SODA ASH

By Dennis S. Kostick

Soda ash, also known as sodium carbonate, is an important inorganic chemical that is used by many industries for several applications. Two types of soda ash are produced in the world—natural and synthetic. The United States is the world's largest soda ash-producing nation with the world's largest natural deposit of trona, the ore from which soda ash is refined. Because most of the world's output is manufactured, which usually is more expensive to make, U.S. natural soda ash is extremely competitive in world markets.

The world soda ash industry continued to change in 1994 as countries emerged from depressed economic conditions and began to manufacture more glass, chemical, and detergent products, all of which use large quantities of soda ash. Because several smallscale plants were closed in the past 4 years, world capacity declined more than new capacity came on-stream. Most industry analysts would agree that there was surplus capacity beforehand and current levels are more realistic for short-term demand requirements. A few foreign soda ash consumers or foreign glass manufacturers have already secured a long-term position in the U.S. soda ash industry through joint ventures or total acquisitions. This trend will inevitably continue throughout the remainder of this century.

Production

Soda ash production data are collected by the U.S. Bureau of Mines (USBM) from monthly, quarterly, and annual voluntary surveys of U.S. soda ash operations. Of the six soda ash operations to which a survey request was sent, all responded, representing 100% of the total production data shown in this report.

U.S. soda ash production in 1994 was the second highest year as output reached 9.32 million metric tons, up 4% over that of the previous year. The record high was set in 1992. With domestic nameplate capacity exceeding 11 million tons, the industry operated at 85% of capacity utilization during 1994, with some companies operating at, or near nameplate capacities while others produced below their design ratings. According to data surveyed by the USBM, total Wyoming trona production from the five producers was 14.6 million tons, which agrees with the total collected by the

office of the Wyoming State Inspector of Mines. In its report¹, FMC Wyoming Corp. produced 4.05 million tons, General Chemical Corp. 3.69 million tons, Rhône-Poulenc Basic Chemicals Co. 2.88 million tons, Solvay Minerals Co. 3.14 million tons, and Tg Soda Ash, Inc., 2.32 million tons.

FMC announced plans to expand its Wyoming soda ash facility by 635,000 metric tons, thereby raising total nameplate capacity to 3.22 million tons by 1997. The \$140 million project involves new technology and a tailings disposal concept to slurry mine waste to abandoned underground sections of the mine. Removal of the spent tailings reduces surface containment costs, pond maintenance expenses, and promotes environment remediation.²

White River Nahcolite Minerals, which was a joint venture formed in 1992 between NaTec Resources, Inc. (with CRS Sirrine Inc. as a partner) and North American Chemical Co. continued to solution mine nahcolite (natural sodium bicarbonate) near Rifle in the Piceance Creek Basin of Colorado. However, in June 1994, the relationship became strained as NaTec filed a lawsuit against North American citing the latter failed to pay \$625,000 as stipulated in their agreement. North American alleged that NaTec had failed to demonstrate that the facility could produce at its designed annual capacity of 96,000 tons as required by the joint-venture agreement. NaTec alleged that North American prevented it from operating at full capacity by refusing to use additional processing equipment at the site and to implement process modifications.³ refused to invest any additional money into the venture and sold its part of NaTec for \$15 million (\$12 million in cash and \$3 million in a promissory note) to AmerAlia Inc. In November, NaTec announced that it would sell 80% of its assets in White River Nahcolite Minerals to North American Chemical for \$10 million (\$6 million in cash and \$4 million in non-interest bearing promissory note with a 5year limit). The sale resolved the litigation between the two that existed since June.⁴

In December, Natrona Resources Inc. announced plans to begin feasibility studies on constructing a soda ash and sodium bicarbonate facility in the Piceance Creek Basin of northwest Colorado. The planned venture would solution mine nahcolite (natural sodium

bicarbonate) and process it into marketable sodium products that would compete with material produced in Wyoming and California.⁵

