



2009 Minerals Yearbook

SODA ASH

Soda Ash

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The sluggish global economic conditions in the major soda ash-consuming sectors caused domestic sales and export sales to decrease, resulting in lower soda ash production levels. The annual average unit value of soda ash and the unit value of exported material, however, reached record highs in 2009. The total value of U.S. soda ash was \$1.33 billion (table 1).

Soda ash, also known as sodium carbonate (Na_2CO_3), is an alkali chemical refined from the mineral trona or naturally occurring sodium carbonate-bearing brines (the soda ash from both is referred to as natural soda ash) or manufactured from one of several chemical processes (the soda ash from this process is referred to as synthetic soda ash).

Soda ash is an important industrial compound used to manufacture chemicals, glass, pulp and paper, soaps and detergents, and many other familiar consumer products. The United States has the world's largest natural deposit of trona and is the world's second ranked soda ash-producing nation. U.S. natural soda ash is extremely competitive in world markets because the majority of the world output of soda ash is made synthetically, which is usually a more expensive process.

Production

Soda ash production and inventory data were collected by the U.S. Geological Survey (USGS) from monthly, quarterly, and annual voluntary surveys of the U.S. soda ash industry. A survey request was sent to each of the five soda ash companies, all of which responded, representing 100% of the total production data in this report (table 1).

The United States remained the world's second ranked soda ash-producing nation in 2009. After more than a century of the United States leading in the world's production of soda ash, China overtook the United States in 2003, and it appeared that China would continue to be the world's leader for the foreseeable future. U.S. production of natural soda ash from California and Wyoming in 2009 was 9.31 million metric tons (Mt). Based on about 14.5 million metric tons per year (Mt/yr) (16 million short tons per year) of total nameplate production capacity, the U.S. soda ash industry operated at 64% of total capacity. This capacity utilization rate appears to be low because it includes the full nameplate capacity of 900,000 metric tons per year (t/yr) (1 million short tons per year) for Solvay Chemicals, Inc.'s Parachute, CO, plant, 816,000 t/yr (900,000 short tons per year) for OCI Chemical Corp.'s, and 726,000 t/yr (800,000 short tons per year) for FMC Corp.'s Granger plant, some of which included nameplate capacity idled in 2009.

Approximately 2.45 Mt/yr of nameplate capacity (2.70 million short tons per year), which represented about 17% of total industry nameplate capacity, was idled in 2009. This available capacity could be brought back online when market conditions improve. The U.S. soda ash industry used the term "effective

capacity" to minimize the effect that "mothballed capacity" had on operating rates. This resulted in higher capacity utilization percentages. Individual effective capacity data are not publicly disclosed. Producers use nameplate capacities to determine export allocations set by the export association, the American Natural Soda Ash Corp. (ANSAC).

The U.S. soda ash industry consisted of five companies in 2009—four companies operating five plants in Wyoming that produced soda ash from underground trona ore and one in California that produced soda ash from sodium-carbonate-rich brines. Solvay operated a plant in Wyoming and a plant in Colorado, which was mothballed in September 2004 but continued sodium bicarbonate production using soda ash feedstock from the company's Wyoming soda ash facility.

On February 8, 2008, FMC announced that it planned to recommission its entire mothballed capacity at its Granger soda ash plant by 2012 because of the increased demand in export sales. About 90,700 t/yr (100,000 short tons per year) was expected to restart in 2009, with the remaining 635,000 t/yr (700,000 short tons per year) expected to come online during 2010 to 2012, depending on the export market. In April 2009, however, FMC was forced to temporarily suspend operations at Granger because of the global economic slowdown that affected the export market. In July, FMC announced it would continue to curtail its operations for the remainder of the year and into 2010 (FMC Corp., 2009).

Each of the U.S. companies is either wholly owned or partially owned by foreign soda ash-producing companies or foreign soda ash consumers. The U.S. soda ash industry was 62% foreign owned and 38% domestically owned. At yearend, the countries and percentage ownership were India, 34%; Belgium, 31%; Japan, 18%; and the Republic of Korea, 17% (table 2).

