SODA ASH

(Data in thousand metric tons, unless otherwise noted)

Domestic Production and Use: Five companies in Wyoming and one in California composed the U.S. soda ash (sodium carbonate) industry, which was the largest in the world. The six producers, with a combined annual nameplate capacity of 12 million tons, operated at 86% of nameplate capacity. Sodium bicarbonate, sodium sulfate, potassium chloride, potassium sulfate, borax, and other minerals were produced as coproducts from sodium carbonate production in California. Sodium bicarbonate, sodium sulfite, sodium tripolyphosphate, and chemical caustic soda were manufactured as coproducts at several of the Wyoming soda ash plants. The total estimated value of domestic soda ash produced in 1997 was $822 million.[1]

Based on final 1996 data, the estimated 1997 reported distribution of soda ash by end use was glass, 48%; chemicals, 27%; soap and detergents, 12%; distributors, 5%; pulp and paper, 3%; flue gas desulfurization and other, 2% each; and water treatment, 1%.

Salient Statistics—United States:	1993	1994	1995	1996	1997[e]
Production[2]	8,960	9,320	10,100	10,200	10,400
Imports for consumption	89	79	83	107	110
Exports	2,800	3,230	3,570	3,840	4,000
Consumption: Reported	6,310	6,260	6,500	6,390	6,480
Apparent	6,350	6,240	6,510	6,470	6,480
Price: Quoted, yearend, soda ash, dense, bulk, f.o.b. Green River, WY, dollars per short ton	98.00	105.00	105.00	105.00	105.00
F.o.b. Searles Valley, CA, same basis	123.00	130.00	130.00	130.00	130.00
Average sales value (natural source), f.o.b. mine or plant, same basis	74.34	70.44	74.50	82.60	79.00
Stocks, producer, yearend	274	203	306	271	300
Employment, mine and plant, number	2,800	2,800	2,800	2,800	2,800
Net import reliance[3] as a percent of apparent consumption	E	E	E	E	E

Recycling: There is no recycling of soda ash by producers; however, glass container producers are using cullet glass, thereby reducing soda ash consumption.

Import Sources (1993-96): Canada, 99%; and other, 1%.

Tariff: Item	Number	Most favored nation (MFN) 12/31/97	Non-MFN[4] 12/31/97
Disodium carbonate	2836.20.0000	1.2% ad val.	8.5% ad val.

Depletion Allowance: 14% (Domestic), 14% (Foreign). For natural only.

Government Stockpile: None.

Events, Trends, and Issues: The world's largest soda ash producer, based in Belgium, acquired a 60% share of the Bulgarian soda ash facility, which is the world's largest synthetic soda ash plant for $160 million. A Turkish glass manufacturer obtained 25% of these shares, providing it a 17% ownership in the whole company. This transaction led to an investigation by the Italian antitrust agency that concluded that the Belgian soda ash producer, which also operated a soda ash plant in Italy, represented a quasi monopoly because the Bulgarian purchase would eliminate that company's only competitor in the Italian market. To alleviate the problem, the Belgian company compromised and agreed to withdraw its support of the antidumping investigation conducted by the European Union (EU) Commission, thereby clearing the way for rescinding the antidumping duties on October 13 that were imposed on U.S. soda ash imports into the EU.

A second Japanese synthetic soda ash plant closed in late 1997 that had an annual capacity of 220,000 tons. The company is a co-owner of a Wyoming natural soda ash operation, which was in the process of expanding capacity to offset the loss of the plant in Japan.

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Domestic soda ash consumption for the first half of 1997 increased slightly compared with the previous year despite the low price of electrolytic caustic soda. However, caustic soda prices began to rise in July and continued through yearend causing several customers to switch back to soda ash. To bolster declining soda ash prices, the industry announced an $8 per ton price increase on off-list soda ash effective October 1. Although the export market was strong, a shortage of railcars and late deliveries affected both the soda ash-consuming and soda ash-producing industries. As a result, an inventory buildup began in September and a slowdown in production occurred afterward.

The outlook for soda ash through 1998 is very good. World demand for soda ash is expected to grow 1.5% to 2% annually through the remainder of this century. Domestic demand should be slightly higher than in 1998 when a titanium dioxide producer comes on-stream with new technology that will convert byproduct liquid wastes into a marketable product by using more than 230,000 tons of soda ash annually.

World Production, Reserves, and Reserve Base:

	Production		Reserves[5 6]	Reserve base[6]
Natural:	1996	1997[e]		
United States	10,200	10,400	[7]23,000,000	[7]39,000,000
Botswana	100	150	400,000	NA
Chad	NA	NA	NA	NA
Kenya	220	220	7,000	NA
Mexico	—	—	200,000	450,000
Turkey	—	—	200,000	240,000
Uganda	NA	NA	20,000	NA
Other countries	—	—	260,000	220,000
World total, natural (rounded)	10,500	10,800	24,000,000	40,000,000
World total, synthetic (rounded)	19,900	19,200	—	—
World total (rounded)	30,400	30,000	—	—

World Resources: Soda ash is obtained from trona and sodium carbonate-rich brines. The world's largest deposit of trona is in the Green River Basin of Wyoming. About 47 billion metric tons of identified soda ash resources could be recovered from the 56 billion tons of bedded trona and the 47 billion tons of interbedded or intermixed trona and halite that are in beds more than 1.2 meters thick. About 34 billion tons of reserve base soda ash could be obtained from the 36 billion tons of halite-free trona and the 25 billion tons of interbedded or intermixed trona and halite that are in beds more than 1.8 meters thick. Underground room-and-pillar mining, using a combination of conventional, continuous, and shortwall mining equipment, is the primary method of mining Wyoming trona ore. The method has an average 45% mining recovery, which is higher than the 30% average mining recovery from solution mining. Improved solution mining techniques, such as horizontal drilling to establish communication between well pairs, could increase this extraction rate and enable companies to develop some of the deeper economic trona. Wyoming trona resources are being depleted at the rate of about 15 million tons per year (8.3 million tons of soda ash). Searles and Owens Lakes in California contain an estimated 815 million tons of soda ash reserves. There are at least 62 identified natural sodium carbonate deposits in the world, some of which have been quantified. Although soda ash can be manufactured from salt and limestone, both of which are practically inexhaustible, synthetic soda ash is more costly to produce and generates environmentally deleterious wastes. Commercial mining of nahcolite is presently being done by one producer in Colorado, and two other companies are trying to obtain financing for development of competing nahcolite projects. None of the ventures are associated with oil shale mining or with dawsonite recovery.

Substitutes: Caustic soda can be substituted for soda ash in certain uses, particularly in the pulp and paper, water treatment, and certain chemical sectors. Soda ash, soda liquors, or trona can be used as feedstock to manufacture chemical caustic soda, which is an alternative to electrolytic caustic soda.

[e]Estimated. E Net exporter. NA Not available.

[1]Does not include values for soda liquors and mine waters.

[2]Natural only.

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

[4]See Appendix B.

[5]The reported quantities are sodium carbonate only. About 1.8 tons of trona yields 1 ton of sodium carbonate.

[6]See Appendix D for definitions.

[7]From trona, nahcolite, and dawsonite sources.