PHOSPHATE ROCK

(Data in thousand metric tons, unless noted)

Domestic Production and Use: Phosphate rock ore was mined by 10 firms in 4 States, and upgraded into an estimated 45.5 million metric tons of marketable product valued at about $1 billion, f.o.b. mine. Florida and North Carolina accounted for about 85% of total domestic output, with the remainder produced in southeastern Idaho and northwestern Utah. Approximately 88% of U.S. phosphate rock demand was for conversion into wet-process phosphoric acid and superphosphoric acid used principally as intermediates in the manufacture of granular and liquid ammonium phosphate fertilizers for domestic consumption and export. About 50% of U.S. wet-process phosphoric acid production was consumed for exports in the form of upgraded granular diammonium and monoammonium phosphate fertilizer materials, triple superphosphate fertilizer, and as merchant grade phosphoric acid. Industrial applications accounted for about 6% of U.S. phosphate rock demand, while another 6% was directly exported, principally to countries in the Far East and Western Europe. Calcium phosphate animal feed supplements, essential to livestock nutrition, were derived from defluorinated phosphoric acid and defluorinated phosphate rock, while purified phosphoric acid was used in a variety of industrial applications. Phosphate rock was mined by three western firms as feedstock for high-purity, industrial-grade elemental phosphorus manufacture in wholly owned electric furnace facilities in Idaho and Montana. Hydrofluosilicic acid and oxides of uranium and vanadium were recovered as value added byproducts of phosphate manufacture.

Salient Statistics—United States:	**1991**	**1992**	**1993**	**1994**	**1995[e]**
Production[1]	48,100	47,000	35,500	41,100	45,500
Sold or used by producers	44,700	45,100	40,100	44,100	44,800
Imports for consumption	552	1,530	1,430	1,800	1,800
Exports	5,080	3,720	3,200	2,800	3,000
Consumption[2]	40,200	42,900	38,300	43,100	43,600
Price, average value, dollars per ton, f.o.b. mine[3]	23.06	22.53	21.38	20.42	20.50
Stocks, producer, yearend	10,200	12,600	9,220	5,980	6,500
Employment, mine and beneficiation plant	5,900	5,800	5,600	5,000	5,000
Net import reliance[4] as a percent of apparent consumption	E	E	4	5	E

Recycling: None. Limited to phosphate rock conversion products.

Import Sources (1991-94): Morocco, 99%; and other, 1%.

Tariff: **Item**	**Number**	**Most favored nation (MFN) 12/31/95**	**Non-MFN[5] 12/31/95**
Natural calcium phosphates:			
Unground	2510.10.0000	Free	Free.
Ground	2510.20.0000	Free	Free.

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

Government Stockpile: None.

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PHOSPHATE ROCK

Events, Trends, and Issues: The U.S. phosphate industry continued to experience favorable economic trends in 1995, associated with a sustained period of supply-demand balance that commenced during 1994. Phosphate rock mines were operating at 90% of capacity and wet-process phosphoric acid and elemental phosphorus plants at near 100% owing to favorable demand. Ammonium phosphate plants operated at 95% of capacity to satisfy strong export demand. U.S. planted crop acreage and domestic fertilizer consumption are expected to increase significantly between 1995 and 1996 owing to below normal grain inventories at the domestic and global levels. Balanced phosphate supply-demand conditions at the global level were favored by a combination of restricted production and relatively low grain inventories.

Major restructuring of the domestic phosphate industry continued into 1995, as evidenced by the acquisition and consolidation of mines and plants in North Carolina and northern Florida by a major Canadian potash firm, together with the acquisition and consolidation of a new mining operation in central Florida by an existing U.S. phosphate producer. In a related move, an emerging force in the fertilizer industry based in western Canada purchased a phosphate fertilizer production facility and phosphate rock reserves near Soda Springs, ID. A new 3.2-million-ton-per-year mine at South Pasture in Hardee County, FL, commenced operations in the fall of 1995. Production from the new mine supplied phosphate rock to a wholly owned conversion facility at Plant City, FL.

World phosphate rock production increased substantially compared with output in 1994.

World Mine Production, Reserves, and Reserve Base:

	Mine production		Reserves[6]	Reserve base[6]
	1994	1995[e]		
United States	41,100	45,500	1,200,000	4,400,000
Brazil	3,940	3,900	330,000	370,000
China	26,000	27,000	210,000	210,000
Israel	4,000	4,000	180,000	180,000
Jordan	4,220	5,000	90,000	570,000
Kazakstan[7]	2,080	2,500	—	100,000
Morocco and Western Sahara	19,800	20,000	5,900,000	21,000,000
Russia	7,920	8,500	—	1,000,000
Senegal	1,600	1,500	—	160,000
South Africa	2,550	3,000	2,500,000	2,500,000
Togo	2,150	2,400	—	60,000
Tunisia	5,700	6,500	—	270,000
Other countries	6,960	7,500	1,000,000	2,500,000
World total (rounded)	128,000	137,000	11,000,000	34,000,000

World Resources: Phosphate rock resources occur principally as sedimentary marine phosphorites. Significant igneous occurrences are found in Russia and South Africa. Large phosphate resources have been identified on the continental shelves and on sea mounts in the Atlantic and Pacific Oceans.

Substitutes: There are no substitutes for phosphorus in agriculture.

[e]Estimated. E Net exporter.

[1]Marketable.

[2]Defined as sold or used + imports - exports.

[3]Marketable phosphate rock, weighted value, all grades, domestic and export.

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

[5]See Appendix B.

[6]See Appendix C for definitions.