The economic recession that affected many regions of the world resulted in decreased global soda ash consumption, particularly in the glass sectors. In response to reduced consumption, production fell as well. OCI Chemical laid off more than 38 workers at its Wyoming facility in August. FMC laid off 70 workers, including 50 hourly workers and 20 salaried workers, or approximately 8% of the company's soda ash mine workforce (Gearino, 2009).

Consumption

The USGS collects soda ash consumption data by end use on a quarterly basis from the marketing and sales departments of each company. Every effort has been made to categorize company sales within the correct end-use sector. Quarterly reports are often revised in subsequent quarters because of customer reclassifications or other factors. All U.S. soda ash companies responded to the quarterly surveys; data represented 100% of the total reported consumption data found in this report.

In 2009, U.S. apparent consumption and reported consumption were virtually identical. Apparent consumption of soda ash was 4.95 Mt; reported consumption was 5.02 Mt (table 1). Reported consumption and apparent consumption do not necessarily correspond because reported consumption is sales reported by producers, whereas apparent consumption is the calculated quantity available for domestic consumption based on balancing supply (production, imports, and inventory adjustments) with external demand (exports).

When the two types of consumption do not closely correspond, the difference is usually attributed to a discrepancy in the export data that were used to derive consumption statistics. The two sources for export data were the U.S. Census Bureau, which reports exports upon departure from U.S. ports, and the California and Wyoming soda ash producers, which consider shipments to be exported when their export association, ANSAC, takes consignment of the product at the Wyoming plant sites. Transit times between the plant and port, which can be about 2 to 3 weeks before the cargo is actually exported, and carryover export inventories contribute to the discrepancy between reported and apparent consumption as well.

In the domestic market, large-volume buyers of soda ash were primarily the major glass container manufacturers whose purchases were seasonal (more beverage containers are made in the second and third quarters for summertime beverage consumption). Soda ash sales to the flat glass sector depended more on the state of the economy because the leading uses of flat glass were in automobile manufacture and residential housing and commercial building construction. These two major industrial sectors are especially sensitive to changing economic conditions, and soda ash sales follow trends in the two sectors. The distribution of soda ash by end use in 2009 was glass, 47%; chemicals, 29%; soap and detergents, 10%; distributors, 5%; flue gas desulfurization and other uses, 3% each; pulp and paper, 2%; and water treatment, 1% (table 3).

Chemicals.—Soda ash is used to manufacture many sodium-base inorganic chemicals, including sodium bicarbonate, sodium chromates, sodium phosphates, and sodium silicates.

Glass.—Glass manufacture represented about 47% of domestic soda ash consumption as follows: container, 56%; flat, 34%; and fiber, 6%, and other, 4%. Glass containers are made for beverages (beer, carbonated, and noncarbonated drinks), chemical and household products, food, liquor, medical products, and toiletries and cosmetics. In 2009, about 211 million gross units of glass containers were manufactured, of which 59% were for beer bottles, 18% for food containers, 8% for beverage containers, 6% for wine containers, 4% each for liquor and ready-to-drink alcoholic coolers and cocktail containers, and 1% for miscellaneous containers (chemicals, cosmetics, health, household, industrial, medicinal, and toiletries).

Soaps and Detergents.—Detergents were the third ranked use of soda ash. Soda ash was used as a builder to emulsify oil stains, to reduce the redeposition of dirt during washing and rinsing, to provide alkalinity for cleaning, and to soften laundry water. In addition, soda ash was a component of sodium tripolyphosphate (STPP), another major builder in detergent formulations. Soda ash consumption has been decreasing because phosphatic detergents can contribute to eutrophication, which is an environmental

concern. Many regions of the Nation have adopted phosphate limitations or bans, affecting about 40% of the U.S. population.

In response to the environmental concern that cardboard detergent packaging contributes to the volume of landfill waste, detergent manufacturers changed formulations to make compact and superconcentrated products. These reformulations required sodium silicates and synthetic zeolites, which are made from soda ash. Liquid detergents, which do not contain any soda ash, competed with powdered detergents and commanded about 50% of the household laundry detergent market in 2009.

