

POTASH

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

Domestic Production and Use: In 1999, the value of production of marketable potash, f.o.b. mine, was about \$320 million, owing to price increases over 1998. Domestic potash production was from Michigan, New Mexico, and Utah. The majority of the production was from southeastern New Mexico, where two companies operated four mines. New Mexico potash ore was beneficiated by flotation, heavy media separation, and dissolution-recrystallization, and provided more than 70% of the U.S. total producer sales.

In Utah, of the 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 recovery by mechanical evaporation. The fertilizer industry used about 90% of the U.S. potash sales and the chemical industry used about 10%. 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:	1995	1996	1997	1998	1999^e
Production, marketable	1,480	1,390	1,400	¹ 1,300	¹ 1,300
Imports for consumption	4,820	4,940	5,490	4,780	4,600
Exports	409	481	466	480	470
Consumption, apparent	5,820	5,890	6,500	² 5,700	² 5,400
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	137	133	140	145	145
Stocks, producer, yearend	312	265	¹ 200	¹ 300	¹ 300
Employment, number: Mine	900	880	850	730	660
Mill	840	810	800	780	725
Net import reliance ⁴ as a percent of apparent consumption	75	77	⁵ 80	⁵ 80	⁵ 80

Recycling: None.

Import Sources (1995-98): Canada, 93%; Russia, 4%; Belarus, 1%; and other, 2%.

Tariff: Item	Number	Normal Trade Relations 12/31/99
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: 15% (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 69% of capacity. The Former Soviet Union potash producers continued operating at reduced capacity while many operated at normal capacity as Asian economic problems caused a reduction of foodstuff trade, leading to lower grain prices, and grain storage problems in grain-producing and -exporting countries. Consequently, potash sales were slightly lower relative to a year earlier as farmers reduced their purchases for spring and fall potash application. In the United States, many potash prices rose slightly or stayed steady then declined in late summer for unclear reasons. Canadian producer sales for the first half of the year were down about 10% relative to last year, and the Asian market sales offered little hope for improvement as of October. There were some capacity shutdowns to maintain stocks at reasonable levels. The Asian potash consumers continued purchasing potash to maintain local food production and reduce imports of food, while the North American potash consumption declined owing to lower grain prices.

French production decreased owing to the approaching end of minable reserves. Belarus, Germany, and Russia faced marginally increasing demand in their home market.

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The Boulby potash mine on the east coast of England has reported minor flooding along the conveyor belt gallery to the southern section of the mine. The inflow was noticed in mid-March. Production was slightly reduced and extra pumps were added to remove the brines. In France, the Marie-Louise mill was shut down at the end of July while the mine continued to produce ore and ship it to the last refinery, Amélie, which is expected to close in the year 2004.

A subsidiary of a Norwegian fertilizer firm signed a joint-venture agreement with a western Canadian exploration and development firm, operating in Thailand, which includes a commitment of 75% of the lifetime production for 20% funding of the expected \$400 million capital cost for a new mine. Production capacity was estimated to be 1.2 million tons of muriate of potash. The Canadian firm that has been developing the mine site is searching for another 20% funding before continuing. The Norwegian fertilizer firm also formed a joint venture with a Chilean potassium nitrate producer for marketing that product in Europe. The Government of the Russian Federation levied a 5% export tariff on potash.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	1998	1999 ^e		
United States	¹ 1,300	¹ 1,300	100,000	300,000
Azerbaijan ^e	5	5	NA	NA
Belarus	3,400	3,540	800,000	1,000,000
Brazil	243	260	50,000	600,000
Canada	9,000	8,100	4,400,000	9,700,000
Chile	22	20	10,000	50,000
China	120	120	320,000	320,000
France	656	430	2,000	NA
Germany	3,200	3,300	710,000	850,000
Israel	1,500	1,580	⁷ 40,000	⁷ 580,000
Jordan	850	1,100	⁷ 40,000	⁷ 580,000
Russia	3,500	4,170	1,800,000	2,200,000
Spain	635	710	20,000	35,000
Ukraine	60	70	25,000	30,000
United Kingdom	575	450	22,000	30,000
Other countries	—	—	50,000	140,000
World total (rounded)	25,100	25,200	8,400,000	17,000,000

World Resources: Estimated domestic potash resources total about 6 billion tons. Most of this lies at depths between 6,000 and 10,000 feet in a 1,200-square-mile 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 4,000 feet. An unknown, but large potash resource lies about 7,000 feet under central Michigan. The U.S. reserve 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. Large resources, about 10 billion tons and mostly carnallite, occur in Thailand.

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.

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.

⁶See Appendix C for definitions.

⁷Total reserves and reserve base in the Dead Sea is equally divided between Israel and Jordan.