

POTASH

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

Domestic Production and Use: In 2005, the production value of marketable potash, f.o.b. mine, was about \$325 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:	2001	2002	2003	2004	2005^e
Production, marketable ¹	1,200	1,200	1,100	1,300	1,200
Imports for consumption	4,540	4,620	4,720	4,920	5,100
Exports	366	371	329	235	200
Consumption, apparent ²	5,300	5,300	5,400	6,000	6,100
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	155	155	170	200	270
Employment, number:					
Mine	585	540	520	520	500
Mill	670	645	620	620	630
Net import reliance ^{4,5} as a percentage of apparent consumption	80	80	80	80	80

Recycling: None.

Import Sources (2001-04): Canada, 91%; Belarus, 3%; Russia, 3%; Germany, 1%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations
		12-31-05
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: About 93% of the world potash production was consumed by the fertilizer industry. The United States ranked sixth in world production. Potassium chloride is the main fertilizer product, containing an average 61% of K₂O equivalent. The rising trend of potash consumption that began in 2004 continued throughout 2005 as world crop production increased, especially in Brazil, China, and India. Aside from strong GDP growth in these countries, their foreign currencies rose against the U.S. dollar, giving fertilizer consumers greater buying power and therefore the opportunity to buy more potash.

Weather conditions throughout the world continued to be a problem in the global farm economy. The 2005 harvest for corn, cotton, and soybeans deteriorated because of drought. Rising energy, equipment, and labor costs caused fertilizer prices to increase as well.

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A major U.S. potash company announced plans that it would make some design changes to its langbeinite (potassium magnesium sulfate) production plant in Carlsbad, NM. The changes will raise the plant capacity to 610,000 tons; 370,000 tons (62% K₂O equivalent) of white muriate of potash, of which 240,000 tons could be converted to granular potash to meet demand if needed, and 240,000 tons of langbeinite, of which 120,000 tons will be a natural granular product.

Because of a tax relief announcement by the Saskatchewan Provincial government in Canada, two potash producers announced in April that they would commence work on adding new capacity to their operations in Esterhazy and Vanscoy. At Esterhazy, 400,000 tons of annual capacity should be completed by fall 2006 with another 1.6 million tons in the engineering phase. At Vanscoy, a 310,000-ton expansion was underway, the majority of which should be completed in late 2006.

The outlook for the U.S. potash industry in 2006 is optimistic because of a strong international demand and limited supply of potash. Domestic potash inventories declined in 2005, but stocks are expected to rise as production expansions come onstream in the next couple of years.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	2004	2005 ^e		
United States	¹ 1,300	¹ 1,200	90,000	300,000
Belarus	4,300	4,500	750,000	1,000,000
Brazil	340	400	300,000	600,000
Canada	9,150	10,700	4,400,000	9,700,000
Chile	360	370	10,000	50,000
China	550	600	8,000	450,000
Germany	3,500	3,800	710,000	850,000
Israel	2,060	2,100	⁷ 40,000	⁷ 580,000
Jordan	1,230	1,200	⁷ 40,000	⁷ 580,000
Russia	5,000	5,000	1,800,000	2,200,000
Spain	500	500	20,000	35,000
Ukraine	50	60	25,000	30,000
United Kingdom	600	600	22,000	30,000
Other countries	—	—	50,000	140,000
World total (rounded)	28,900	31,000	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 tons to avoid disclosing company proprietary data.

²Rounded to within 0.2 million tons 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.