Stocks

Yearend 2009 stocks of dense soda ash in domestic plant silos, terminals, warehouses, and on teamtracks amounted to 217,000 metric tons (t). Producers indicated that a potential supply problem could exist if inventories fell below 180,000 t. Most consumers of soda ash did not have the storage facilities to accommodate large quantities of soda ash and had to rely on suppliers to provide the material on a timely basis.

Prices

The annual average value in 2009 for bulk, dense natural soda ash, free on board (f.o.b.) Green River, WY, and Searles Valley, CA, was \$143.17 per metric ton (\$129.88 per short ton), which was a record high, eclipsing the previous record set in 2008 that was \$134.60 per ton (\$122.11 per short ton). Part of the price increase was because a few of the low-priced, long-term contracts (legacy agreements) with certain customers expired and were renegotiated at higher prices. The value is not a “price,” but rather the value of the combined revenue of California and Wyoming bulk, dense soda ash sold on an f.o.b. plant basis at list, spot, or discount prices, on long-term contracts, and for export, divided by the quantity of soda ash sold. Only merchant soda ash is used to derive the annual value; therefore, no soda ash for value-added products or soda liquors is included. The list prices quoted in trade journals or by producers differed from the annual average values reported to and by the USGS.

In August, FMC announced a soda ash price increase of \$10 per short ton effective October 1, 2009, or as contracts allowed. The company stated the increase was necessary to “recover cost increases and to support continued investment in the business.” The new list price for bulk, dense soda ash was \$260 per short ton (Industrial Minerals, 2009a).

General Chemical (Soda Ash) Partners raised its list price of soda ash on September 4, effective immediately or as contract terms permit, by \$10 per short ton to \$260 per short ton (General Chemical, 2009).

Because the price of natural gas remained high in 2009, all the producers maintained an energy surcharge on soda ash sales. Depending on the company, the surcharges were adjusted either monthly [based on the last quoted New York Mercantile Exchange (NYMEX) Henry Hub closing price for the next forward month] or quarterly (based on the 3-month forward average NYMEX gas price using the closing price as of the 15th of the month prior to the beginning of each calendar quarter.) The surcharges were expected to remain in effect as long as the price

of natural gas was between \$5.00 and \$8.00 per million British thermal units.

Foreign Trade

The majority of U.S. soda ash exports were controlled by ANSAC, which is involved exclusively in the export trade of soda ash, defined as an alkali product designated by the chemical formula Na_2CO_3 , whether manufactured by brine evaporation and purification, Solvay process, trona refining, or any other means. Under the Treaty of Rome agreement (1958), ANSAC is not permitted to ship soda ash to the European Union (EU); however, the members of the U.S. soda ash industry formed another organization for shipping to this region. It is the American-European Soda Ash Shipping Association, Inc. (AESSA) that is engaged solely in storage, transportation, and other related logistical and technical support activities to promote and further its members' individual commerce in soda ash being shipped to the EU. Both ANSAC and AESSA were formed as Webb-Pomerene export associations under the authority of the U.S. Federal Trade Commission.

On January 21, Solvay Chemicals announced that it would withdraw from ANSAC effective December 31, 2010. The company indicated that its business had evolved to where the company could logistically and technically serve its customers throughout the world. Solvay joined Searles Valley Minerals as the second domestic soda ash company to leave ANSAC. FMC, General Chemical, and OCI continued to remain as members of the U.S. export association (All Business, 2009).

According to the U.S. Census Bureau, U.S. soda ash exports for 2009 were 4.41 Mt, which represented about 47% of U.S. soda ash production. For comparison, exports accounted for only 5% of U.S. production in 1970, 13% in 1980, 26% in 1990, and 38% in 2000. In 2009, the regional percentage distribution of U.S. exports to 50 countries, was South America, 26%; Asia, 24%; North America, 23%; Europe, 16%; the Middle East, 4%; Africa and Oceania, 3% each; Central America, 1%; and the Caribbean, negligible (table 5). The average free alongside ship value was \$190.02 per metric ton in 2009 compared with \$174.57 per ton in 2008. Although the data in tables 1 and 6 are rounded to three significant digits, the unit values listed in table 6 are based on the unrounded statistics. The 10 leading countries, representing 67% of total U.S. soda ash exports, in decreasing order and percentage of total were Mexico, 17%; Brazil, 11%; Indonesia, 6%; Canada, 6%; Belgium, 5%; Japan, 5%; Chile, 5%; The Netherlands, 4%; Taiwan, 4%; and Venezuela, 4% (table 6). About 41% of all U.S. soda ash exports went through the Columbia-Snake River customs district in Idaho, Oregon, and Washington, the Port Arthur, TX, customs district was the second-ranked customs district with 30% of the total, and the Laredo, TX, customs district was third with 14% of the total (table 5).

