

POTASH

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

Domestic Production and Use: In 2019, the estimated sales value of marketable potash, f.o.b. mine, was \$400 million, which was about the same as that in 2018. 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 80% of the potash produced was SOPM and SOP, which are required to fertilize certain chloride-sensitive crops. Muriate of potash accounted for the remaining 20% of production and was used for agricultural and chemical applications.

Salient Statistics—United States:	2015	2016	2017	2018	2019^e
Production, marketable ¹	740	510	480	520	510
Sales by producers, marketable ¹	620	600	490	520	510
Imports for consumption	5,190	4,550	5,870	5,710	5,000
Exports	106	96	128	105	90
Consumption, apparent ^{1, 2}	5,700	5,100	6,200	6,100	5,400
Price, dollars per ton of K ₂ O, average, all products, f.o.b. mine ³	880	680	770	750	800
Price, dollars per ton of K ₂ O, average, muriate, f.o.b. mine	580	350	410	440	480
Employment, number, mine and mill	1,300	1,150	900	900	900
Net import reliance ⁴ as a percentage of apparent consumption	89	88	92	92	91

Recycling: None.

Import Sources (2015–18): Canada, 81%; Russia, 8%; Belarus, 5%; Israel, 2%; and other, 4%.

Tariff:	Item	Number	Normal Trade Relations 12–31–19
	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: Domestic and world consumption of potash fertilizers was affected by wet conditions during the planting seasons in many countries during the first half of 2019. This resulted in lower potash sales and higher inventories worldwide. In the United States, production and sales of all forms of potash decreased slightly as sales of SOP, SOPM, and MOP for nonfertilizer uses offset some of the lower MOP fertilizer sales. Domestic imports and consumption fell by more than 12% owing to the poor weather conditions during the spring planting season.

High inventories caused the major world producers to reduce production during the second half of the year. Belarus, Canada, Chile, Germany, and Israel all had temporary mine and plant closures.

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World consumption of potash was estimated to have remained about the same as in 2018 at 43 million tons, owing to increased nonagricultural uses and regional seasonal consumption during the second half of 2019. World production was estimated to have fallen by 5% compared with 2018, owing to high inventories.

Development of a SOP facility in Utah continued in 2019. The Sevier Playa project, which is about 225 kilometers southwest of Salt Lake City, would produce SOP from solar evaporation of surface brines. The operating company received final permits in 2019 and was expected to begin construction in 2020. Production was scheduled to begin in 2022 at 30,000 tons of SOP and ramp up to full capacity of 372,000 tons per year of SOP in 2025.

Global annual potash production capacity was estimated to be 61 million tons in 2019. New mines in Belarus and Russia, and expansions to existing facilities in Canada and Israel were expected to be completed in 2020. Other projects in Belarus, Canada, China, Jordan, and the United Kingdom could increase capacity to about 68 million tons in 2023; however, these projects were dependent on potash market conditions or securing financing for the projects.

World Mine Production and Reserves: Reserves for Canada, Spain, and the United Kingdom were revised based on official Government information. Reserves for Russia were revised based on information reported by the producers. The previously reported reserve information was based on official Government data, which included some deposits that are considered resources by USGS reserve definition.

	Mine production		Reserves ⁵	
	2018	2019 ^e	Recoverable ore	K ₂ O equivalent
United States ¹	520	510	970,000	220,000
Belarus	7,200	7,000	3,300,000	750,000
Brazil	200	200	310,000	24,000
Canada	13,800	13,300	4,200,000	1,000,000
Chile	1,200	950	NA	100,000
China	5,000	5,000	NA	350,000
Germany	3,200	3,000	NA	150,000
Israel	2,200	2,000	NA	⁶ Large
Jordan	1,480	1,500	NA	⁶ Large
Laos	200	200	NA	20,000
Russia	7,170	6,800	NA	600,000
Spain	700	600	NA	68,000
Other countries	351	270	1,500,000	300,000
World total (rounded)	43,300	41,000	NA	>3,600,000

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.

⁶Israel and Jordan recover potash from the Dead Sea, which contains nearly 2 billion tons of potassium chloride.