



2010 Minerals Yearbook

SODA ASH

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The U.S. soda ash industry began to rebound in 2010 after experiencing a decline in domestic and export sales caused by adverse global economic conditions in 2009 in the major soda ash-consuming sectors. Although the annual average unit value of soda ash fell in 2010, soda ash production and exports increased. The total value of U.S. soda ash production was \$1.36 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 2010. 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 was 10.6 million metric tons (Mt) in 2010. 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 73% of total capacity. This capacity utilization rate appears to be low because it is calculated partially based on 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 plant; and 726,000 t/yr (800,000 short tons per year) for FMC Corp.'s Granger plant, some of which included nameplate capacity idled since 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 2010. 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 a U.S. export association, the American Natural Soda Ash Corp. (ANSAC).

The U.S. soda ash industry consisted of five companies in 2010—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.

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).

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 2010, U.S. apparent consumption and reported consumption were virtually identical. Apparent consumption of soda ash was 5.20 Mt; reported consumption was 5.27 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 2010 was glass, 48%; chemicals, 29%; soap and detergents, 10%; distributors, 5%; flue gas desulfurization, 4%; other uses and pulp and paper, 2% each; and water treatment, less than 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 48% of domestic soda ash consumption as follows: container, 51%; flat, 38%; fiber, 6%, and other, 5%. Glass containers are made for beverages (beer, carbonated, and noncarbonated drinks), chemical and household products, food, liquor, medical products, and toiletries and cosmetics.

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 2010.

Stocks

Yearend 2010 stocks of dense soda ash in domestic plant silos, terminals, warehouses, and on teamtracks amounted to 220,000 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 2010 for bulk, dense natural soda ash, free on board (f.o.b.) Green River, WY, and Searles Valley, CA, was \$128.39 per metric ton (\$116.47 per short ton), which was a 10% decrease from the record high of \$143.17 per ton (\$129.88 per short ton) set in 2009. Part of the price decrease was because export prices in 2010 declined. 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 May, FMC announced a soda ash price increase of \$10 per short ton effective July 1, 2010, or as contracts allowed for all grades of soda ash. 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 (FMC Corp., 2010a).

In September, FMC again announced another \$10 per short ton rise effective November 1, 2010, or as contracts permit, for all grades of soda ash (FMC Corp., 2010b).

General Chemical (Soda Ash) Partners raised its list price of soda ash on September 7, effective immediately or as contract terms permit, by \$10 per short ton to \$260 per short ton (General Chemical Industrial Products, 2010).

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.

In August, ANSAC announced it would raise prices of soda ash for export by \$30 per metric ton on a worldwide basis effective October 1, 2010. The action was a result of strong demand for soda ash around the world (ANSAC, 2010)

According to the U.S. Census Bureau, U.S. soda ash exports for 2010 were 5.39 Mt, which represented about 51% 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 2010, the regional percentage distribution of U.S. exports to 56 countries, was South America, 28%;

Asia, 27%; North America, 20%; Europe, 11%; Africa, 6%; the Middle East, 4%; Oceania, 2%; Central America, 1%; and the Caribbean, negligible (table 5). The average free alongside ship value was \$164.38 per metric ton in 2010 compared with \$190.02 per ton in 2009. 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, 13%; Indonesia, 9%; Canada, 5%; Chile, 5%; Taiwan, 5%; Venezuela, 5%; Japan, 4%; Republic of Korea, 4%; and Belgium, 3% (table 6). About 43% 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 31% of the total, and the Laredo, TX, customs district was third with 12% of the total (table 5).

Imports of soda ash increased to 19,700 t in 2010 and came from 13 countries according to U.S. Census Bureau data. In 2010, 88% of soda ash imports were from: Turkey (51%); China (18%); the United Kingdom (10%); and Mexico (9%). The remaining 12% of imports was from Belgium, Canada, the Dominican Republic, Germany, Hong Kong, India, Italy, Japan, and Romania. The Dominican Republic and Hong Kong were listed as sources; however, both countries do 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 \$292.53 per ton, and the customs value was \$249.64 per ton.

