

POTASH

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

Domestic Production and Use: In 2001, the value of production of marketable potash, f.o.b. mine, was about \$280 million, sales decreased relative to 2000, and prices declined for New Mexico producers. Domestic potash production was from Michigan, New Mexico, and Utah. Most of the production was from southeastern New Mexico, where two companies operated three mines. New Mexico potash ores, both sylvinite and langbeinite, were beneficiated by flotation, heavy media separation, dissolution-recrystallization, or combinations of these processes, and provided more than 70% of U.S. producer total sales.

In Utah, which has three potash operations, one company brought underground potash to the surface by solution mining. The potash was recovered from the brine by solar evaporation to crystals and flotation. Another Utah company collected subsurface brines from an interior basin for solar evaporation to crystals and flotation. The third Utah company collected lake brines for solar evaporation to crystals, flotation, and dissolution-recrystallization. In Michigan, a company used deep well solution mining and mechanical evaporation for recrystallization to produce finished product.

The fertilizer industry used about 90% of the U.S. potash sales, and the chemical industry used the remainder. More than 50% of the potash was produced as potassium chloride (muriate of potash). Potassium sulfate (sulfate of potash) and potassium magnesium sulfate (sulfate of potash-magnesia), required by certain crops and soils, were also sold.

Salient Statistics—United States:	1997	1998	1999	2000	2001^e
Production, marketable	1,400	¹ 1,300	¹ 1,200	¹ 1,300	¹ 1,200
Imports for consumption	5,490	4,780	4,470	4,600	4,500
Exports	466	477	459	367	410
Consumption, apparent	6,500	² 5,600	² 5,100	² 5,600	² 5,400
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	140	145	145	155	155
Employment, number:					
Mine	850	730	660	610	585
Mill	800	780	725	665	670
Net import reliance ^{4 5} as a percentage of apparent consumption	80	80	80	80	80

Recycling: None.

Import Sources (1997-2000): Canada, 93%; Russia, 4%; Belarus, 2%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations 12/31/01
Crude salts, sylvinite, 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 largest potash producers operated at reduced capacity for another year owing to potential oversupply. The Canadian potash industry operated for the first half of the year at about 70% of capacity, which was a decrease from the first half of 2000; one company operated at less than 60% of its capacity. At the end of 2000, North American producer stocks built up to more than 2 million tons. Since the Asian Pacific region purchases were down for the first half of 2001, and other countries' purchases were relatively unchanged, North American production was lower for the second half of the year. Again, this was accomplished through extended summer vacations and turnarounds at the mines and mills. Potash producers in the former Soviet Union continued operating at reduced capacity while many other producers around the world operated at normal capacity. Belarus, Germany, and Russia faced marginally increasing demand in their home markets, but are important exporters to Asia Pacific farmers. Grain prices were still relatively low in grain-producing countries, which reduced the demand for potash in those countries. One group of potash consumers was the grain farmers of the world, but China, which had

POTASH

used intensive agriculture in the 1970s and 80s (fertilizers and pest controls on the same amount of land) and extensive agriculture in the 1990s (adding more land) had a grain surplus and exported corn.

The offshore potash exporter for Canadian potash producers, Canpotex, Ltd., agreed to help the Jt.St.Co. Uralkali in Perm, Russia, to export potash to Asian areas.⁶ Norsk Hydro Ltd. of Norway altered its company strategy and withdrew its participation from Asia Pacific Potash Corporation's Thailand potash mine development.⁷

Based on data from the first half of 2001, estimated potash consumption in Africa, the Middle East, and Oceania accounted for about 5% of the world total and was about 10% more than that group's consumption in 2000. On the same basis, potash consumption in Asia was about 29% of the world total and had declined by about 9%. Potash consumption in Central Europe, Eastern Europe, and Central Asia was about 8% of the world total and declined by about 6%. Potash consumption in Latin America was about 17% of the world total and increased by more than 8%, while potash consumption in North America was about 23% of the world total and declined by less than 4%. Western European potash consumption was about 18% of the world total and declined by more than 9%.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁸	Reserve base ⁸
	2000	2001 ^e		
United States	¹ 1,300	¹ 1,200	90,000	300,000
Azerbaijan	^e 5	5	NA	NA
Belarus	3,400	3,500	750,000	1,000,000
Brazil	350	320	300,000	600,000
Canada	8,600	8,800	4,400,000	9,700,000
Chile	23	23	10,000	50,000
China	250	320	140,000	460,000
France	321	270	500	NA
Germany	3,409	3,340	710,000	850,000
Israel	1,710	1,840	⁹ 40,000	⁹ 580,000
Jordan	1,110	1,220	⁹ 40,000	⁹ 580,000
Russia	3,700	4,400	1,800,000	2,200,000
Spain	522	580	20,000	35,000
Ukraine	30	35	25,000	30,000
United Kingdom	600	520	22,000	30,000
Other countries	—	—	50,000	140,000
World total (may be rounded)	25,300	27,400	8,400,000	17,000,000

World Resources: Estimated domestic potash resources total about 6 billion tons. Most of this lies at depths between 1,830 and 3,050 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 1,220 meters. A large potash resource lies about 2,130 meters under central Michigan. The U.S. reserves figure above contains approximately 62 million tons of reserves in central Michigan. Estimated world resources total about 250 billion tons. The potash deposits in the former Soviet Union contain large amounts of carnallite; it is not clear if this can be mined in a free market, competitive economy. Based on information from a Canadian company, there are an estimated 180 million tons of reserves in the Sanboon deposit in Thailand. There are tentative plans to develop this deposit in the near future.

Substitutes: There are no substitutes for potassium as an essential plant nutrient and essential requirement for animals and humans. Manure and glauconite are low-potassium-content sources that can be profitably transported only short distances to the crop fields.

^eEstimated. NA Not available. — Zero.

¹Rounded to the nearest 0.1 million ton to protect proprietary data.

²Rounded to the nearest 0.2 million ton to protect 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 protect proprietary data.

⁶Fertilizer Week, 2001a, Canpotex, Uralkali keep FSU MOP exports robust: Fertilizer Week, v. 15, no. 13, August 6, p. 1-2.

⁷———2001b, Hydro in retreat on Thai potash project: Fertilizer Week, v. 14, no. 46, April 2, p. 1-2.

⁸See Appendix C for definitions.

⁹Total reserves and reserve base in the Dead Sea are equally divided between Israel and Jordan.