Consumption and Uses

Reported consumption data by end use are collected quarterly from the marketing and sales departments of each company within the industry. Every effort has been made to categorize company sales with the intended end-use sector. Ouarterly reports are often revised in subsequent quarters because of customer reclassifications, etc. Reported consumption data have been collected quarterly since 1987; prior years were estimated by the commodity specialist based on contacts with members of the industry and establishing benchmarks by using the Bureau of the Census' Census of Manufacturers report that is done every 5 years (i.e. 1977, 1982, 1987, etc.) Intervening years were extrapolated based on knowledge of rising or falling industry trends within that end-use sector. Because all six U.S. soda ash companies respond to the quarterly survey, the data represents 100% of the total reported consumption data found in this report. Reported consumption data and apparent consumption data do not necessarily correspond because of dissimilar sources of export data. The quarterly reported consumption survey are exports as declared by the industry; apparent consumption export data are those as collected by the Bureau of the Census, including any adjustments. In 1994, the distribution of domestic soda ash sales by end-use sector was glass, 51% (of which container was 28%, flat glass, 15%, and fiberglass and specialty glass, 4% each); chemicals, 22%; soap and detergents, 13%; distributors, 5%; miscellaneous uses, 3%; and pulp and paper, water treatment, and flue gas desulfurization, 2% each.

Although domestic consumption was slow during the first half of the year, third and fourth quarter sales of soda ash rose, especially in the flat glass and fiberglass sectors. These two sectors increased because of greater demand for glass products for the automotive and construction industries, both of which reflect the status of the national economy. Soda ash sold for pulp and paper use increased as well due to the rise in the price and the reduced availability of electrolytic caustic soda, which

often is preferred for pulp digestion because of its stronger alkalinity. By yearend, caustic soda was in short supply in the West which caused the three manufacturers of chemical caustic soda in Wyoming (FMC Wyoming Corp. with a 59,000 ton per year plant, Solvay Minerals Co. with a 68,000 tons per year plant, and Tg Soda Ash, Inc. with a 91,000 tons per year plant) to restart their chemical caustic plants. U.S. apparent consumption in 1994 was 6.24 million tons, down from 6.35 million tons in 1993.

Stocks

Yearend stocks of dense soda ash in domestic plant silos, warehouses, terminals, and on teamtracks amounted to 203,000 tons. Producers indicate that a potential supply problem could exist when inventories fall below 180,000 tons. Most consumers of soda ash do not have adequate storage facilities to accommodate large quantities of soda ash and must rely on suppliers to provide the material on a timely basis. A large domestic consumer would have the capability to store no more than 2 weeks of product at its site. The majority of the U.S. soda ash producers that had been shipping to Europe have several foreign warehouses for product storage. These warehouses serve the needs of most foreign soda ash consumers that purchase U.S. soda In addition, the industry's export association, the American Natural Soda Ash Corp. (ANSAC), has arrangements to store soda ash prior to arrival of ships at the ports.

Markets and Prices

The U.S. industry in September led off with a \$3 per ton increase in the off-list price of soda ash effective January 1995. As domestic consumption and exports increased in late 1994, the industry announced another price hike of \$5 per ton in an attempt to firm up contracts for the next year. There also was an effort to lower the Wyoming list price from \$98 per ton to \$88 per ton; the move, however, was not universally accepted and the price remained at \$98 per ton. The final 1994 annual average value of bulk dense soda ash sold on long-term contract, discounts, spot price, and export, was \$70.44 per short ton, which was below the \$74.34 per ton reported for 1993.

Foreign Trade

Import and export statistics are obtained from the U.S. Department of Commerce, Bureau of the Census, and analyzed using trade data provided by the Journal of Commerce's Port Import Export Reporting Service (PIERS). The export data collected by the Bureau of the Census may not correspond to the export data provided by the six soda ash producers in the quarterly survey of soda ash sales or the PIERS data. The discrepancy between the export data sets is because Census data report the transaction on the date the cargo physically left from the U.S. port whereas soda ash producers consider a shipment as exported when it leaves the plant. The overland transit time between the plant and port and any export inventory carryover, both in domestic and foreign warehouses or teamtracks, are the major reasons for the difference between the export data.

