

POTASH

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

Domestic Production and Use: In 2006, the production value of marketable potash, f.o.b. mine, was about \$411 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 77% 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:	2002	2003	2004	2005	2006^e
Production, marketable ¹	1,200	1,100	1,300	1,200	1,200
Imports for consumption	4,620	4,720	4,920	4,920	4,200
Exports	371	329	233	200	400
Consumption, apparent ²	5,300	5,400	6,000	6,000	5,200
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	155	170	200	280	290
Employment, number:					
Mine	540	520	520	500	500
Mill	645	620	620	630	630
Net import reliance ^{4,5} as a percentage of apparent consumption	80	80	80	80	80

Recycling: None.

Import Sources (2002-05): Canada, 89%; Belarus, 5%; Russia, 3%; Germany, 1%; and other, 2%.

Tariff:	Item	Number	Normal Trade Relations
			12-31-06
	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 seventh in world production. Potassium chloride is the main fertilizer product, containing an average 61% of K₂O equivalent. The growth of potash consumption that began in 2004 continued throughout 2005 led to rising potash prices. Contract negotiations between major potash importers in Brazil, China, and India, and major potash suppliers in Belarus, Canada, and Israel, were deadlocked for the first half of 2006 causing concerns about growing potash inventories. To alleviate the potential oversupply situation, some producers curtailed production. This included the mines in Allan, Cory, Lanigan, and Rocanville, Canada, and four mines in Belarus.

The stalemate between major world potash consumers and producers was broken in late July 2006 with the new base price rising by an average \$25 per ton over the 2005 contract price. Producers had hoped for a \$40 per ton increase. Because of the late settlement, the shortened shipping period left in the year, and the unknown effect of these two factors on Chinese demand, the actual tonnages and shipping schedules were unresolved but would be finalized as the year progressed.

POTASH

A feasibility study was completed on the Kouilou potash project near Pointe-Noire in Congo (Brazzaville). The proposed project was to solution mine a carnallite deposit to produce granular and standard grade potash fertilizer for export. Capital costs were derived for a facility to operate at either 600,000 tons per year or 1.2 million tons per year, depending on market conditions in 2009 when the plant was scheduled for completion. Another new potash project that would produce 2 million tons annually was being considered at the Gremyachinskoye potash deposit in the Volgograd Region in Russia. Reserves were estimated at 1.2 billion tons and inferred reserves estimated at 4.8 billion tons. The plant could be onstream by 2010. Also, a new potash venture was being considered at Dekhanabad in Uzbekistan that would develop the Tobegat potash deposit.

As a result of some technical improvements, potash production will increase by June 2007 at the Rincon Salar in northwest Argentina by 40,000 tons per year to 62,000 tons per year without any capital expenditure. The extra output will generate about \$3 million in new revenue from export sales to Asia, Australia, South America, and the United States. Also, a study was completed on a new \$735 million potash operation at Potasio Rio Colorado that would have an annual output between 1.6 million tons and 2.4 million tons.

The outlook for the U.S. potash industry in 2007 is optimistic because of a strong international demand and limited supply of potash. Domestic potash inventories declined in 2006, but stocks are expected to rise as production expansions in other nations come onstream in the next couple of years.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	2005	2006 ^e		
United States	1,200	1,200	90,000	300,000
Belarus	4,800	4,000	750,000	1,000,000
Brazil	405	405	300,000	600,000
Canada	10,120	10,200	4,400,000	9,700,000
Chile	370	350	10,000	50,000
China	600	700	8,000	450,000
Germany	3,600	3,660	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	5,500	5,300	1,800,000	2,200,000
Spain	500	500	20,000	35,000
Ukraine	65	65	25,000	30,000
United Kingdom	600	600	22,000	30,000
Other countries	—	—	50,000	140,000
World total (rounded)	31,100	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 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.