World Review

Soda ash is a mature commodity in which consumption tends to increase 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 2010, world soda ash production was estimated to be 47.5 Mt, which was a 7% increase from that of 2009. Of the 29 countries that produce natural and synthetic soda ash, the United States was the world's second-ranked producer, accounting for 22% 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 26% of combined world soda ash production.

Eight countries produced more than 1 Mt/yr of soda ash. 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 79% of world production in 2010.

India.—The Government decided to reimpose an import duty on soda ash imports from China to reduce imports of less expensive soda ash and to protect its domestic industry. India imposed a 20% duty on imports of soda ash in April 2009 as recommended by India's Directorate General of Safeguards, which was part of the country's finance ministry. The extension of the import duty was expected to be contested by India's detergent and glass industries, which have higher raw material and production costs (Industrial Minerals, 2010).

Saudi Arabia.—Plans were announced in late December for the construction of the first synthetic soda ash plant to be constructed in Jubail II Industrial City, Saudi Arabia. IDEA International Co. planned to build a plant that would produce 500,000 t of soda ash and 575,000 t of calcium chloride annually. About 51 hectares of land had already been acquired for the facility (O'Driscoll, 2010).

Outlook

The country economies that began to turn down in 2008 that affected soda ash-consuming industries throughout 2009, began to slowly recover in 2010. This decrease in soda ash consumption had caused domestic and foreign soda ash producers to reduce soda ash production. However, glass container and flat glass production began to increase, which stimulated world soda ash production and consumption. 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 three of the five domestic producers in 2010), 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.

With the start of the recovery in the U.S. economy, U.S. soda ash production for 2012 through 2014 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 2011 may increase, causing domestic soda ash production to increase slightly. Increases in world consumption are forecast to range from 2.0% to 2.5% per year for 2012 through 2014. 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)

	2006	2007	2008	2009	2010
United States:					
Production:					
Soda ash:					
Quantity	11,000	11,100	11,300	9,310	10,600
Value	1,170,000	1,260,000	1,520,000	1,330,000	1,360,000
Value, average annual:					
Per short ton	\$96.64	\$103.53	\$122.11	\$129.88	\$116.47
Per metric ton	\$106.53	\$114.12	\$134.60	\$143.17	\$128.39
Wyoming trona	16,700	17,200	17,800	15,100	15,900
Exports:					
Quantity	4,820	5,130	5,370	4,410	5,400
Value	736,000	734,000	939,000	838,000	886,000
Imports for consumption:					
Quantity	7	9	13	6	20
Value	2,290	2,760	3,820	2,350	5,770
Stocks, December 31, producers	290	206	259	217	220
Consumption:					
Apparent	6,100	6,030	5,860	4,950	5,200
Reported	6,110	5,940	5,700	5,020	5,270
World, production ^e	43,700 ^r	45,900 ^r	46,700 ^r	44,300 ^r	47,500

^eEstimated. ^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)

	2009		2010	
	Soda ash	Wyoming trona ²	Soda ash	Wyoming trona ²
January	805	1,160	877	1,530
February	670	2,020	814	1,260
March	739	983	845	1,300
April	670	1,080	876	1,100
May	767	1,180	915	1,410
June	734	1,140	821	1,350
July	794	971	874	1,270
August	827	1,220	948	1,380
September	814	1,250	844	1,280
October	812	1,360	918	1,330
November	826	1,340	911	1,330
December	854	1,380	927	1,420
Total	9,310	15,100	10,600	15,900