U.S. soda ash exports rebounded in the fourth quarter as ANSAC shipped at record levels, achieving an all time high of 3.23 million tons even with reduced exports to Europe. Many global economies began to recover, especially in the flat glass markets. The international rise in caustic soda prices also prompted many caustic customers throughout the world to convert to soda ash. The percent distribution of U.S. soda ash exports to 50 nations in 1994, on a regional basis, was Asia, 49%; South America, 19%; North America, 15%; Europe, 9%; Africa and the Middle East, 3% each; and Central America and Oceania, 1% each. The source of trade statistics is the U.S. Department of Commerce's Bureau of the Census; however, because of some erroneous transactions, the data included in this report were adjusted by the USBM using data and information from the Journal of Commerce and industry sources.

Despite that the European Union (EU) Commission did not issue its final ruling on the antidumping investigation it conducted against the U.S. soda ash industry, exports to Europe continued.⁷ North American Chemical Co. shipped about 84,000 tons, FMC 47,000 tons, Asahi (Solvay Minerals' partner) 28,000 tons, General Chemical 22,000 tons, and Rhône-Poulenc 7,000 tons.⁸ Texasgulf did not export any soda ash to Europe in 1994 but was the major supplier in 1992 and 1993. In addition, ANSAC exported about 66,000 tons through Croatia and Slovenia to Hungary for Guardian Industries float glass plant in Hungary.

With the removal of the antidumping duties on light soda ash on May 15, 1994, Bulgaria and Poland exported about 400,000 tons to western Europe with prices reportedly about 10% below the European price. Although the EU was requested to investigate dumping by the East Europeans, the Commission was reluctant to initiate any action because of the sensitive political situation between the two parts of Europe. With the changing political and economic conditions in eastern Europe,

synthetic soda ash producers have operated substantially below capacity since with the loss of subsidized energy. The product also is of poorer quality than western standards except some of the soda ash produced in Bulgaria and from one Polish plant. This was the material being shipped to western Europe at lower prices.

World Review

Botswana.—The natural soda ash operation in Botswana in late 1994 announced it planned to upgrade the quality of its product and expand market share. The company, Soda Ash Botswana, which is a joint venture among African Explosives and Chemical Industries. Anglo American, and the Botswana Government, only has been operating at about one-half of its 300,000 ton-per-year capacity because of poor demand in the markets it exports into. The Republic of South Africa represents 92% of soda ash demand in southern Africa with Zambia and Zimbabwe accounting for the remainder. Approximately 45% of the soda ash was used in glass container and flat glass manufacture.11

France.—In May. Rhône-Poulenc of France and Akzo Nobel of the Netherlands, announced plans to form a new joint venture effective January 1995 with Rhône-Poulenc holding 67% of the partnership and Akzo the remaining 33%. The proposed union would result in a stronger and more competitive company that would have about 1 million tons of combined capacity at Nancy, France and Delfzijl, Netherlands and annual sales of more than one billion French francs (\$175 million). The venture would take advantage of Akzo's market strength in the Benelux region of Europe and Rhône-Poulenc's in France. Although the Green River, WY, plant is not part of the joint venture, natural soda ash could be exported to supply Europe. In addition, Rhône-Poulenc improved its position through its long-term contract to provide Chemische Fabrik Kalk (CFK) following the closure in late 1993 of CFK's Cologne, Germany plant, which had an annual capacity of 300,000 tons.12

In November, however, both companies determined they would suspend their formal negotiations to merge, citing neither could ascertain the value of the assets each company planned to contribute to the partnership. The decision does not rule out the possibility of reassessing the proposed merger in the future. Both companies remained committed to their soda ash businesses. For example, Rhône-Poulenc still planned to acquire the synthetic soda ash plants in Poland, which wanted to privatize them.¹³

Germany.—Lars Christensen Chemicals of Outlook Denmark completed its \$234 million project to upgrade its synthetic soda ash plant in Strassfurt, Germany in October. It converted one of the two units of the plant from 250,000 tons per year light soda ash to 200,000 tons per year of dense soda ash. The changeover to dense material was in response to the growing demand for dense soda ash for glass manufacture. The second unit produces 100,000 tons of dense product annually and 30,000 tons of light soda ash. The company acquired the facility from the Treuhandanstalt, the former East German government, in 1991. Although the plant is small compared with world standards, it was important to invest in upgrading this facility in eastern Germany to continue to provide employment and generate revenue for the local economy.14

