FELDSPAR AND NEPHELINE SYENITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: U.S. feldspar production in 2019 had an estimated value of $46 million. The three leading companies mined and processed about 80% of production; four other companies supplied the remainder. Producing States were North Carolina, California, Oklahoma, Virginia, and Idaho, in descending order of estimated tonnage. Feldspar processors reported joint product recovery of mica and silica sand. Nepheline syenite produced in the United States was not included in production figures because the material was not considered to be marketable as a flux and was mostly used in construction applications.

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 2019 end-use distribution of domestic feldspar and nepheline syenite was glass, about 65%, and ceramic tile, pottery, and other uses, 35%.

Salient Statistics—United States:	**2015**	**2016**	**2017**	**2018**	**2019[e]**
Production, marketable[1]	520	470	440	550	470
Imports for consumption:					
Feldspar	120	37	290	181	75
Nepheline syenite	449	572	1,460	1,070	500
Exports, feldspar	15	6	5	4	5
Consumption, apparent[1, 2]					
Feldspar only	630	510	730	720	540
Feldspar and nepheline syenite	1,100	1,100	2,200	1,800	1,000
Price, average value, dollars per ton:					
Feldspar only, marketable production	71	69	64	97	97
Nepheline syenite, import value	150	128	61	76	157
Employment, mine, preparation plant, and office, number[e]	270	250	240	240	240
Net import reliance[3] as a percentage of apparent consumption:					
Feldspar	17	6	39	24	13
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 (2015–18): Feldspar: Turkey, 98%; and other, 2%. Nepheline syenite: Canada, 100%.

Tariff: Item	**Number**	**Normal Trade Relations 12–31–19**
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 2019, domestic production and sales of feldspar decreased by almost 15% and the average unit value of sales was virtually unchanged from that of 2018. Imports of feldspar and nepheline syenite decreased substantially in 2019 and appear to have returned to the levels of imports prior to the unusually high level of 2017. A company based in Canada continued development of a feldspar-quartz-kaolin project in Idaho that contained high-grade potassium feldspar. In March 2019, the company amended project development plans to open a smaller than initially planned operation, with production expected to be about 30,000 tons per year of potassium feldspar 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, which was sold to ceramic tile producers.

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FELDSPAR AND NEPHELINE SYENITE

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.

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, slowed down during the first 9 months of 2019 compared with the same period in 2018.

A company based in Canada continued development of its White Mountain high-purity calcium feldspar (anorthosite) deposit in southwestern Greenland; the construction of all necessary facilities was finished in 2018. Upon completion of the electrical components and the road to the port facility, the company began shipping products to customers in August 2019. 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 bauxite as a primary source of alumina. In addition, this high-purity calcium feldspar is targeted to compete with kaolin in the production of electrical-grade glass (E-glass) fiberglass and kaolin and premium nepheline syenite in the filler market for paint and clear-coating formulations and polymers.

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

	Mine production		Reserves[5]
	2018	2019[e]	
United States[1]	550	470	NA
Brazil (beneficiated marketable)	400	400	150,000
China	2,000	2,000	NA
Czechia	449	460	23,000
Egypt	400	400	1,000,000
India	4,000	4,000	320,000
Iran	750	750	630,000
Italy	4,000	4,000	NA
Korea, Republic of	617	650	240,000
Malaysia	420	420	NA
Spain (includes pegmatites)	600	600	NA
Thailand	1,500	1,600	235,000
Turkey	7,500	7,500	240,000
Other countries	2,380	2,400	NA
World total (rounded)	25,600	26,000	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.

[e]Estimated. NA Not available.

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

[2]Defined as production + imports – exports.

[3]Defined as imports – exports.

[4]Feldspar only.

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