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 2010

(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	2009	2010				Total
			First quarter	Second quarter	Third quarter	Fourth quarter	
3272	Glass:						
327213	Container	1,320	323	323	325	312	1,280
327211	Flat	800	219	241	259	247	965
327993	Fiber	141	34	36	35	34	139
327212	Other	111	26	30	31	32	119
	Total	2,370	602	629	650	625	2,510
32518	Chemicals	1,430	371	367	385	396	1,520
325611	Soaps and detergents	508	132	125	133	124	513
322	Pulp and paper	103	22	23	22	21	89
221310	Water treatment ³	49	12	13	11	10	46
56221	Flue gas desulfurization	152	48	42	54	47	191
422	Distributors	249	67	68	67	70	271
	Other	156	34	36	34	35	138
	Total domestic consumption ⁴	5,020	1,290	1,300	1,360	1,330	5,270
	Exports ⁵	4,520	1,310	1,350	1,310	1,400	5,360
	Canada	252	63	54	51	64	231
	Total industry sales ⁶	9,540	2,590	2,650	2,670	2,730	10,600
	Total sales from plants	9,450	2,610	2,690	2,720	2,770	10,800
	Total production	9,310	2,540	2,610	2,670	2,760	10,600

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 2010¹

(Metric tons)

Customs districts	North America	Central America	South America	Caribbean	Europe	Middle East	Africa	Asia	Oceania	Total	Percentage of total
Atlantic:											
Miami, FL	--	173	263	116	--	--	--	--	--	552	(2)
New York, NY	--	--	--	--	353	--	--	7	--	360	(2)
Norfolk, VA	--	--	--	--	196	--	--	--	--	196	(2)
Philadelphia, PA	--	--	--	--	24	--	--	--	--	24	(2)
Savannah, GA	--	--	36	--	176	--	--	--	--	212	(2)
Gulf:											
Houston-Galveston, TX	--	20	11,100	16	205	--	253	--	--	11,600	(2)
Mobile, AL	--	--	--	--	28	--	--	--	--	28	(2)
New Orleans, LA	--	--	19	--	--	--	--	--	--	19	(2)
Port Arthur, TX	--	10,500	882,000	1,000	442,000	24,700	312,000	8,240	--	1,680,000	31
North-central:											
Chicago, IL	--	--	--	--	--	--	--	46	--	46	(2)
Cleveland, OH	14	--	--	--	32	--	--	--	--	46	(2)
Detroit, MI	185,000	--	--	--	62	--	--	--	--	185,000	3
Duluth, MN	3,360	--	--	--	--	--	--	--	--	3,360	(2)
Great Falls, MT	23,300	--	--	--	--	--	--	--	--	23,300	(2)
Pembina, ND	2,960	--	--	--	--	--	--	--	--	2,960	(2)
Northeast:											
Buffalo, NY	11,800	--	--	--	--	--	--	--	--	11,800	(2)
Ogdensburg, NY	1,330	--	--	--	--	--	--	--	--	1,330	(2)
Portland, ME	89	--	--	--	--	--	--	--	--	89	(2)
Pacific:											
Anchorage, AK	6,120	--	--	--	--	--	--	--	--	6,120	(2)
Columbia-Snake River, ID-OR-WA	--	60,700	327,000	--	166,000	188,000	--	1,460,000	116,000	2,310,000	43
Los Angeles, CA	--	19	298,000	--	5,450	1,350	20	2,240	80	307,000	6
San Diego, CA	58,900	--	--	--	--	--	--	--	--	58,900	1
Seattle, WA	18,000	--	--	--	--	--	--	524	--	18,500	(2)
Southwest:											
Dallas-Fort Worth, TX	--	--	--	--	--	--	7	--	--	7	(2)
El Paso, TX	142,000	--	--	--	--	--	--	--	--	142,000	3
Laredo, TX	622,000	--	--	--	--	--	--	--	--	622,000	12
Unknown	444	--	--	--	--	--	--	--	--	444	(2)
Total	1,080,000	71,400	1,520,000	1,130	615,000	214,000	312,000	1,470,000	116,000	5,400,000	100
Percentage of total	20	1	28	(2)	11	4	6	27	2	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	2009			2010		
	Quantity (thousand metric tons)	Value ² (thousands)	Unit value	Quantity (thousand metric tons)	Value ² (thousands)	Unit value
Argentina	116	\$24,500	\$211	82	\$13,100	\$160
Australia	92	20,200	220	87	15,800	182
Bahrain	--	--	--	1	168	168
Belgium	234	36,500	156	175	22,300	128
Brazil	506	104,000	205	701	113,000	161
Canada	272	56,700	208	253	52,400	207
Chile	212	41,600	196	272	45,300	167
China	32	2,070	65	--	--	--
Colombia	68	13,800	203	128	19,100	150
Costa Rica	27	7,010	260	19	3,640	192
Dominican Republic	6	1,500	250	1	173	173
Ecuador	23	5,430	236	27	4,160	154
Egypt	6	605	101	25	2,690	107
El Salvador	6	1,320	220	10	1,670	167
France	56	7,920	141	42	6,080	145
Guatemala	19	4,150	218	35	6,080	174
India	3	660	220	8	1,730	216
Indonesia	282	41,800	148	457	64,100	140
Italy	10	1,730	173	--	--	--
Japan	213	41,200	193	229	33,200	145
Korea, Republic of	138	25,100	182	229	35,900	157
Lithuania	72	10,200	142	122	16,700	137
Malaysia	31	5,990	193	49	8,540	174
Mexico	758	171,000	225	823	175,000	212
Namibia	--	--	--	2	263	132
Netherlands	166	28,600	172	137	18,700	137
New Zealand	25	5,010	200	29	4,920	170
Panama	9	2,100	233	8	1,430	179
Peru	43	9,110	212	57	9,010	158
Philippines	43	6,250	145	62	9,070	146
Portugal	62	7,560	122	49	5,960	122
Saudi Arabia	117	20,300	173	116	15,200	131
South Africa	82	13,300	162	162	18,100	112
Spain	116	17,300	149	61	8,440	138
Taiwan	160	25,200	157	252	39,600	157
Thailand	148	24,200	163	142	18,800	133
Tunisia	33	3,760	114	149	17,900	120
United Arab Emirates	58	11,400	196	72	11,400	158
United Kingdom	--	--	--	29	5,350	185
Venezuela	158	38,900	246	252	55,500	220
Vietnam	6	823	137	38	5,370	141
Other	1 ^r	407 ^r	407 ^r	1	274	274
Total	4,410	838,000	190	5,400	886,000	164