India.—India has become a major soda ash producing nation with most of its output destined for internal consumption by the glass and detergent industries. Nirma Ltd. of Ahmedabad, which is a large Indian detergent manufacturer, announced plans to construct a 1.200 tons-per-day synthetic soda ash plant in Gujarat. An earlier plan was to build the plant near Junagadh on the Saurashtra coast and use processing technology from Asahi Chemicals of Japan.15

Kenva.—In early 1994, Brunner Mond & Co., Ltd. of England announced plans to expand natural soda ash annual production capacity at Lake Magadi in Kenya by 50,000 tons. The \$1 million project would raise total capacity to 300,000 tons per year. Because about 90% of production is exported through the port of Mombassa, plant output had been limited due to inadequate transportation arrangements.¹⁶ The company is negotiating to take over the rail link to the port which would improve overall efficiency and expand exports. Presently, Lake Magadi soda ash is shipped to markets in neighboring African countries, the Middle East, and the Far East; all of which have growing soda ash demand. Brunner Mond anticipates to expand capacity to 1 million tons during the next 15 years.

Brunner Mond's parent corporation, Brunner Mond Holdings, and Penrice Ltd. of Australia, which owns 5% of Brunner Mond Holdings, initiated a study to evaluate the benefits of a formal merger of both companies for financial and strategic interests. The merger was to occur by yearend; however, a delay that would carry over into 1995 was necessary so Brunner Mond could restructure its estimated \$10 million debt. In 1991, the two companies purchased the soda ash plants in England and Kenya for \$133 million from Imperial Chemical Industries.¹⁷

Demand for U.S. produced soda ash in 1995 should continue to be strong, especially in the export market. With the adverse ruling by the EU Commission, soda ash exports to Europe are forecast to be less than 100,000 tons. Some of this will be carryover sales from previous year's contract commitments. With no antidumping duty, Tg may be in a more favorable position to negotiate contracts with European customers for 1996. Domestic soda ash consumption should continue to be stable in the flat glass and fiberglass sectors as the automotive and construction industries remain robust. The caustic soda producers will strive for increased export sales that may create a domestic shortage leading to escalating prices. Should this occur, caustic soda customers may turn toward the soda ash suppliers to satisfy their sodium oxide requirements. The annual growth rate for domestic soda ash consumption is forecast to grow at no more than 1.5% for the short term; however, the total soda ash demand growth rate including exports is forecast to grow between 2% and 2.5% annually throughout this decade.

⁵Press Release. Natrona Resources Inc. Natrona Awards Contract to Raytheon For Colorado's First Soda Ash Plant. Dec. 28, 1994.

⁶Chemical Marketing Reporter. Soda Ash. Dec. 5, 1994, v. 246, No. 23, p. 22.

⁷Chemical Marketing Reporter. EU Takes Tough Stand On Dumping, Jan. 16, 1995, v. 247, No. 3, p.

⁸Journal of Commerce monthly trade data.

⁹Chemical Week. EU Import Duty Announcements. May 25, 1994, v. 154, No. 20, p.

¹⁰European Chemical News. East European Soda Ash Exports Double Into EU. May 16, 1994, v. 61, No. 1618, p. 11.

¹¹Glass International. Botswana Producer Builds Up Market Share in Southern Africa. June 1994, v. 46, No 6, p. 49.

¹²Press Release. Rhône-Poulenc. Rhône-Poulenc and Akzo Nobel Plan to Team Up in Europe in the Soda Ash Business. May 26, 1994.

¹³Chemical Marketing Reporter. Rhône-Poulenc, Akzo Call Off Soda Ash Talks. Nov. 14, 1994, v. 246, No. 20, p. 9.

¹⁴Industrial Minerals. Strassfurt Converts to

Dense Soda Ash. Nov. 1994, No. 326, p. 9.

