

FELDSPAR AND NEPHELINE SYENITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: U.S. feldspar production in 2017 had an estimated value of \$35.4 million. The three leading companies mined and processed about 75% of production; four other companies supplied the remainder. Producing States were North Carolina, Virginia, California, Idaho, Oklahoma, and South Dakota, in descending order of estimated tonnage. Feldspar processors reported coproduct recovery of mica and silica sand. Nepheline syenite produced in the United States was mostly 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 2016 end-use distribution of domestic feldspar and nepheline syenite was glass, about 60%, and ceramic tile, pottery, and other uses, 40%.

Salient Statistics—United States:	2013	2014	2015	2016	2017^e
Production, marketable ¹	550	530	520	470	530
Imports for consumption:					
Feldspar	4	8	120	37	190
Nepheline syenite	491	503	449	572	1,300
Exports, feldspar	18	16	15	6	6
Consumption, apparent ^{1, 2}					
Feldspar only	540	520	625	501	710
Feldspar and nepheline syenite	1,000	1,000	1,100	1,100	2,000
Price, average value, dollars per ton:					
Feldspar only, marketable production,	73	66	73	69	67
Nepheline syenite, import value	121	127	150	128	100
Employment, mine, preparation plant, and office, number ^e	280	270	270	250	260
Net import reliance ³ as a percentage of apparent consumption:					
Feldspar	E	E	17	6	26
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 (2013–16): Feldspar: Turkey, 94%; Mexico and Spain, 2% each; and other, 2%. Nepheline syenite: Canada, 100%.

Tariff: Item	Number	Normal Trade Relations 12–31–17
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 2017, domestic production and sales of feldspar increased by more than 10% and the average unit value of sales decreased by 3% from those of 2016, in part in response to increased competition from imported feldspar and nepheline syenite, up by more than 400% and 100%, respectively. A company based in Canada continued development of a feldspar-quartz-kaolin project in Idaho that contained high-grade potassium feldspar. With its first production not yet established, production of about 45,000 tons of potassium feldspar per year is expected during a 25-year mine life. For several years, the operation has produced a low iron and trace element feldspathic sand product from old mine tailings that it has marketed to ceramic tile producers.

Domestic feldspar consumption has been gradually shifting toward glass from ceramics. A growing segment in the glass industry was solar glass, used in the production of solar panels. Glass, including beverage containers (more than one-half of the feldspar consumed by the glass industry), plate glass, and fiberglass insulation for housing and building construction, continued to be the leading end use of feldspar in the United States.

FELDSPAR AND NEPHELINE SYENITE

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 9 months of 2017 compared with the same period in 2016; housing starts and completions rose by about 3% and 11%, respectively. Use of feldspar and nepheline syenite from domestic and foreign sources were expected to increase in 2018, in part owing to an increase in construction and refurbishment projects resulting from the destruction of homes, buildings and infrastructure that took place in 2017 during an active hurricane season along the Gulf Coast and the Southeastern States and wildfires in portions of the Western States. Spending on residential and nonresidential construction increased by 11% and 2%, respectively, during the first 9 months of 2017 compared with the same period in 2016.

Imports of nepheline syenite, which may be substituted for feldspar in some glass and more commonly in ceramic tile manufacture applications, doubled in the first 9 months of 2017 compared with the same period in 2016; virtually all nepheline syenite imports came from Canada.

A company based in Canada continued development of its White Mountain high-purity calcium feldspar (anorthosite) deposit in southwestern Greenland. With construction of all necessary facilities under way, the company planned to begin commissioning of the processing plant in the summer of 2018 and to ship products to customers in the latter half of 2018. Owing to the feldspar's purity and tests, which indicate an alumina recovery of greater than 90%, the company is targeting its product as a replacement for kaolin in the production of electrical-grade glass (E-glass) fiberglass; kaolin and nepheline syenite in the filler market for paints, coatings, and polymers; and bauxite as a primary source of alumina. Additional potential applications include refractories and ceramics, all of which require higher purity feldspar.

World Mine Production and Reserves:⁴ Reserves data for Poland were revised based on Government information.

	Mine production		Reserves ⁵
	2016	2017 ^e	
United States ¹	470	530	NA
Brazil	400	400	320,000
China	3,500	3,500	NA
Czechia	420	420	28,000
Egypt	400	400	1,000,000
India	1,500	1,500	45,000
Iran	1,000	1,000	630,000
Italy	4,000	3,500	NA
Korea, Republic of	600	600	NA
Malaysia	330	330	NA
Poland	600	600	16,000
Spain	600	600	NA
Thailand	1,300	1,300	NA
Turkey	5,500	5,500	240,000
Venezuela	500	500	NA
Other countries	2,500	2,400	NA
World total (rounded)	23,600	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 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.