

SODA ASH

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: The total value of domestic soda ash (sodium carbonate) produced in 2007 was estimated to be about \$1.3 billion.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 2006 reported data, the estimated 2007 distribution of soda ash by end use was glass, 50%; chemicals, 29%; soap and detergents, 9%; distributors, 4%; miscellaneous uses, 3%; flue gas desulfurization and pulp and paper, 2% each; and water treatment, 1%.

<u>Salient Statistics—United States:</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007^e</u>
Production ²	10,600	11,000	11,000	11,000	11,100
Imports for consumption	5	6	8	7	8
Exports	4,450	4,670	4,680	4,820	5,100
Consumption:					
Reported	6,270	6,260	6,200	6,110	6,000
Apparent	6,090	6,290	6,380	6,100	6,000
Price:					
Quoted, yearend, soda ash, dense, bulk:					
F.o.b. Green River, WY, dollars per short ton	105.00	105.00	155.00	155.00	170.00
F.o.b. Searles Valley, CA, same basis	130.00	130.00	180.00	180.00	195.00
Average sales value (natural source),					
f.o.b. mine or plant, dollars per short ton	65.21	63.75	80.19	96.64	105.00
Stocks, producer, yearend	330	338	243	290	300
Employment, mine and plant, number	2,600	2,600	2,600	2,600	2,500
Net import reliance ³ as a percentage 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 (2003-06): United Kingdom, 33%; Mexico, 30%; Canada, 10%; China, 7%; and other, 20%.

<u>Tariff:</u>	<u>Item</u>	<u>Number</u>	<u>Normal Trade Relations</u>
			<u>12-31-07</u>
	Disodium carbonate	2836.20.0000	1.2% ad val.

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

Government Stockpile: None.

Events, Trends, and Issues: To meet the growing demand for soda ash in eastern Europe, a major European soda ash producer announced it was expanding capacity at its plant in Devnya, Bulgaria. The annual capacity of the plant would increase to 1.5 million tons from 1.2 million tons. The same European soda ash producer announced that it would increase production of ultra-pure soda ash at its facility in Dombasle, France, because of the growing demand for high-purity chemicals used in the pharmaceutical industry. The third leading synthetic soda ash manufacturer in India also announced it planned to raise production capacity at its plant in Sutrapada in Gujarat State.

An environmental and social impact assessment study was completed on a proposed \$450 million natural soda ash venture at Lake Natron in the Arusha Region of Tanzania. If approved, the facility would produce 500,000 tons of soda ash annually that could expand to 1 million tons in the future. A major soda ash producer in India and the Tanzanian government were project partners. A major concern about the proposed plant was the potential adverse effect on the local flamingo population that inhabited the lake. The issue was unresolved by yearend.

SODA ASH

In May 2007, a major domestic soda ash producer announced a \$15 per short ton increase in the list and off-list price of soda ash effective July 1 or as contracts permit. Other producers soon followed this price move. The same company made a second price increase announcement in September that would raise the off-list price another \$15 per short ton. The company also announced an energy surcharge price increase of \$7 per million British thermal units because of higher natural gas prices. One other company followed this move, but other companies remained uncommitted by yearend.

The economic slowdowns in domestic automobile production and housing starts that affected soda ash consumption in 2006 continued through 2007. Notwithstanding the continuing 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 for the next several years. If the domestic economy improves, U.S. demand may be slightly higher in 2008.

World Production, Reserves, and Reserve Base:

	Production		Reserves ^{4, 5}	Reserve base ⁵
	2006	2007 ^e		
Natural:				
United States	11,000	11,100	⁶ 23,000,000	⁶ 39,000,000
Botswana	250	250	400,000	NA
Kenya	370	380	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>	<u>220,000</u>
World total, natural (rounded)	11,600	11,700	24,000,000	40,000,000
World total, synthetic (rounded)	30,400	31,300	XX	XX
World total (rounded)	42,000	43,000	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.

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.

^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.