¹⁵Chemical Week. Indian Soda Ash Project Takes Shape. Nov. 30, 1994, v. 155, No. 21, p. 19. ⁶Industrial Minerals. Magadi Soda Ash Expansion. March 1994, No. 318, p. 10.

¹⁷Chemical Week. Penrice, Brunner Mond Study Soda Ash Merger. Feb. 2, 1994, v. 154, No. 4, p. 14.

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Natural Soda Ash. Donald Garret, 1991. Soda Ash. Mining Engineering, annual review of commodities.

¹Annual Report of the State Inspector of Mines of Wyoming for the Year Ending Dec. 31, 1994.

²Chemical Marketing Reporter. FMC Hikes Soda Ash With New Technology. March 14, 1994, v. 245, No. 11, p. 3.

³Chemical Marketing Reporter. Bicarb Partners Clash. June 13, 1994, v. 245, No. 24, p. 5.

⁴Press Release. NaTec Resources. NaTec Resources Announces Letter of Intent For Sale of Substantially All the Assets to North American Chemical Company, Nov. 18, 1994.

TABLE 1 SALIENT SODA ASH STATISTICS 1/

(Thousand metric tons and thousand dollars)

	1990	1991	1992	1993	1994
United States:					
Production 2/	9,160	9,010	9,380	8,960	9,320
Value 2/	\$836,000	\$836,000	\$837,000	\$734,000	\$724,000
Production, Wyoming trona	14,700	14,700	14,900	14,500	14,600
Exports	2,390	2,730	2,960	2,800	3,230
Value	\$347,000	\$409,000	\$434,000	\$376,000	\$406,000
Imports for consumption	146	134	72	89	79
Value	\$20,500	\$21,300	\$12,800	\$17,100	\$12,100
Stocks, Dec. 31: Producers'	287	234	371	274	203
Consumption:					
Apparent	6,840	6,460	6,360	6,350	6,240
Reported	6,530	6,280	6,320	6,280 r/	6,260
World: Production	32,000	31,200 r/	31,100 r/	30,500 r/	30,400 e/

e/ Estimated. r/ Revised.

- 1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits.
- 2/ Natural only, soda liquors and purge liquors converted to soda ash equivalent are as follows: 1990, 112,000 tons; 1991, 117,000 tons; 1992, 121,000 tons; 1993, 85,000 tons; and 1994, 91,600.

TABLE 2 U.S. PRODUCERS OF SODA ASH IN 1994

(Million short tons, unless otherwise noted)

Company	Plant nameplate	Plant location	Source of
	capacity		sodium carbonate
FMC Wyoming Corp.	2.85	Green River, WY	Underground trona.
General Chemical (Soda Ash) Partners 1/	2.40	do.	Do.
North American Chemical Co. 2/	1.30	Trona, CA	Dry lake brine.
Rhone Poulenc of Wyoming, L.P. 3/	2.30	Green River, WY	Underground trona.
Solvay Minerals Inc. 4/	2.00	do.	Do.
Tg Soda Ash Inc. 5/	1.30	Granger, WY	Do.
Total	12.15		
Total million metric ton	ns 11.02		

- 1/ A joint venture between General Chemical Corp. (51%), Australian Consolidated Industries International (ACI-25%), and TOSOH Wyoming Inc. of Japan (24%), which purchased part of ACI's share June 1992.
- 2/ Oriental Chemical Industries of Korea as a partner had 27% equity share, but was reduced to about 7% in 1993.
- 3/ Joint venture between Rhone-Poulenc Basic Chemicals Co. of France (51%) and Union Pacific Resources Co. (49%).
- 4/ Operation is a joint venture with Solvay S.A. of Belgium (80%) and Asahi Glass Co. of Japan (20%), which became a partner in Feb. 1990.
- 5/ Owned by Texasgulf Inc., subsidiary of Societe Nationale Elf Aquitaine of France (100%).

