

POTASH

(Data in thousand metric tons of K₂O equivalent unless otherwise noted)

Domestic Production and Use: In 2018, the estimated sales value of marketable potash, f.o.b. mine, was \$400 million, which was 5% more than that in 2017. Potash denotes a variety of mined and manufactured salts, which contain the element potassium in water-soluble form. In agriculture, the term potash refers to potassic fertilizers, which are potassium chloride (KCl), potassium sulfate or sulfate of potash (SOP), and potassium magnesium sulfate (SOPM) or langbeinite. Muriate of potash (MOP) is an agriculturally acceptable mix of KCl (95% pure or greater) and sodium chloride for fertilizer use. The majority of U.S. production was from southeastern New Mexico, where two companies operated two underground mines and one deep-well solution mine. Sylvinite and langbeinite ores in New Mexico were beneficiated by flotation, dissolution-recrystallization, heavy-media separation, solar evaporation, and (or) combinations of these processes, and accounted for about 50% of total U.S. producer sales. In Utah, two companies operated three facilities. One company extracted underground sylvinite ore by deep-well solution mining. Solar evaporation crystallized the sylvinite ore from the brine solution, and a flotation process separated the MOP from byproduct sodium chloride. The firm also processed subsurface brines by solar evaporation and flotation to produce MOP at its other facility. Another company processed brine from the Great Salt Lake by solar evaporation to produce SOP and other byproducts.

The fertilizer industry used about 85% of U.S. potash sales, and the remainder was used for chemical and industrial applications. About 65% of the potash produced was SOPM and SOP, which are required to fertilize certain chloride-sensitive crops. Muriate of potash accounted for the remaining 35% of production and was used for agricultural and chemical applications.

Salient Statistics—United States:	2014	2015	2016	2017	2018^e
Production, marketable ¹	850	740	510	480	500
Sales by producers, marketable ¹	930	620	600	490	550
Imports for consumption	4,970	5,000	4,550	5,870	5,900
Exports	100	106	96	128	110
Consumption, apparent ^{1, 2}	5,800	5,500	5,000	6,200	6,300
Price, dollars per ton of K ₂ O, average, all products, f.o.b. mine ³	735	880	680	775	740
Price, dollars per ton of K ₂ O, average, muriate, f.o.b. mine	560	580	350	410	415
Employment, number, mine and mill	1,400	1,300	1,150	900	900
Net import reliance ⁴ as a percentage of apparent consumption	85	87	90	92	92

Recycling: None.

Import Sources (2014–17): Canada, 84%; Russia, 7%; Belarus, 3%; Israel, 3%; and other, 3%.

Tariff:	Item	Number	Normal Trade Relations 12–31–18
	Potassium nitrate	2834.21.0000	Free.
	Potassium chloride	3104.20.0000	Free.
	Potassium sulfate	3104.30.0000	Free.
	Potassic fertilizers, other	3104.90.0100	Free.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: U.S. production of potash was slightly higher in 2018, owing to increased output of SOP and SOPM. Apparent consumption of potash was estimated to have increased slightly because of stronger demand for fertilizers and for oil-well-drilling-fluid additives. Imports of MOP from Canada increased by about 3% over those of 2017.

In May 2018, the U.S. Department of the Interior, in coordination with other executive branch agencies, published a list of 35 critical minerals (83 FR 23295), including potash. This list was developed to serve as an initial focus, pursuant to Executive Order 13817, “A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals” (82 FR 60835).

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Two of the four Canadian potash producers completed their merger in January 2018. The new company accounts for 24% of world MOP capacity, making it the leading world producer. Canada led the world in potash production, with about 38% of global production capacity.

In 2018, one company opened two new potash mines in Russia. Each mine had a production capacity of 2.3 million tons per year of MOP. The company planned to ramp up to full production by 2021, depending on economic conditions.

Between 2019 and 2022, other new mines were planned to start production in Belarus, China, Laos, and Spain, and expansion projects at existing facilities were ongoing in Belarus, China, and Russia. These new projects would increase world production capacity to 64.6 million tons of K₂O in 2022 from 58.7 million tons of K₂O in 2018. Other new potash mine projects in Argentina, Australia, Canada, Congo (Brazzaville), Eritrea, Ethiopia, Peru, and the United Kingdom were delayed until after 2023, owing to financing difficulties and low potash prices. Canada, Russia, and Belarus were expected to remain the leading world producers and suppliers, by quantity. World potash consumption for all uses was projected to increase to 46.2 million tons in 2022 from 42.2 million tons in 2018, with the largest consumption in Asia and South America.

World Mine Production and Reserves: Reserves for the United States, Canada, Chile, China, Spain, and the United Kingdom were revised with information contained in individual company reports. Reserves for Russia were revised based on official Government data.

	Mine production		Reserves ⁵	
	2017	2018 ^e	Recoverable ore	K ₂ O equivalent
United States ¹	480	500	970,000	220,000
Belarus	7,100	7,100	3,300,000	750,000
Brazil	290	300	310,000	24,000
Canada	12,200	12,000	4,900,000	1,200,000
Chile	1,100	1,000	NA	100,000
China	5,510	5,500	NA	350,000
Germany	2,700	2,900	NA	150,000
Israel	2,000	2,000	NA	⁶ 270,000
Jordan	1,390	1,400	NA	⁶ 270,000
Russia	7,300	7,500	NA	2,000,000
Spain	610	560	NA	41,000
United Kingdom	250	190	NA	170,000
Other countries	500	600	1,500,000	280,000
World total (rounded)	41,400	42,000	NA	5,800,000

World Resources: Estimated domestic potash resources total about 7 billion tons. Most of these lie at depths between 1,800 and 3,100 meters in a 3,110-square-kilometer area of Montana and North Dakota as an extension of the Williston Basin deposits in Manitoba and Saskatchewan, Canada. The Paradox Basin in Utah contains resources of about 2 billion tons, mostly at depths of more than 1,200 meters. The Holbrook basin of Arizona contains resources of about 0.7 to 2.5 billion tons. A large potash resource lies about 2,100 meters under central Michigan and contains more than 75 million tons. Estimated world resources total about 250 billion tons.

Substitutes: No substitutes exist for potassium as an essential plant nutrient and as an essential nutritional requirement for animals and humans. Manure and glauconite (greensand) are low-potassium-content sources that can be profitably transported only short distances to crop fields.

^eEstimated. NA Not available.

¹Data are rounded to no more than two significant digits to avoid disclosing company proprietary data.

²Defined as sales + imports – exports.

³Includes MOP, SOP, and SOPM. Does not include other chemical compounds that contain potassium.

⁴Defined as imports – exports.

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

⁶Total reserves in the Dead Sea are divided equally between Israel and Jordan for inclusion in this tabulation.