Imports of soda ash decreased slightly to 5,970 t from 12 countries according to U.S. Census Bureau data. In 2009, about 36% of soda ash imports were from the United Kingdom, 25% from China, 14% from Mexico, 5% from Italy, and 3% from Japan. The remaining 17% of imports was from Belgium, Canada, the Dominican Republic, France, Germany, Hong Kong, and India. The Dominican Republic was listed as a source; however, the country does not produce soda ash. It is

possible that the entry was erroneous or that the product was transshipped from another location. The average cost, insurance, and freight value of imported soda ash was \$356.65 per ton, and the customs value was \$295.68 per ton.

World Review

Soda ash is a mature commodity in which consumption tends to grow in proportion to population and gross domestic product growth rates. For this reason, the leading consumers of soda ash were, for the most part, developed nations with lower growth rates compared with those of developing countries. The developing nations tend to use less soda ash than developed nations but have higher growth rates. Although the production and consumption quantities varied among the countries, the end-use patterns were basically the same: glass, chemicals, and detergents were the major sectors.

In 2009, world soda ash production was estimated to be 44.1 Mt, which was a 3% decrease from 2008. Of the 29 countries that produce natural and synthetic soda ash, the United States is the world's second-ranked producer, accounting for 21% of total world output. Only Botswana, China, Ethiopia, Kenya, Turkey, and the United States produce soda ash from natural sources; the remaining 23 nations manufacture soda ash through various chemical processes, primarily the Solvay process. Total world natural soda ash production represented about 23% of combined world soda ash production.

Eight countries produced more than 1 Mt of soda ash annually. They were, in descending order, China, the United States, Russia, India, Turkey, Germany, Poland, and France (table 7). Bulgaria, Romania, and Ukraine had production installations that were rated at about 1 Mt/yr; adverse economic conditions, however, caused these nations to produce below their facilities' design capacities. The five top total soda ash-producing nations accounted for 77% of world production in 2009.

China.—In April, China introduced a 9% rebate on the 17% value-added tax on soda ash exports. The rebate encouraged Chinese exports to overseas markets where it directly competes with ANSAC. The rebate reportedly had also stimulated excessive soda ash capacity expansions in China that had caused Chinese soda ash prices to fall, which in turn placed additional financial pressure on the U.S. soda ash producers by putting downward pressure on prices (Wyoming Business Report, 2009.)

India.—To protect its soda ash industry from imports of less expensive soda ash from China, India's central government imposed a 20% duty on imports of soda ash as recommended by India's Directorate General of Safeguards, which was part of the country's finance ministry. The duty was to remain in effect through April 19, 2010 (Industrial Minerals, 2009b).

Netherlands.—Brunner Mond (UK) Ltd. (owned by Tata Chemicals Ltd. of India) permanently closed its Delfzijl synthetic soda ash plant in May 2009. The company stated that "...the business is forecasting continued heavy losses and, given the current economic downturn, the situation is now unsustainable." The plant had a production capacity of 420,000 t/yr (Industrial Minerals, 2009c).

Turkey.—Eti Soda Inc. (owned 74% by the Ciner Group and 26% by Eti Mine Foundation General Directorate) began production in March at its \$375 million natural soda ash facility in

Beypazari. The plant's nameplate capacity was 1 Mt/yr of soda ash and 100,000 t of sodium bicarbonate. The operation uses solution mining technology to recover natural trona from beds in the region that were discovered in 1979 while drilling for coal. About 80% of the soda ash was planned to be exported and 20% was planned to be used for domestic consumption (Ciner Group, 2009).