TABLE 3 REPORTED CONSUMPTION OF SODA ASH IN THE UNITED STATES, BY END USE 1/

(Metric tons)

		1993	1994	1994	1994	1994	1994
SIC		Total	First	Second	Third	Fourth	Total
Code	End use		Quarter	Quarter	Quarter	Quarter	
32	Glass:						_
3221	Container	1,790,000	447,000	458,000	451,000	426,000	1,780,000
3211	Flat	869,000	215,000	226,000	237,000	248,000	926,000
3296	Fiber	220,000	55,400	52,500	55,600	57,000	220,000
3229	Other	215,000	48,800	51,900	60,500	59,300	220,000
	Total:	3,100,000	765,000	789,000	804,000	790,000	3,150,000
281	Chemicals	1,480,000	328,000	335,000	344,000	367,000	1,370,000
284	Soaps and detergents	806,000	211,000	201,000	212,000	210,000	834,000
26	Pulp and paper	139,000	25,600	24,900	44,800	49,700	145,000
2899	Water treatment 2/	116,000	26,500	25,600	25,700	24,800	103,000
	Fluegas desulfurization	151,000 r/	43,500	29,300	33,600	32,100	138,000
	Distributors	337,000	81,700	77,300	77,400	76,300	313,000
	Other	163,000 r/	39,500	43,500	59,000	63,900	206,000
	Imports 3/	88,900	19,500	21,700	21,700	15,600	78,700
	Total Domestic						
	Consumption 4/	6,280,000 r/	1,520,000	1,530,000	1,600,000	1,610,000	6,260,000
	Exports 5/	2,840,000	699,000	835,000	749,000	985,000	3,270,000
	Canada	116,000	31,300	39,600	29,100	42,600	143,000
	Total Industry Sales 6/	9,130,000 r/	2,220,000	2,360,000	2,350,000	2,600,000	9,530,000
	Total Sales from Plants	8,760,000	2,200,000	2,270,000	2,270,000	2,500,000	9,230,000
	Total Production	8,960,000	2,190,000	2,270,000	2,320,000	2,540,000	9,320,000

r/ Revised.

- 1/ Previously published and 1994 data are rounded by the U. S. Bureau of Mines to three significant digits; may not add to totals shown.
- 2/ Includes soda ash equivalent from soda liquors and purge liquors sold to powerplants for water treatment. Sales of mine water are excluded.
- 3/ Data are from the Bureau of the Census and may vary from the quantity reported by the producer and/or importer. Actual imports are proprietary data but have been distributed into appropriate end-use categories and included in "Total domestic reported consumption."
- 4/ Reported consumption data do not agree with apparent consumption data shown in table 1 because of dissimilar sources of export data.
- The data vary because of different reporting periods, overland transit time between plant and port, and carryover export inventory. 5/ As reported by producers. Includes Canada. Data may not necessarily agree with that reported by the Bureau of Census
- 5/ As reported by producers. Includes Canada. Data may not necessarily agree with that reported by the Bureau of Census for the same periods.
- 6/ Represents soda ash from domestic origin (production and inventory changes) and imports, and for exports. Includes soda ash sold by coproducers and distibuted by purchasers into appropriate end use categories.

TABLE 4 SODA ASH YEAREND PRICES

		1993	1994
Sodium carbonate (soda ash):			
Dense, 58%, Na2O 100-pounds, paper bags, carlot, works, f.o.b.	per short ton	\$146.00	\$146.00
Bulk, carlot, same basis tons	do.	98	98
Light 58%, 100-pounds, paper bags, carlot same basis	do.	151	151
Bulk, carlot, same basis tons	do.	103	103

Sources: Chemical Marketing Reporter. Current Prices of Chemicals and Related Materials.

V. 245. No. 1, Dec. 31, 1993, p.30. and V. 247. No. 1, Dec. 30, 1994, p.32.

TABLE 5 REGIONAL DISTRIBUTION OF U.S. SODA ASH EXPORTS, BY CUSTOMS DISTRICTS, IN 1994 1/

(Metric tons)

