POTASH

[Data in thousand metric tons, potassium oxide (K_2O) equivalent, unless otherwise specified]

Domestic Production and Use: In 2023, the estimated sales value of marketable potash, free on board (f.o.b.) mine, was $570 million, which was 20% lower than that in 2022. 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. 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 muriate of potash (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 potassium sulfate or sulfate of potash (SOP) and other byproducts.

Potash denotes a variety of mined and manufactured salts that contain the element potassium in water-soluble form. In agriculture, the term potash refers to potassic fertilizers, which are potassium chloride (KCl), SOP, and potassium magnesium sulfate (SOPM) or langbeinite. MOP is an agriculturally acceptable mix of KCl (95% pure or greater) and sodium chloride for fertilizer use. The fertilizer industry used about 85% of U.S. potash sales, and the remainder was used for chemical and industrial applications. About 70% of the potash produced was SOPM and SOP, which are required to fertilize certain chloride-sensitive crops. The remainder of production was MOP and was used for agricultural and chemical applications.

Salient Statistics—United States:	2019	2020	2021	2022	2023[e]
Production, marketable[1]	510	460	480	430	400
Sales by producers, marketable[1]	480	500	490	400	470
Imports for consumption	5,150	5,370	6,480	4,940	5,000
Exports	145	147	112	267	160
Consumption, apparent[1, 2]	5,500	5,700	6,900	5,100	5,300
Price, average, f.o.b. mine, dollars per metric ton of K_2O equivalent:					
All products[3]	820	850	1,120	1,790	1,210
MOP	480	450	650	980	640
Employment, mine and mill, number	900	900	900	900	900
Net import reliance[4] as a percentage of apparent consumption	91	92	93	92	91

Recycling: None.

Import Sources (2019–22): Canada, 77%; Russia, 11%; Belarus, 6%; and other, 6%.

Tariff: Item	Number	Normal Trade Relations 12–31–23
Potassium nitrate	2834.21.0000	Free.
Potassium chloride	3104.20.0000	Free.
Potassium chloride, less than or equal to 62% K_2O	3104.20.0010	Free.
Potassium chloride, greater than 62% K_2O	3104.20.0050	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: In 2023, domestic production of potash was lower than that in 2022, owing to lower MOP and SOPM production. Consumption of potash was estimated to have increased over that in 2022, as sales increased owing to lower potash prices and good weather conditions in the planting season compared with those in 2022.

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POTASH

World production was lower in 2023 owing to producers drawing down potash inventories that had increased in 2022, after supply uncertainty from economic sanctions on Belarus and Russia caused potash prices to rise in the first half of 2022. Prices began to fall in the second half of 2022 as stocks increased, and this trend carried into 2023.

Production in Canada was lower in part owing to a dock workers strike in July 2023 that curtailed shipments of potash from the port of Vancouver, British Columbia. This led to temporary closures of some mines in Canada. Production resumed at those mines after the strike was settled in August. Production and exports from Belarus were lower than those in 2022. Belarus shifted to exporting potash by rail to China and from ports in Russia, but its exports remained well below the levels in prior to 2022 when it had been one of the leading exporters. World consumption of potash in fertilizers was estimated to have increased to 37.1 million metric tons in 2023 from 35.7 million tons in 2022. Asia and South America remained the leading regions for potash consumption.

World annual potash production capacity was projected to increase to about 67.6 million tons of K_2O by 2026 from 64.3 million tons of K_2O in 2023. Most of the increase would be MOP from new mines and expansion projects in Laos and Russia. New MOP mines in Belarus, Brazil, Canada, Ethiopia, Morocco, Spain, and the United States were planned to begin operation past 2026.

World Mine Production and Reserves: Reserves for China, Laos, and Russia were revised based on Government reports.

	Mine production		Reserves[5]	
	2022	2023[e]	Recoverable ore	K_2O equivalent
United States[1]	430	400	970,000	220,000
Belarus	[e]4,000	3,800	3,300,000	750,000
Brazil	[e]200	200	10,000	2,300
Canada	14,600	13,000	4,500,000	1,100,000
Chile	[e]600	600	NA	100,000
China	[e]6,000	6,000	NA	180,000
Germany	[e]2,700	2,600	NA	150,000
Israel	2,450	2,400	NA	[6]Large
Jordan	1,640	1,800	NA	[6]Large
Laos	[e]700	1,400	1,000,000	75,000
Russia	[e]6,800	6,500	NA	650,000
Spain	[e]420	250	NA	68,000
Other countries	400	400	1,500,000	300,000
World total (rounded)	40,900	39,000	>11,000,000	>3,600,000

World Resources:[5] 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 billion 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 materials that can be profitably transported only short distances to crop fields. Glauconite is used as a potassium source for organic farming.

[e]Estimated. NA Not available.

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

[2]Defined as sales + imports – exports.

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

[4]Defined as imports – exports.

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

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