

POTASH

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

Domestic Production and Use: In 2000, the value of production of marketable potash, f.o.b. mine, was about \$300 million, owing to increased sales over 1999 with level or declining prices. Domestic potash production was from Michigan, New Mexico, and Utah. The majority of the production was from southeastern New Mexico, where two companies operated three mines. New Mexico potash ores, both sylvinitic and langbeinitic, were beneficiated by flotation, heavy media separation, dissolution-recrystallization, or combinations of these processes, and provided more than 70% of the U.S. total producer sales.

In Utah, with 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 to recrystallization to produce finished product.

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:	1996	1997	1998	1999	2000^e
Production, marketable	1,390	1,400	¹ 1,300	¹ 1,200	¹ 1,300
Imports for consumption	4,940	5,490	4,780	4,470	4,300
Exports	481	466	480	460	470
Consumption, apparent	5,890	6,500	² 5,600	² 5,100	² 5,000
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ³	133	140	145	145	155
Employment, number: Mine	880	850	730	660	610
Mill	810	800	780	725	665
Net import reliance ⁴ as a percent of apparent consumption	77	⁵ 80	⁵ 80	⁵ 80	⁵ 70

Recycling: None.

Import Sources (1996-99): Canada, 93%; Russia, 5%; Belarus, 1%; and other, 1%.

Tariff: Item	Number	Normal Trade Relations 12/31/00
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: 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 an increase from the first half of 1999. Production declined slightly the second half of the year. Producers extended some summer turnarounds and employee vacations in North America to maintain stocks at reasonable levels. 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. The 1997 Asian economic problems placed subdued downward pressure on foodstuff trade. The effect diminished as most countries were recovering from the problems. Asian consumers continued purchasing potash, although not in significant amounts from U.S. producers, to maintain local food production and to reduce imports of food. Grain prices were still relatively low in grain producing and exporting countries. These low prices were particularly troublesome in the United States where excellent harvests occurred despite droughts, floods, and reduced potash applications.

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The Boulby potash mine on the east coast of England returned to normal production in 2000 after reduced production owing to underground flooding in the first half of 1999. In France, after the Marie-Louise refinery closed at the end of July 1999, the last potash refinery was the Amélie mill, which is expected to close in 2004 because the Marie-Louise and Amélie Mines will be exhausted of minable reserves.

Annual production capacity and annual production in Chile have grown by the addition of new, smaller operations. Brazil seems to have brought production at its one mine up to the attainable capacity limit of the mill.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁶	Reserve base ⁶
	1999	2000 ^e		
United States	¹ 1,200	¹ 1,300	100,000	300,000
Azerbaijan	^{e5}	5	NA	NA
Belarus	3,600	3,800	800,000	1,000,000
Brazil	350	350	50,000	600,000
Canada	8,329	9,200	4,400,000	9,700,000
Chile	22	22	10,000	50,000
China	125	125	320,000	320,000
France	300	300	1,200	NA
Germany	3,600	3,400	710,000	850,000
Israel	1,750	1,750	⁷ 40,000	⁷ 580,000
Jordan	1,100	1,100	⁷ 40,000	⁷ 580,000
Russia	4,200	3,600	1,800,000	2,200,000
Spain	550	450	20,000	35,000
Ukraine	35	35	25,000	30,000
United Kingdom	500	650	22,000	30,000
Other countries	—	—	50,000	140,000
World total (may be rounded)	25,700	26,500	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 tons to protect proprietary data.

²Rounded to the nearest 0.2 million tons 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 are equally divided between Israel and Jordan.