	91	91	90
Kaolin	159	152	157	161	160
Employment (excludes office workers), number: <sup>e</sup>					
Mine (may not include contract workers)	1,060	1,060	1,060	1,110	1,200
Mill	4,260	4,240	4,240	4,320	4,400
Net import reliance <sup>5</sup> as a percentage of apparent consumption	E	E	E	E	E

**Recycling:** Insignificant.

**Import Sources (2020–23):** All clay types combined: Brazil, 62%; Mexico, 21%; China, 3%; Spain 3%; and other, 11%.

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<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
			<b><u>12-31-24</u></b>
	Kaolin and other kaolinic clays, whether or not calcined	2507.00.0000	Free.
	Bentonite	2508.10.0000	Free.
	Fire clay	2508.30.0000	Free.
	Common blue clay and other ball clays	2508.40.0110	Free.
	Decolorizing earths and fuller's earth	2508.40.0120	Free.
	Other clays	2508.40.0150	Free.
	Chamotte or dinas earth	2508.70.0000	Free.
	Activated clays and activated earths	3802.90.2000	2.5% ad valorem.
	Expanded clays and other 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, flowerpots, and kindred products, 5% (domestic and foreign); clay from which alumina and aluminum compounds are extracted, 22% (domestic).

**Government Stockpile:** None.

**Events, Trends, and Issues:** The total tonnage of clays sold or used by domestic producers increased from that in 2023; ball clay, bentonite, common clay, and fuller's earth, increased or were unchanged, whereas fire clay and kaolin decreased in 2024. Imports for all types of clay increased by 14% to 270,000 tons; Brazil and Mexico, in decreasing order, were the major sources for imported clays in 2024. U.S. apparent consumption in 2024 was estimated to be 23 million tons, compared with 22.7 million tons in 2023.

**World Mine Production and Reserves:**<sup>6</sup> Global reserves are large, but country-specific data were not available.

	<b>Bentonite</b>		<b>Mine production Fuller's earth</b>		<b>Kaolin</b>	
	<b><u>2023</u></b>	<b><u>2024<sup>e</sup></u></b>	<b><u>2023</u></b>	<b><u>2024<sup>e</sup></u></b>	<b><u>2023</u></b>	<b><u>2024<sup>e</sup></u></b>
United States	4,360	4,800	<sup>1</sup> 2,260	<sup>1</sup> 2,400	<sup>e</sup> 4,560	4,500
Brazil (beneficiated)	386	390	—	—	828	830
China	<sup>e</sup> 2,100	2,100	—	—	<sup>e</sup> 7,800	7,800
Czechia	196	200	—	—	<sup>7</sup> 2,400	<sup>7</sup> 2,400
Denmark	<sup>e</sup> 925	930	—	—	—	—
Greece	<sup>7</sup> 1,110	<sup>7</sup> 1,100	49	50	—	—
India	<sup>e</sup> 3,700	3,700	<sup>e</sup> 730	730	<sup>e, 7</sup> 8,400	<sup>7</sup> 8,400
Iran	<sup>e</sup> 850	850	—	—	<sup>e</sup> 2,100	2,100
Mexico	<sup>e</sup> 79	80	<sup>e</sup> 120	120	<sup>e</sup> 230	230
Russia	<sup>e</sup> 36	40	—	—	<sup>e</sup> 2,500	2,500
Senegal	—	—	<sup>e</sup> 150	150	—	—
Spain	118	120	<sup>e</sup> 620	620	<sup>e, 7</sup> 280	<sup>7</sup> 280
Turkey	2,490	2,500	74	70	1,350	1,300
Uzbekistan	<sup>e</sup> 60	60	—	—	<sup>e</sup> 4,000	4,000
Other countries	<u>3,870</u>	<u>3,900</u>	<u>195</u>	<u>190</u>	<u>9,950</u>	<u>9,900</u>
World total (rounded) <sup>2</sup>	20,300	21,000	<sup>1</sup> 4,200	<sup>1</sup> 4,300	44,400	44,000

**World Resources:**<sup>6</sup> Resources of all clays are extremely large.

**Substitutes:** Clays compete with calcium carbonate in filler and extender applications; diatomite, organic pet litters, polymers, silica gel, and zeolites as absorbents; and various siding and roofing types in building construction.

<sup>e</sup>Estimated. E Net exporter. — Zero.

<sup>1</sup>Does not include U.S. production of attapulgite.

<sup>2</sup>Data may not add to totals shown because of independent rounding.

<sup>3</sup>Includes refractory-grade kaolin.

<sup>4</sup>Defined as production (sold or used) + imports – exports.

<sup>5</sup>Defined as imports – exports.

<sup>6</sup>See Appendix C for resource and reserve definitions and information concerning data sources.

<sup>7</sup>Includes production of crude ore.