

POTASH

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

Domestic Production and Use: In 1995, the value of production of marketable potash, f.o.b. mine was about \$300 million, owing to steady or increasing prices. Domestic potash production was from southeastern New Mexico, where four companies operated five mines by conventional underground mining of bedded deposits. This potash was beneficiated by flotation, heavy media separation, dissolution-recrystallization, and washing, providing 75% of the U.S. total. In Utah, one company was able to bring underground bedded potash to the surface by solution mining. The potash was recovered from the brine by solar evaporation and flotation. Another Utah company collected subsurface brines from an interior basin for solar evaporation and flotation. A third company used solar evaporation to concentrate the brines of the North Arm of the Great Salt Lake. In California, one company recovered potash, coproducts borax pentahydrate, soda ash, and saltcake from subsurface brines from an interior basin using mechanical evaporation. In Michigan, a company announced in June a capacity increase to about 90,000 tons from the 30,000-ton pilot plant. This design uses solution mining and recovery by mechanical evaporation. The fertilizer industry used more than 85% of the U.S. potash sales, and the chemical industry used close to 15%. About 70% 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, composed about 25% of potash production. Potash was transported by train, truck, and barges to warehouses, wholesalers, and retailers, with some potash being sold from barges used as temporary warehouses. Retailers sold potash and potash blended with other fertilizers in dry or liquid form for distribution.

Salient Statistics—United States:

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995^e</u>
Production, marketable	1,750	1,710	1,510	1,400	1,460
Imports for consumption	4,160	4,250	4,360	4,740	4,700
Exports	624	663	415	462	450
Consumption, apparent	5,240	5,350	5,430	5,750	5,670
Price, dollars per metric ton of K ₂ O, average, muriate, f.o.b. mine ¹	131	134	128	131	135
Stocks, producer, yearend	343	283	305	234	280
Employment: Mine	1,010	1,000	795	845	900
Mill	990	1,180	910	810	840
Net import reliance ² as a percent of apparent consumption	69	68	72	76	74

Recycling: None.

Import Sources (1991-94): Canada, 91%; Belarus, 2%; Germany, 2%; Israel, 2%; Russia, 1%; and other, 2%.

<u>Tariff:</u>	<u>Item</u>	<u>Number</u>	<u>Most favored nation (MFN)</u> <u>12/31/95</u>	<u>Non-MFN³</u> <u>12/31/95</u>
	Crude salts, sylvinitic, etc.	3104.10.0000	Free	Free.
	Potassium chloride	3104.20.0000	Free	Free.
	Potassium sulfate	3104.30.0000	Free	Free.
	Potassium nitrate	2834.21.0000	Free	Free.
	Potassium-sodium nitrate mixtures	3105.90.0010	Free	Free.

Depletion Allowance: 14% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: The world's largest potash producers withheld production from the world market for another year. The world remained in over capacity but by a reduced amount. Several producers around the world operated at partial capacity to maintain prices, while countries with capacities of less than 25% of world total capacity and even some Canadian and U.S. mines operated at full capacity. The Canadian potash industry operated at about 90% capacity, about 80% for the largest producer and 100% for all the others; producers in the Former Soviet Union (FSU) operated at about 60% capacity. New Mexico producers operated at about 85% capacity for the year.

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A Canadian muriate of potash producer purchased a U.S. located muriate of potash and phosphate producer from a French firm. A U.S. potash producer purchased a Canadian potash mine and mill. A U.S. sulfate of potash producer in Utah withdrew from the purchase of a nearby muriate of potash producer.

In 1995, a wet spring in the wheat and corn/soybean regions of the United States hampered fertilizer application, lowering potash consumption. A strong demand for potash in countries around the Pacific Basin helped North American potash exports, keeping potash plants producing and prices remained relatively steady in the central United States. Internationally, prices rose, as indicated by prices at Vancouver, British Columbia, Canada, through the first half of the year. Prices were weaker in the southwestern United States where imports from offshore and Canada edged prices down slightly.

It is estimated that in 1996, domestic mine production will be 1.4 million tons and that the U.S. apparent consumption will be 6.0 million tons.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves ⁴	Reserve base ⁴
	1994	1995 ^e		
United States	1,400	1,460	76,000	260,000
Azerbaijan ^e	50	50	NA	NA
Belarus	2,510	2,800	800,000	1,000,000
Brazil	240	270	50,000	600,000
Canada	8,040	11,100	4,400,000	9,700,000
Chile	70	90	10,000	50,000
China	25	25	320,000	320,000
France	870	840	12,000	33,000
Germany	3,290	3,200	740,000	890,000
Israel	1,260	1,300	45,000	⁵ 590,000
Italy	—	—	20,000	40,000
Jordan	930	950	45,000	⁵ 590,000
Russia	2,500	2,700	1,800,000	⁶ 2,200,000
Spain	680	700	20,000	35,000
Thailand	—	—	30,000	100,000
Ukraine	78	100	25,000	30,000
United Kingdom	580	600	23,000	30,000
World total (rounded)	22,500	26,200	8,400,000	17,000,000

World Resources: Estimated domestic potash resources total about 6 billion tons. Most of this lies at depths between 1,800 and 3,000 meters in a 3,100-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. An unknown, but apparently large, quantity of potash resources lies about 2,100 meters under central Michigan. The U.S. reserve figure above contains 25 million tons of reserves in central Michigan. Estimated world resources total about 250 billion tons. The potash deposits in the FSU 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 transported short distances to crop fields.

^eEstimated. NA Not available.

¹Average prices based on actual sales; excludes soluble and chemical muriates.

²Defined as imports - exports + adjustments for Government and industry stock changes.

³See Appendix B.

⁴See Appendix C for definitions.

⁵Total reserve base in the Dead Sea is equally divided between Israel and Jordan.

⁶A reserve of 22,300,000 was reported by I. D. Sokolov in Basic Tasks of the Potash Industry up to the Year 2000, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Im. D. I. Mendeleeva, v. 32, No. 4, July-Aug. 1987, pp. 383-387.