Outlook

The international economic downturn that began in 2008 affected soda ash-consuming industries throughout 2009. This decrease in soda ash consumption caused domestic and foreign soda ash producers to reduce soda ash production. Because the glass container sector is the leading soda ash-consuming sector, the demand for soda ash for glass containers may decline as consumers increasingly accept their food and beverages packaged in the newer polyethylene terephthalate (PET) containers. Three dominant groups have survived to become the world leaders in soda ash—Solvay S.A. of Belgium, ANSAC of the United States (which represented four of the five domestic producers in 2009), and Chinese producers. India has emerged recently as a major leader in world soda ash production as well and will probably compete in the export markets with the other groups. The new natural soda ash facility in Turkey that came onstream in 2009 may double capacity by 2012 to serve markets in the Middle East and northern Africa. This could result in additional competition in that region for U.S. soda ash producers.

For several years before the recent economic downturn, the strong U.S. economy had boosted demand for industrial and institutional cleaners and automatic dishwashing detergents. New technology incorporating enzymes in dishwashing detergents and a move toward liquid cleansers, however, may adversely affect STPP consumption in the future.

Despite the downturn in the U.S. economy, U.S. soda ash production for the next 3 years is expected to increase. Global economic problems are expected to ease slowly in the next 2 years to stimulate domestic soda ash production and export sales. The United States likely will continue to compete with Chinese soda ash producers in the Far Eastern markets. U.S. soda ash exports in 2010 may increase, causing domestic soda ash production to increase slightly. Increases in world consumption is forecast to range from 2.0% to 2.5% per year for the next several years. Asia and South America remain the likeliest areas for increased soda ash consumption in the near future.

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TABLE 1
SALIENT SODA ASH STATISTICS¹

(Thousand metric tons and thousand dollars except average annual value)

	2005	2006	2007	2008	2009
United States:					
Production:					
Soda ash:					
Quantity	11,000	11,000	11,100	11,300	9,310
Value	968,000	1,170,000	1,260,000	1,520,000	1,330,000
Value, average annual:					
Per short ton	\$80.19	\$96.64	\$103.53	\$122.11	\$129.88
Per metric ton	\$88.39	\$106.53	\$114.12	\$134.60	\$143.17
Wyoming trona	17,000	16,700	17,200	17,800	15,100
Exports:					
Quantity	4,680	4,820	5,130	5,370	4,410
Value	640,000	736,000	734,000	939,000	838,000
Imports for consumption:					
Quantity	8	7	9	13	6
Value	2,460	2,290	2,760	3,820	2,350
Stocks, December 31, producers [†]	243	290	206	259	217
Consumption:					
Apparent	6,380	6,100	6,030	5,860	4,950
Reported	6,200	6,110	5,940	5,700 ^r	5,020
World, production ^c	41,100	42,600	44,900	45,600 ^r	44,100

^cEstimated. ^rRevised.

¹Data are rounded to no more than three significant digits, except average annual value.

TABLE 2
U.S. PRODUCTION OF SODIUM COMPOUNDS, BY MONTH¹

(Thousand metric tons)

	2008		2009	
	Soda ash	Wyoming trona ²	Soda ash	Wyoming trona ²
January	922	1,510	805	1,160
February	878	1,370	670	2,020
March	955	1,510	739	983
April	890	1,530	670	1,080
May	987	1,490	767	1,180
June	935	1,480	734	1,140
July	912	1,200	794	971
August	976	1,630	827	1,220
September	935	1,490	814	1,250
October	996	1,560	812	1,360
November	965	1,530	826	1,340
December	917	1,510	854	1,380
Total	11,300	17,800	9,310	15,100

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes solution-mined trona.

TABLE 3
U.S. PRODUCERS OF SODA ASH IN 2009

(Million short tons unless otherwise noted)

Company	Plant nameplate capacity	Plant location	Source of sodium carbonate
FMC Wyoming Corp.:			
Granger	1.30	Granger, WY	Underground trona.
Green River ¹	3.55	Green River, WY	Do.
General Chemical (Soda Ash) Partners ²	2.80	do.	Do.
OCI Chemical Corp. ³	3.10	do.	Do.
Searles Valley Minerals, Inc. ⁴	1.45	Trona, CA	Dry lake brine.
Solvay Chemicals, Inc.: ⁵			
Green River	2.80	Green River, WY	Underground trona.
Parachute ⁶	1.00	Parachute, CO	Underground nahcolite.
Total	16.00		
Total	million metric tons	14.50	

Do., do. Ditto.

