

FELDSPAR AND NEPHELINE SYENITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: U.S. feldspar production in 2016 had an estimated value of \$43.6 million. The three leading producers mined and processed about 80% of production, with four other companies supplying the remainder. Producing States were North Carolina, Idaho, California, Virginia, Oklahoma, and South Dakota, in descending order of estimated tonnage. Feldspar processors reported coproduct recovery of mica and silica sand. The only nepheline syenite produced in the United States was used in construction applications and is not included in production.

Feldspar is ground to about 20 mesh for glassmaking and to 200 mesh or finer for most ceramic and filler applications. It was estimated that domestically produced feldspar was transported by ship, rail, or truck to at least 30 States and to foreign destinations, including Canada and Mexico. In pottery and glass, feldspar and nepheline syenite function as a flux. The estimated 2015 end-use distribution of domestic feldspar and nepheline syenite was glass, 60%, and ceramic tile, pottery, and other uses, 40%.

Salient Statistics—United States:	2012	2013	2014	2015	2016^e
Production, marketable ¹	560	550	530	520	600
Imports for consumption:					
Feldspar	2	4	8	120	50
Nepheline syenite	386	491	503	449	470
Exports, feldspar	14	18	16	15	6
Consumption, apparent ^{1,2}					
Feldspar only	550	540	520	625	640
Feldspar and nepheline syenite	930	1,000	1,000	1,100	1,100
Price, average value, feldspar, marketable production, dollars per ton	66	73	66	73	73
Employment, mine, preparation plant, and office, number ^e	380	380	370	370	380
Net import reliance ³ as a percentage of apparent consumption:					
Feldspar	E	E	E	20	10
Nepheline syenite	100	100	100	100	100

Recycling: Feldspar and nepheline syenite are not recycled by producers; however, glass container producers use cullet (recycled container glass), thereby reducing feldspar and nepheline syenite consumption.

Import Sources (2012–15): Feldspar: Turkey, 94%; Mexico, 3%; and other 3%. Nepheline syenite: Canada, 99%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations 12–31–16
Feldspar	2529.10.0000	Free.
Nepheline syenite	2529.30.0010	Free.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: In 2016, domestic production and sales of feldspar increased by 14% from those of 2015, buoyed by continuing growth in the construction industry. In Europe, consumption of feldspar likely declined, mostly owing to continued sluggishness in the region's construction industry. In Asia, economic growth continued and consumption of feldspar increased, especially in India; in China, construction increased but at a lower rate than during several previous years.

Glass, including beverage containers, plate glass, and fiberglass insulation for housing and building construction, continued to be the leading end use of feldspar in the United States. More than one-half of feldspar consumed by the glass industry is for the manufacture of container glass. The glass container industry was moderately stable, although the trend in recent years to import less-expensive containers from China continued to present a challenge to the industry.

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In the United States, residential construction, in which feldspar is a raw material commonly used in the manufacture of plate glass, ceramic tiles and sanitaryware, and insulation, increased in the first half of 2016. Housing starts and completions rose by about 13% and 14%, respectively, compared with those of the same period in 2015, and increases were expected to continue in 2017. Spending on nonresidential construction, which accounted for about 60% of construction expenditures, increased by about 4% in the first 8 months of 2016 compared with the same period in 2015. Spending on residential construction increased by more than 6% during the first 8 months of 2016 compared with the same period in 2015. Increased residential and nonresidential construction is expected to continue in 2017 leading to an increase in feldspar consumption in this sector.

Domestic feldspar consumption has been gradually shifting toward glass markets from that of ceramics. A growing segment in the glass industry was solar glass, used in the production of solar panels.

Imports of nepheline syenite, which may be substituted for feldspar in some glass and more commonly in ceramic tile manufacture applications, increased by about 5% in the first 8 months of 2016 compared with the same period in 2015; virtually all nepheline syenite imports came from Canada.

A company based in Canada proceeded with development of its White Mountain high-purity calcium feldspar (anorthosite) deposit in southwestern Greenland. Owing to the feldspar's purity and tests indicating an alumina recovery of greater than 90%, the company targeted the paints and coatings industry for the product's use as a filler. Additional potential nonmetallurgical applications include refractories and ceramics, all of which require the higher purity feldspar.

World Mine Production and Reserves:⁴ Reserves for the Czech Republic were revised based on new Government information.

	Mine production		Reserves ⁵
	2015	2016 ^e	
United States ¹	520	600	NA
Brazil	330	330	320,000
China	2,500	2,500	NA
Czech Republic	430	430	28,000
Egypt	300	300	1,000,000
India	1,500	1,500	45,000
Iran	1,200	1,300	630,000
Italy	4,700	4,700	NA
Korea, Republic of	601	400	NA
Malaysia	343	350	NA
Poland	400	400	14,000
Russia	400	400	NA
Spain	600	600	NA
Thailand	1,300	1,500	NA
Turkey	5,000	5,000	240,000
Venezuela	500	500	NA
Other countries	2,090	2,200	NA
World total (rounded)	22,700	23,000	Large

World Resources: Identified and undiscovered resources of feldspar are more than adequate to meet anticipated world demand. Quantitative data on resources of feldspar existing in feldspathic sands, granites, and pegmatites generally have not been compiled. Ample geologic evidence indicates that resources are large, although not always conveniently accessible to the principal centers of consumption.

Substitutes: Imported nepheline syenite was the major alternative material for feldspar. Feldspar also can be replaced in some of its end uses by clays, electric furnace slag, feldspar-silica mixtures, pyrophyllite, spodumene, or talc.

^eEstimated. E Net exporter. NA Not available.

¹Rounded to two significant digits to avoid disclosing company proprietary data.

²Defined as production + imports – exports.

³Defined as imports – exports.

⁴Feldspar only.

⁵See [Appendix C](#) for resource and reserve definitions and information concerning data sources.