POTASH

(Data in thousand metric tons of K_2O equivalent unless otherwise noted)

Domestic Production and Use: In 2007, the production value of marketable potash, f.o.b. mine, was about $517 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 sylvinite 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 sylvinite ore by deep-well solution mining. Solar evaporation crystallized the sylvinite 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:	**2003**	**2004**	**2005**	**2006**	**2007[e]**
Production, marketable[1]	1,100	1,200	1,200	1,100	1,200
Imports for consumption	4,720	4,920	4,920	4,470	5,300
Exports	329	233	200	332	300
Consumption, apparent[2]	5,600	6,000	6,000	5,200	6,200
Price, dollars per metric ton of K_2O, average, muriate, f.o.b. mine[3]	170	200	280	290	390
Employment, number:					
Mine	520	520	500	500	500
Mill	620	620	630	630	630
Net import reliance[4] as a percentage of apparent consumption	80	80	80	79	81

Recycling: None.

Import Sources (2003-06): Canada, 88%; Belarus, 6%; Russia, 3%; Germany, 1%; and other, 2%.

Tariff: Item	**Number**	**Normal Trade Relations 12-31-07**
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.
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 K_2O equivalent. Other potassium fertilizers include potassium nitrate, potassium magnesium sulfate, and potassium sulfate. Potash demand and prices increased throughout the year domestically and worldwide as a result of more crop acres that required potash fertilizer being planted, owing in part to high grain prices. Initiatives promoting the production of biofuels (transportation fuels made from agricultural products) have spurred increased plantings and increased fertilizer consumption.

U.S. production has been relatively stable for several years, but the increased demand prompted some producers to consider capacity expansions in New Mexico and Utah. One company, however, planned to close a solution mining operation in Michigan. Initially, the closure was announced to take place in 2007, but market conditions delayed the closure of the mine until 2008. Canada continued to lead the world in potash production, and output reached record levels. In addition to restarting idled operations, plans were announced to expand current facilities in Saskatchewan, open a new mine in New Brunswick, and explore for potash in Manitoba.

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POTASH

Production increased in Russia and Belarus, two other major potash producers, which ranked second and third, respectively, in global potash production. Projects to increase capacity were underway in both countries. After a mine flood in Russia in 2006, expectations were for reduced production in that country, but the strong market spurred additional production at other operations. The flood, however, had unanticipated consequences that became evident in late July 2007 when a sinkhole began to form near Berezniki and continued to expand in size until October, threatening the integrity of a nearby rail line. The precarious situation resulted in the emergency rerouting of the rail line, and shipments from other potash operations were delayed.

The Russian Federal Antimonopoly Service conducted an investigation into allegations of unfairly high prices that resulted in the imposition of export tariffs, price caps for potash sold in Russia, and fines levied against the producers. The potash companies responded with lawsuits that overturned the rulings by the Russian agency. In Russia, 85% of all fertilizer is exported, making export tariffs detrimental to producers and causing increased prices worldwide.

A company in Jordan announced plans to increase capacity at its facilities on the Dead Sea by early 2009. The project included expanded evaporation ponds, construction of a new refinery, and additional compaction facilities. The Jordanian firm also contemplated building a new potassium sulfate operation in Egypt. Based on the strong market, a company in the United Kingdom made investments to prolong potash production for at least 20 more years.

World Mine Production, Reserves, and Reserve Base: The reserve base data for Canada were revised based on information provided by a Canadian Government agency.

	Mine production		Reserves[5]	Reserve base[5]
	2006	2007[e]		
United States	[1]1,100	[1]1,200	90,000	300,000
Belarus	4,605	5,400	750,000	1,000,000
Brazil	405	410	300,000	600,000
Canada	8,360	11,000	4,400,000	11,000,000
Chile	450	450	10,000	50,000
China	600	700	8,000	450,000
Germany	3,620	3,700	710,000	850,000
Israel	2,200	2,000	[6]40,000	[6]580,000
Jordan	1,036	1,100	[6]40,000	[6]580,000
Russia	5,720	6,300	1,800,000	2,200,000
Spain	437	450	20,000	35,000
Ukraine	65	65	25,000	30,000
United Kingdom	480	450	22,000	30,000
Other countries	—	—	50,000	140,000
World total (rounded)	29,100	33,000	8,300,000	18,000,000

World Resources: Estimated domestic potash resources total about 6 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 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.

[e]Estimated. — Zero.

[1]Rounded to within 0.1 million tons to avoid disclosing company proprietary data.

[2]Rounded to within 0.2 million tons to avoid disclosing company proprietary data.

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

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

[5]See Appendix C for definitions.

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