PHOSPHATE ROCK

(Data in thousand metric tons, unless otherwise noted)

<u>Domestic Production and Use</u>: Phosphate rock ore was mined by 10 firms in 4 States, and upgraded into an estimated 44.6 million tons of marketable product valued at \$1.14 billion f.o.b. mine. Florida and North Carolina accounted for 83% of total domestic output, with the remainder produced in southeastern Idaho and northwestern Utah. Approximately 90% of U.S. phosphate rock demand was for conversion into wet-process phosphoric acid and superphosphoric acid, which were used as intermediates in the manufacture of granular and liquid ammonium phosphate fertilizers. More than 50% of the wet-process phosphoric acid produced was exported in the form of upgraded granular diammonium and monoammonium phosphate fertilizer, triple superphosphate fertilizer, and merchant grade phosphoric acid. Calcium phosphate animal feed supplements were manufactured from defluorinated phosphate rock and defluorinated phosphoric acid. Phosphate rock mined by two western companies was used as feedstock for elemental phosphorus production at two wholly owned electric furnace facilities in Idaho. Elemental phosphorus was used to produce high-purity phosphoric acid and phosphorus compounds, which were used in a variety of industrial applications.

Salient Statistics—United States:	<u> 1994</u>	<u> 1995</u>	<u> 1996</u>	<u> 1997</u>	<u> 1998°</u>
Production ¹	41,100	43,500	45,400	45,900	44,600
Sold or used by producers	43,900	43,700	43,500	42,400	43,900
Imports for consumption	1,800	1,800	1,800	1,830	1,800
Exports	2,800	2,760	² 1,570	² 335	² 300
Consumption ³	42,900	42,700	43,700	43,900	46,300
Price, average value, dollars per ton, f.o.b. mine ⁴	21.14	21.75	23.40	23.45	25.36
Stocks, producer, yearend	5,980	5,710	6,390	7,910	7,700
Employment, mine and beneficiation					
plant, number	5,000	5,000	5,000	5,000	5,000
Net import reliance⁵ as a percent of					
apparent consumption	5	Е	E	E	4

Recycling: None. Limited to phosphate rock conversion products.

Import Sources (1994-97): Morocco, 99%; and other, 1%.

<u>Tariff</u> : Item	Number	Normal Trade Relations (NTR) 12/31/98	Non-NTR ⁶ <u>12/31/98</u>	
Natural calcium phosphates:				
Unground	2510.10.0000	Free	Free.	
Ground	2510.20.0000	Free	Free.	

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

Government Stockpile: None.

PHOSPHATE ROCK

Events, Trends, and Issues: Exports of phosphate rock have dropped substantially over the past 2 years as domestic producers have switched to exporting higher value fertilizer materials, which increased owing to strong demand in Asia. Domestic fertilizer consumption grew as farmers planted more corn and soybeans to build inventories and to improve crop yields. Projections for 1999 indicated an increase in both acreage planted and crop yields, which coupled with a strong export market should result in a good year for phosphate producers.

Consolidation of the domestic industry continued in 1998. In Florida, a producer of phosphate rock purchased the fertilizer plant in Texas, which had been toll processing its ore. In Idaho, a fertilizer manufacturer purchased the mine that supplies its plant. Another company in Florida reopened its mine late in 1998 and its associated fertilizer plant was scheduled to resume production early in 1999; both have been idle since 1992. Two companies, one each in Florida and Idaho, purchased phosphate rock reserves adjacent to operating mines from firms no longer active in mining. Permitting procedures began for three new mines in Florida that were scheduled to open in the next 5 to 10 years, to replace currently operating mines after their reserves have been depleted.

Both world production and consumption of phosphate rock were expected to increase in 1998. Several major mine and fertilizer plant expansion projects were underway in Africa, Asia, and the Middle East. Demand for fertilizers, primarily diammonium phosphate, in China and India continued to be strong, with the United States as the major supplier.

World Mine Production, Reserves, and Reserve Base:

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	Mine production		Reserves ⁷	Reserve base ⁷					
	<u> 1997</u>	<u>1998°</u>							
United States	45,900	44,600	1,200,000	4,400,000					
Brazil	3,850	3,900	330,000	370,000					
China	20,000	22,000	210,000	210,000					
Israel	4,050	4,000	180,000	180,000					
Jordan	5,900	6,000	900,000	1,700,000					
Kazakhstan	1,700	1,500	50,000	100,000					
Morocco and Western Sahara	23,400	24,000	5,900,000	21,000,000					
Russia	7,500	9,500	150,000	1,000,000					
Senegal	1,540	1,600	50,000	160,000					
South Africa	3,000	3,000	1,500,000	2,500,000					
Togo	2,630	2,600	30,000	60,000					
Tunisia	7,070	7,100	100,000	600,000					
Other countries	<u> 11,500</u>	<u>11,500</u>	1,000,000	2,500,000					
World total (rounded)	138,000	141,000	12,000,000	35,000,000					

<u>World Resources</u>: Reserve and reserve base figures for Jordan have been revised to reflect changes provided by the sole producer in the country. Reserve figures for Kazakhstan, Russia, Senegal, and Togo have been revised based on information obtained from other sources. Phosphate rock resources occur principally as sedimentary marine phosphates. 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 Ocean and the Pacific Ocean.

Substitutes: There are no substitutes for phosphorus in agriculture.

^eEstimated. E Net exporter.

¹Marketable.

²Source: Bureau of the Census.

³Defined as sold or used + imports - exports.

⁴Marketable phosphate rock, weighted value, all grades, domestic and export.

⁵Defined as imports - exports + adjustments for Government and industry stock changes.

⁶See Appendix B.

⁷See Appendix D for definitions.