

FELDSPAR AND NEPHELINE SYENITE

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: U.S. feldspar production in 2021 had an estimated value of \$43 million. Two leading companies mined and processed about 60% of production; five other companies supplied the remainder. The five leading producing States were California, North Carolina, Oklahoma, South Dakota, and Virginia. 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 2021 end-use distribution of domestic feldspar and nepheline syenite was glass, 65%, and ceramic tile, pottery, and other uses, 35%.

<u>Salient Statistics—United States:</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021^e</u>
Production, feldspar, marketable ¹	440	550	450	430	400
Imports for consumption:					
Feldspar	290	181	64	43	190
Nepheline syenite	1,460	1,070	508	503	520
Exports, feldspar	5	4	4	3	4
Consumption, apparent: ^{1, 2}					
Feldspar only	730	730	510	470	590
Feldspar and nepheline syenite	2,200	1,800	1,000	980	1,100
Price, average value, dollars per ton:					
Feldspar only, marketable production	62	97	107	108	110
Nepheline syenite, average unit value of imports	61	76	156	163	170
Employment, mine, preparation plant, and office, number ^e	240	240	240	240	220
Net import reliance ³ as a percentage of apparent consumption:					
Feldspar	39	24	12	8	32
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 (2017–20): Feldspar: Turkey, 98%; and other, 2%. Nepheline syenite: Canada, 100%.

<u>Tariff:</u>	<u>Item</u>	<u>Number</u>	<u>Normal Trade Relations</u>
			<u>12–31–21</u>
	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 2021, estimated domestic production and sales of feldspar decreased by about 6%, and the average unit value of sales slightly increased compared with that in 2020. Estimated imports of feldspar were more than fourfold those in 2020, and nepheline syenite imports increased by an estimated 3% in 2021. Imports of nepheline syenite reported by the U.S. Census Bureau in 2017 and 2018 were unusually high.

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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, increased by 17% during the first 10 months of 2021 compared with that in the same period in 2020. Production and sales of feldspar are expected to increase into 2022, owing in part to low mortgage interest rates, increased demand for single-family homes as the global COVID-19 pandemic made multifamily homes less desirable, and supply shortages of materials needed in new residential construction.

A company based in Canada continued development of a feldspar-quartz-kaolin project in Idaho that contained high-grade potassium feldspar. Production was 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.

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

	Mine production		Reserves ⁵
	2020	2021 ^e	
United States ¹	430	400	NA
Brazil (beneficiated, marketable)	300	300	150,000
China	2,500	2,600	NA
Czechia	419	420	22,000
India	6,000	6,200	320,000
Iran	2,400	2,400	630,000
Italy	2,200	2,200	NA
Korea, Republic of	415	420	180,000
Mexico	300	500	NA
Poland	405	350	NA
Russia	300	350	NA
Spain (includes pegmatites)	650	800	NA
Thailand	1,200	1,300	220,000
Turkey	5,000	7,800	240,000
Other countries	<u>1,920</u>	<u>1,900</u>	<u>NA</u>
World total (rounded)	24,400	28,000	Large

World Resources:⁵ 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. 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.