	North	Central	South			Middle					Percent
Customs districts	America	America	America	Caribbean	Europe	East	Africa	Asia	Oceania	Total	of total
Atlantic:											
Baltimore, MD					11		86			97	
Miami, FL		16	203	74						293	
New York, NY			19		8,110	(2/)				8,130	
Washington, DC					(2/)					(2/)	
Gulf:	-										
Houston-Galveston, TX	14,000				16,700					30,700	1%
New Orleans, LA		95		26						121	
Port Arthur, TX			215,000	12,500	44,100	27,000				299,000	9%
Pacific:	-										
Columbia-Snake River		15,300	116,000		104,000	55,800	77,400	1,570,000	32,100	1,970,000	61%
Los Angeles, CA			6,050		23,600	5		142	241	30,000	1%
San Diego, CA	11,000	11,200	271,000		99,100	8,500	6,120	16,100		423,000	13%
San Francisco, CA									862	862	
Seattle, WA	10,200							412		10,600	
North Central:	-										
Chicago, IL					42					42	
Detroit, MI	77,300				250					77,600	2%
Great Falls, MT	28,800									28,800	1%
Pembina, ND	6,580									6,580	
Northeast:	-										
Buffalo, NY	3,990				187					4,180	
Ogdensburg, NY	381									381	
Portland, ME	167									167	
Southwest:	-										
El Paso, TX	4,910									4,910	
Laredo, TX	313,000									313,000	10%
Nogales, AZ	16									16	
Other:	-										
San Juan, PR				281						281	
Unknown:	22,200									22,200	1%
Total	493,000	26,600	609,000	12,900	297,000	91,400	83,600	1,590,000	33,200	3,230,000	100%
Percent of total	15%	1%	19%		9%	3%	3%	49%	1%	100%	
1/Data rounded by the H	C Duman	C M !	4 - 41	.:C: 1:_:4_		1.1 4 441	-1				

^{1/} Data rounded by the U. S. Bureau of Mines to three significant digits; may not add to totals shown.

Source: Bureau of the Census as adjusted by the U. S. Bureau of Mines using trade data and information from the Journal of Commerce.

^{2/} Less than 1/2 unit.

TABLE 6 U.S. EXPORTS OF SODA ASH, BY COUNTRY 1/

(Metric tons)

Country	1993	1994	Country	1993	1994
Antigua		18	Malaysia	68,600	57,500
Argentina	96,600	109,000	Marshall Islands	3	
Aruba		14	Mexico	190,000	343,000
Australia	65,200	25,800	Netherlands	80,300	
Belgium	149,000	129,000	Netherlands Antilles	22	15
Bolivia	1,650	5,850	New Zealand	7,540	7,360
Brazil	88,800	167,000	Panama	1,760	2,600
Canada	120,000	150,000	Paraguay		301
Chile	59,200	59,400	Peru	13,800	16,700
China	59,100	92,200	Philippines	85,600	76,000
Colombia	74,200	68,200	Poland	50	30,200
Costa Rica	8,100	4,850	Romania	20	
Croatia 2/	51,900	63,300	Russia		1,700
Dominican Republic		307	Saudi Arabia	32,600	55,800
Ecuador	9,550	9,770	Sierra Leone	29	86
El Salvador	3,080	4,340	Singapore	13,000	13,000
France	19,100	13,500	Slovenia 2/	13,700	12,000
Gabon	(3/)		South Africa, Republic of	65,000	83,500
Germany	21		Spain	70,500	
Guatemala	18,200	14,800	Sweden	17,700	2
Hong Kong	909	65	Taiwan	123,000	188,000
Indonesia	237,000	284,000	Thailand	105,000	195,000
Iran	20,000		Trinidad and Tobago	8,510	8,560
Ireland		42	United Kingdom	5,000	2
Israel	8,560	35,500	Uruguay	3,670	8,540
Italy	37,800	47,200	Venezuela	167,000	164,000
Jamaica	8,000	3,950	Yemen	1	
Japan	353,000	340,000	Total	2,800,000	3,230,000
Korea, Republic of	237,000	341,000			

^{1/} Previously published and 1994 data are rounded by the U. S. Bureau of Mines to three significant digits; may not add to totals shown.

Source: Bureau of the Census and Statistics Canada, as adjusted by the U. S. Bureau of Mines.