¹Formed joint venture (20%) in February 1996 with Sumitomo Corp. and Nippon Sheet Glass Co., Ltd., both of Japan.

²A joint venture between General Chemical Corp. (75%) and Owens-Illinois, Inc. (25%). Tata Chemicals Ltd. of India in January 2008 purchased the 75% share of General Chemical Industrial Products, Inc.

³Owned by DC Chemical Co., Ltd. of the Republic of Korea (51%) and Anadarko Petroleum Corp. (49%). An 800,000-short-ton expansion brought onstream in November 1998 increased plant capacity to 3.1 million short tons per year; however, the company took 900,000 short tons per year out of service temporarily for equipment refurbishment.

⁴The operation was sold to Nirma Ltd. of India in November 2007.

⁵Solvay Soda Ash Joint Venture is owned by Solvay S.A. of Belgium (80%) and Asahi Glass Co. of Japan (20%).

⁶Operation purchased on September 10, 2003, from American Soda L.L.P. Soda ash plant idled indefinitely.

TABLE 4
 REPORTED CONSUMPTION OF SODA ASH IN THE UNITED STATES, BY END USE, BY QUARTER¹

(Thousand metric tons)

NAICS ² code	End use	2008	2009				Total
			First quarter	Second quarter	Third quarter	Fourth quarter	
3272	Glass:						
327213	Container	1,400 ^r	322	345	345	306	1,320
327211	Flat	1,020	189	190	208	214	800
327993	Fiber	186	35	30	38	38	141
327212	Other	140 ^r	26	29	28	29	111
	Total	2,740 ^r	572	593	619	586	2,370
32518	Chemicals	1,670 ^r	326	361	379	368	1,430
325611	Soaps and detergents	501 ^r	123	121	129	135	508
322	Pulp and paper	93 ^r	30	26	24	23	103
221310	Water treatment ³	58 ^r	11	11	13	14	49
56221	Flue gas desulfurization	131	38	32	40	42	152
422	Distributors	317 ^r	62	64	65	57	249
	Other	187 ^r	35	36	34	52	156
	Total domestic consumption ⁴	5,700 ^r	1,200	1,250	1,300	1,280	5,020
	Exports ⁵	5,420 ^r	967	974	1,220	1,360	4,520
	Canada	326 ^r	62	56	70	64	252
	Total industry sales ⁶	11,100 ^r	2,160	2,220	2,520	2,640	9,540
	Total sales from plants	11,200	2,200	2,190	2,510	2,550	9,450
	Total production	11,300	2,210	2,170	2,440	2,490	9,310

^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²North American Industry Classification System.

³Includes soda ash equivalent from soda liquors and purge liquors sold to powerplant for water treatment. Sales of mine water are excluded.

⁴Imports reported by the producer/importer have been distributed into appropriate end-use categories listed above.

⁵As reported by producers; includes Canada. Data may not necessarily agree with those reported by the U.S. Census Bureau for the same periods.

⁶Represents soda ash from domestic origin (production and inventory changes) and imports and exports. Includes soda ash sold by coproducers and distributed by purchasers into appropriate end-use categories.

TABLE 5
REGIONAL DISTRIBUTION OF U.S. SODA ASH EXPORTS, BY CUSTOMS DISTRICTS, IN 2009¹
(Metric tons)

