

POTASH

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

Domestic Production and Use: In 2004, the production value of marketable potash, f.o.b. mine, was about \$315 million. Domestic potash was produced in Michigan, New Mexico, and Utah. Most of the production was from southeastern New Mexico, where two companies operated three mines. New Mexico sylvinitic and langbeinite ores were beneficiated by flotation, dissolution-recrystallization, heavy-media separations, or combinations of these processes, and provided more than 70% of total U.S. producer sales. In Utah, which has three operations, one company extracted underground sylvinitic ore by deep-well solution mining. Solar evaporation crystallized the sylvinitic ore from the brine solution, and a flotation process separated the potassium chloride (muriate of potash or MOP) from byproduct sodium chloride. Two companies processed surface and subsurface brines by solar evaporation and flotation to produce MOP, potassium sulfate (sulfate of potash or SOP) and byproducts. In Michigan, a company used deep-well solution mining and mechanical evaporation for crystallization of MOP and byproduct sodium chloride.

The fertilizer industry used about 85% of U.S. potash sales, and the chemical industry used the remainder. More than 60% of the produced potash was MOP. Potassium magnesium sulfate (sulfate of potash-magnesia or SOPM) and SOP, which are required by certain crops and soils, also were produced.

Salient Statistics—United States:	2000	2001	2002	2003	2004^e
Production, marketable ¹	1,300	1,200	1,200	1,100	1,200
Imports for consumption	4,600	4,540	4,620	4,720	4,900
Exports	367	366	371	329	200
Consumption, apparent ²	5,600	5,300	5,300	5,400	5,800
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	155	155	155	160	170
Employment, number:					
Mine	610	585	540	520	500
Mill	665	670	645	620	630
Net import reliance ^{4,5} as a percentage of apparent consumption	80	80	80	80	70

Recycling: None.

Import Sources (2000-03): Canada, 91%; Belarus, 3%; Russia, 3%; Germany, 1%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12-31-04
Crude salts, sylvinitic, etc.	3104.10.0000	Free.
Potassium chloride	3104.20.0000	Free.
Potassium sulfate	3104.30.0000	Free.
Potassium nitrate	2834.21.0000	Free.
Potassium-sodium nitrate mixtures	3105.90.0010	Free.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: The world's leading potash producers operated up to 40% below capacity for another year to prevent oversupply to the market or excessively large producer stocks, which could result in downward price pressures from the potential buyers. At the end of 2003, North American producer stocks were more than 12% of annual production (1.3 million tons, K₂O equivalent, of 10.4 million tons) resulting in a slow increase in potash prices that started in the fall of 2003.

Domestic producers supplied more than 10% of domestic consumption with MOP sales going mostly to Texas, Illinois, Missouri, Michigan, and New Mexico in 2003. From January through July 2004, accumulated exports of domestic potash declined by about 42%, to an annualized 190,000 tons compared with the same period in 2003. The MOP accumulated exports, for the first 7 months of 2004, declined by about 50% compared with the same period of 2003. SOP accumulated exports on the same basis declined by about 70%, while SOPM accumulated exports on the same basis increased by about 20%.

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In March, 2004, the Denver, CO, owner of the Moab, UT, sylvinitic mine purchased the pair of operating underground sylvinitic mines and an idle underground mine near Carlsbad, NM, from a company in Chapter 11. Also in March, the Denver, CO, company purchased the Wendover, UT, near-surface brine operation of sylvinitic and magnesium chloride production. Later in the year, the Denver company announced intentions to produce langbeinite by modifying the Carlsbad East potash plant to become the second langbeinite producer in the United States.

The other Carlsbad producer ceased SOP production at the Carlsbad site and agreed to merge with the fertilizer (phosphate and nitrogen) portion of a private international provider of food and agricultural products to create a publicly held corporation. The third potash producer was the operator of the Great Salt Lake, UT, SOP site.

According to the U.S. Department of Agriculture, the global production of wheat, coarse grains, and rice for 2003-04 increased to about 1,840 million tons. Global demand for potash increased to about 30 million tons, a level not seen since the peak years of 1987 and 1988. The potash industry needs to start planning for new capacity, even given the 6 million tons of unused capacity in Canada, to prepare for when Russian and Belarus potash is withdrawn from global markets to supply their domestic markets once again.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	2003	2004 ^e		
United States	¹ 1,100	¹ 1,200	90,000	300,000
Belarus	4,200	4,650	750,000	1,000,000
Brazil	340	360	300,000	600,000
Canada	9,200	9,500	4,400,000	9,700,000
Chile	360	400	10,000	50,000
China	500	550	8,000	450,000
Germany	3,600	3,670	710,000	850,000
Israel	1,960	1,940	⁷ 40,000	⁷ 580,000
Jordan	1,200	1,130	⁷ 40,000	⁷ 580,000
Russia	4,700	5,400	1,800,000	2,200,000
Spain	510	600	20,000	35,000
Ukraine	60	60	25,000	30,000
United Kingdom	620	580	22,000	30,000
Other countries	—	—	50,000	140,000
World total (rounded)	28,400	30,000	8,300,000	17,000,000

World Resources: Estimated domestic potash resources total about 6 billion tons. Most of this lies 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 Saskatchewan, Canada. The Paradox Basin in Utah contains approximately 2 billion tons, mostly at depths of more than 1,200 meters. A large potash resource lies about 2,100 meters under central Michigan. The U.S. reserve figure above includes approximately 62 million tons in central Michigan. Estimated world resources total about 250 billion tons. The potash deposits in Russia and Thailand contain large amounts of carnallite; it is not clear if this can be mined profitably in a free market economy.

Substitutes: There are no substitutes for potassium as an essential plant nutrient and 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 the crop fields.

^eEstimated. — Zero.

¹Rounded to within 0.1 million ton to avoid disclosing company proprietary data.

²Rounded to within 0.2 million ton to avoid disclosing company proprietary data.

³Average prices based on actual sales; excludes soluble and chemical muriates.

⁴Defined as imports – exports + adjustments for Government and industry stock changes.

⁵Rounded to one significant digit to avoid disclosing company proprietary data.

⁶See [Appendix C](#) for definitions.

⁷Total reserves and reserve base in the Dead Sea are arbitrarily divided equally between Israel and Jordan for inclusion in this tabulation.