TABLE 7 U. S. PRODUCTION OF SODIUM COMPOUNDS, BY MONTH, IN 1994 1/

(Metric tons)

		Soda	Wyoming
	Soda Ash	Liquors	Trona
January	714,000	6,620	1,290,000
February	691,000	6,550	1,150,000
March	786,000	8,680	1,270,000
April	734,000	6,490	1,120,000
May	791,000	7,680	1,210,000
June	746,000	8,120	1,110,000
July	799,000	7,810	1,160,000
August	741,000	10,800	1,170,000
September	775,000	7,230	1,170,000
October	853,000	7,840	1,250,000
November	834,000	6,790	1,340,000
December	858,000	6,980	1,350,000
Total	9,320,000	91,600	14,600,000
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^{1/} Previously published and 1994 data are rounded by the U. S. Bureau of Mines to three significant digits; may not add to totals shown.

^{2/} Formerly part of Yugoslavia.

^{3/} Less than 1/2 unit.

${\it TABLE~8}$ SODA ASH: WORLD PRODUCTION, BY COUNTRY 1/ 2/

(Thousand metric tons)

Country	1990	1991	1992	1993	1994e/
Albania e/	27	16	(3/)		
Australia e/	300	300	300	300	300
Austria e/	150	150	150	150	150
Belgium e/ 4/	375	380	375	300	
Bosnia and Herzegovina e/ 5/	XX	XX	25	20	15
Botswana		62	124	126 r/	140
Brazil e/	200	200	200	200	200
Bulgaria	1,050	893	517 r/	550 r/e/	550
Canada e/	315	310	305	305	300
China e/	3,750	3,940	4,500	5,270	5,680
Colombia e/	121 6/	121	121	121	121
Czechoslovakia e/ 7/	104 6/	104	100	XX	XX
Egypt	52	52	51 e/	51 e/	51
France	1,180	1,140	1,100	1,000 e/	1,200
Germany:	= =====================================				
Eastern states e/	850	XX	XX	XX	XX
Western states	1,440	XX	XX	XX	XX
Total e/	2,290	1,950	1,640	1,590 r/	1,600
India e/	1,400	1,500	1,500	1,500	1,500
Italy e/	610	600	600	500	500
Japan	1,130	1,100	1,060 r/	1,060 r/	1,060
Kenya e/ 8/	244 6/	245	245	245	245
Korea, Republic of e/	280	300	300	310	310
Mexico e/ 9/	449 6/	449	440	440 r/	280
Netherlands e/	400	400	400	400	400
Pakistan e/	135	147	146	186 r/6/	180
Poland	968	962	929	950 e/	950
Portugal e/	150	150	150	150	150
Romania	632	471 r/	452 r/	450 r/e/	450
Russia e/	XX	XX	3,000	2,500	2,000
Spain e/	527 6/	500	500	500	500
Taiwan	120 e/	109	91	100 e/	100
Turkey e/	385	385	385	385	385
U.S.S.R. 10/	4,360	4,100 e/	XX	XX	XX
Ukraine e/	XX	XX	1,000	900	800
United Kingdom e/	1,000	1,000	1,000	1,000	1,000
United States 8/	9,160	9,000	9,380	8,960	9,320 6/
Yugoslavia 5/ 11/	173	140 e/	XX	XX	XX
Total	32,000	31,200 /r	31,100 /r	30,500 /r	30,400

e/Estimated. r/Revised. XX Not applicable.

^{1/} Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three sigificant digits; data may not add to totals shown.

^{2/} Table includes data available through Apr. 20, 1995. Synthetic unless otherwise specified.

^{3/} Less than 1/2 unit. Plant at Vlora reportedly closed in 1993.

^{4/} Plant at Couillet closed by yearend 1993.

^{5/} All production in Yugoslavia for 1990-91 came from Bosnia and Herzegovina.

^{6/} Reported figure.

^{7/} Dissolved on Dec. 31, 1992.

^{8/} Natural only.

^{9/} Includes natural and synthetic. Estimated production of natural soda ash, in metric tons, was as follows: 1990--190,000; 1991--190,000; 1992--160,000; and 1993--160,000 (revised). Natural soda ash operation closed in Aug. 1993.

^{10/} Dissolved in Dec. 1991.

^{11/} Dissolved in Apr. 1992.