Customs districts	North America	Central America	South America	Caribbean	Europe	Middle East	Africa	Asia	Oceania	Total	Percentage of total
Atlantic:											
Baltimore, MD	--	--	--	--	18	--	--	--	--	18	(2)
Charleston, SC	--	--	--	--	223	--	--	--	--	223	(2)
Miami, FL	--	11	85	39	--	39	--	--	--	174	(2)
New York, NY	--	--	20	--	594	--	--	4	--	618	(2)
Norfolk, VA	--	--	--	--	189	--	--	--	--	189	(2)
Savannah, GA	--	--	--	--	98	--	--	--	--	98	(2)
Gulf:											
Houston-Galveston, TX	--	--	305	5	141	--	82	--	--	533	(2)
New Orleans, LA	--	7	--	--	--	--	--	--	--	7	(2)
Port Arthur, TX	--	18,100	688,000	5,630	488,000	5,680	115,000	--	--	1,320,000	30
North-central:											
Cleveland, OH	277	--	--	--	--	--	--	--	--	277	(2)
Detroit, MI	194,000	--	--	--	--	--	--	--	--	194,000	4
Duluth, MN	5,910	--	--	--	--	--	--	--	--	5,910	(2)
Great Falls, MT	27,900	--	--	--	--	--	--	--	--	27,900	1
Pembina, ND	3,770	--	--	--	--	--	--	--	--	3,770	(2)
Northeast:											
Buffalo, NY	12,500	--	--	--	--	--	--	--	--	12,500	(2)
Ogdensburg, NY	930	--	--	--	--	--	--	--	--	930	(2)
Portland, ME	63	--	--	--	--	--	--	--	--	63	(2)
St. Albans, VT	50	--	--	--	--	--	--	--	--	50	(2)
Pacific:											
Anchorage, AK	9,270	--	--	--	--	--	--	--	--	9,270	(2)
Columbia-Snake River, ID-OR-WA	--	42,500	201,000	--	208,000	175,000	--	1,050,000	111,000	1,790,000	41
Los Angeles, CA	--	--	237,000	--	19,100	--	--	5,120	5,150	267,000	6
San Diego, CA	54,300	--	--	--	--	--	--	--	--	54,300	1
San Francisco, CA	--	--	--	--	--	--	--	18	--	18	(2)
Seattle, WA	17,100	--	--	--	--	--	--	--	--	17,100	(2)
Southwest:											
El Paso, TX	105,000	--	--	--	--	--	--	--	--	105,000	2
Laredo, TX	598,000	--	--	--	--	--	--	--	--	598,000	14
Nogales, AZ	10	--	--	--	--	--	--	--	--	10	(2)
Unknown	316	--	--	--	--	--	--	--	--	316	(2)
Total	1,030,000	60,600	1,130,000	5,670	717,000	180,000	115,000	1,060,000	117,000	4,410,000	100
Percentage of total	23	1	26	(2)	16	4	3	24	3	100	XX

XX Not applicable. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than ½ unit.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey, using data and information from the Journal of Commerce PIERS trade service and industry sources.

TABLE 6
U.S. EXPORTS OF SODA ASH, BY COUNTRY¹

Country	2008			2009		
	Quantity (thousand metric tons)	Value ² (thousands)	Unit value	Quantity (thousand metric tons)	Value ² (thousands)	Unit value
Andorra	(3)	\$27	\$150	--	--	--
Angola	(3)	32	169	--	--	--
Argentina	110	22,900	208	116	\$24,500	\$211
Aruba	(3)	7	553	--	--	--
Australia	136	27,100	198	92	20,200	220
Bahrain	1	391	357	--	--	--
Belgium	185	27,200	147	234	36,500	156
Brazil	646	123,000	191	506	104,000	205
Canada	389	57,600	148	272	56,700	208
Chile	301	53,200	177	212	41,600	196
China	(3)	93	484	32	2,070	65
Colombia	120	19,700	165	68	13,800	203
Costa Rica	25	4,750	190	27	7,010	260
Dominican Republic	4	1,670	374	6	1,500	250
Ecuador	17	2,900	166	23	5,430	236
El Salvador	8	1,430	188	6	1,320	220
France	59	8,220	140	56	7,920	141
Guatemala	51	10,000	198	19	4,150	218
India	--	--	--	3	660	220
Indonesia	343	64,900	189	282	41,800	148
Italy	1	195	329	10	1,730	173
Jamaica	(3)	13	524	--	--	--
Japan	211	32,700	155	213	41,200	193
Korea, Republic of	140	30,200	216	138	25,100	182
Lithuania	118	16,100	136	72	10,200	142
Malaysia	75	17,200	227	31	5,990	193
Mexico	1,000	170,000	169	758	171,000	225
Morocco	1	255	189	--	--	--
Netherlands	123	20,200	164	166	28,600	172
New Zealand	28	5,520	199	25	5,010	200
Nicaragua	(3)	6	110	--	--	--
Nigeria	(3)	5	439	--	--	--
Oman	1	323	344	--	--	--
Panama	13	2,540	197	9	2,100	233
Peru	40	7,400	186	43	9,110	212
Philippines	54	10,200	190	43	6,250	145
Portugal	29	3,270	112	62	7,560	122
Qatar	(3)	5	837	--	--	--
Saudi Arabia	140	24,200	173	117	20,300	173
Senegal	(3)	16	583	--	--	--
Singapore	(3)	71	764	2	211	106
Slovakia	(3)	29	498	--	--	--
South Africa	93	15,100	163	82	13,300	162
Spain	103	14,200	138	116	17,300	149
Taiwan	233	42,100	181	160	25,200	157
Thailand	145	25,200	173	148	24,200	163
Tunisia	--	--	--	33	3,760	114
United Arab Emirates	101	17,400	172	58	11,400	196
Venezuela	297	54,100	182	158	38,900	246
Vietnam	20	4,810	240 ^r	6	823	137
Other	5	463	182	5	801	160
Total	5,370	939,000	175	4,410	838,000	190

