SODA ASH

(Data in thousand metric tons unless otherwise noted)

<u>Domestic Production and Use:</u> The total value of domestic soda ash (sodium carbonate) produced in 2005 was estimated to be about \$905 million.¹ The U.S. soda ash industry comprised four companies in Wyoming operating five plants, one company in California with one plant, and one company with one mothballed plant in Colorado that owns one of the Wyoming plants. The five producers have a combined annual nameplate capacity of 14.5 million tons. Salt, sodium sulfate, and borax were produced as coproducts of sodium carbonate production in California. Sodium bicarbonate, sodium sulfite, and chemical caustic soda were manufactured as coproducts at several of the Wyoming soda ash plants. Sodium bicarbonate was produced at the Colorado operation using soda ash feedstock shipped from the company's Wyoming facility.

Based on final 2004 reported data, the estimated 2005 distribution of soda ash by end use was glass, 50%; chemicals, 26%; soap and detergents, 11%; distributors, 5%; miscellaneous uses, 4%; flue gas desulfurization, 2%; and pulp and paper and water treatment, 1% each.

Salient Statistics—United States:	<u>2001</u>	2002	2003	2004	2005 ^e
Production ²	10,300	10,500	10,600	11,000	11,100
Imports for consumption	33	9	5	6	8
Exports	4,090	4,250	4,450	4,670	4,600
Consumption:					
Reported	6,380	6,430	6,270	6,260	6,500
Apparent	6,310	6,250	6,090	6,290	6,500
Price:					
Quoted, yearend, soda ash, dense, bulk,					
f.o.b. Green River, WY, dollars per short ton	105.00	105.00	105.00	105.00	155.00
f.o.b. Searles Valley, CA, same basis	130.00	130.00	130.00	130.00	180.00
Average sales value (natural source),					
f.o.b. mine or plant, same basis	67.79	68.00	65.21	63.75	74.00
Stocks, producer, yearend	226	222	330	338	300
Employment, mine and plant, number	2,700	2,600	2,600	2,600	2,500
Net import reliance ³ as a percentage					
of apparent consumption	E	Е	Е	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 (2001-04): Canada, 99%; and other, 1%.

Tariff:ItemNumberNormal Trade RelationsDisodium carbonate2836.20.00001.2% ad val.

Depletion Allowance: Natural, 14% (Domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: The soda ash plant in Granger, WY, that was mothballed several years ago was brought back onstream in June at a reduced annual nameplate capacity of 200,000 short tons. The decision to reactivate some of the original 1.3 million short tons of capacity was made because of the forecast increase in domestic consumption, particularly in glass for automotive and building construction, and the growth in the export market beginning in 2005.

China continued to be the world's leader in soda ash production. A major glass company in China postponed its decision to construct a large flat glass manufacturing facility because of difficulties in obtaining bank loans as lending institutions review requests for major expenditures. New soda ash manufacturing plants, however, secured financing for new plant construction such as the facility in Dalingha City, Qinghai Province, that will have an annual capacity of 1.8 million tons. Investing in new soda ash projects appears to be favorable at this time because of an upturn in soda ash prices beginning in early 2005.

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Increased soda ash sales in the domestic and export markets in 2004 continued into 2005 resulting in several soda ash price increase announcements. From May 2004 to September 2005, there was a cumulative off-list price increase of \$60. As in past years, it was unclear by yearend how much of this was actually realized by the soda ash industry.

Notwithstanding economic and energy problems in certain areas of the world, overall global demand for soda ash is expected to grow from 1.5% to 2% annually. Domestic demand may be slightly higher in 2006.

World Production, Reserves, and Reserve Base:

	Production		Reserves ^{4, 5}	Reserve base⁵	
Natural:	<u>2004</u>	<u> 2005</u> °			
United States	11,000	11,100	⁶ 23,000,000	⁶ 39,000,000	
Botswana	300	290	400,000	NA	
Kenya	353	360	7,000	NA	
Mexico	_	_	200,000	450,000	
Turkey	_		200,000	240,000	
Uganda	NA	NA	20,000	NA	
Other countries			<u>260,000</u>	220,000	
World total, natural (rounded)	11,700	11,800	24,000,000	40,000,000	
World total, synthetic (rounded)	28,600	30,200	XX	XX	
World total (rounded)	40,300	42,000	XX	XX	

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 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 conventional and continuous mining, is the primary method of mining Wyoming trona ore. The method has an average 45% mining recovery, whereas average recovery from solution mining is 30%. Improved solution-mining techniques, such as horizontal drilling to establish communication between well pairs, could increase this extraction rate and entice companies to develop some of the deeper trona beds. Wyoming trona resources are being depleted at the rate of about 15 million tons per year (8.3 million tons of soda ash). Searles Lake and Owens Lake 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.

<u>Substitutes</u>: 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.

^eEstimated. E Net exporter. NA Not available. XX Not applicable. — Zero.

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

²Natural only.

³Defined as imports – exports + adjustments for Government and industry stock changes.

⁴The reported quantities are sodium carbonate only. About 1.8 tons of trona yields 1 ton of sodium carbonate.

⁵See Appendix C for definitions.

⁶From trona, nahcolite, and dawsonite sources.