See footnotes at end of table.

TABLE 6—Continued
U.S. EXPORTS OF SODA ASH, BY COUNTRY¹

¹Revised. -- Zero.

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Free alongside ship value.

³Less than ½ unit.

Source: U.S. Census Bureau, as adjusted by the U.S. Geological Survey, using data and information from the Journal of Commerce Port Import-Export Reporting Service and industry sources.

TABLE 7
SODA ASH: ESTIMATED WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country ³	2005	2006	2007	2008	2009
Argentina	86 ⁴	161 ⁴	-- ^r	-- ^r	--
Australia	300	310	310	310	310
Austria ⁵	100	-- ^r	--	--	--
Bosnia and Herzegovina	11	11	11	11	11
Botswana ⁶	250	250	250	250	250
Brazil	200	200	200	200	200
Bulgaria	800	800	800	800	800
Chad ⁷	12	12	12	12	12
China	14,210 ⁴	15,600 ⁴	17,720 ⁴	18,540 ^{r,4}	19,350 ⁴
Egypt	50	50	50	50	50
Ethiopia ⁸	8 ⁴	4	(9) ^{r,4}	2 ^{r,4}	2
France	1,000	1,000	1,000	1,000	1,000
Germany	1,533 ⁴	1,515 ⁴	1,510 ⁴	1,567 ^{r,4}	1,300
India	1,500	1,500	1,500	1,500	1,500
Iran	130	130	140	140	140
Italy	525	500	500	500	500
Japan	400	400	400	400	400
Kenya ⁶	360 ⁴	374 ⁴	387 ⁴	513 ⁴	405 ⁴
Korea, Republic of	310	310	310	310	310
Mexico	290	290	290	290	290
Netherlands	400	400	400	400	400
Pakistan	260	250	260	250	260
Poland	1,189 ⁴	1,177 ⁴	1,192 ⁴	1,190 ^r	1,200
Portugal	150	150	150	150	150
Romania	346	453	453	450	450
Russia	2,600	2,800	2,900	2,800	2,300
Spain	500	500	500	500	500
Turkey ¹⁰	869 ⁴	891 ⁴	947 ⁴	950	1,500
Ukraine	700	700	700	700	700
United Kingdom	1,000	900	900	500	500
United States ⁶	11,000 ⁴	11,000 ⁴	11,000 ⁴	11,300 ⁴	9,310 ⁴
Total	41,000 ^r	42,600	44,900	45,600 ^r	44,100

¹Revised. -- Zero.

¹World totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Table includes data available through April 11, 2010. Synthetic unless otherwise specified.

³In addition to the countries listed, Tanzania may produce soda ash for local consumption; available general information is inadequate for the formulation of reliable estimates of output levels.

⁴Reported figure.

⁵Plant closed in mid-2005; production discontinued.

⁶Natural only.

⁷Produced for local consumption only.

⁸Data for the Ethiopian calendar year ending July 2007 of the year listed.

⁹Less than ½ unit.

¹⁰Production of natural soda ash from Beypazari deposit began in early 2009.