^rRevised. -- Zero.

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

²Free alongside ship value.

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	2006	2007	2008	2009	2010
Argentina	161 ⁴	--	--	--	--
Australia	310	310	310	310	310
Bosnia and Herzegovina	11	11	11	11	11
Botswana ⁵	250	250	250	250	250
Brazil	200	200	200	200	200
Bulgaria	800	800	800	800	800
Chad ⁶	12	12	12	12	12
China	15,600 ⁴	17,720 ⁴	18,540 ^{r,4}	19,350 ⁴	20,290 ⁴
Egypt	50	50	50	50	50
Ethiopia ⁷	4	(8) ⁴	4 ^{r,4}	4 ^{r,4}	5
France	1,000	1,000	1,000	1,000	1,000
Germany	2,587 ^{r,4}	2,595 ^{r,4}	2,715 ^{r,4}	2,291 ^{r,4}	2,539 ⁴
India	1,500	1,500	1,500	1,500	1,500
Iran	130	140	140	140	140
Italy	500	500	500	500	500
Japan	400	400	400	400	400
Kenya ⁵	374 ^{r,4}	387 ⁴	513 ⁴	405 ⁴	460 ⁴
Korea, Republic of	310	310	310	310	310
Mexico	290	290	290	290	290
Netherlands	400	400	400	400	400
Pakistan	250	260	250	260	250
Poland	1,177 ⁴	1,192 ⁴	1,190	890	1,000
Portugal	150	150	150	150	150
Romania	453	453	450	400	450
Russia	2,800	2,900	2,800	2,300	2,400
Spain	500	500	500	500	500
Turkey ⁹	891 ⁴	947 ⁴	949 ^{r,4}	1,079 ^{r,4}	1,500
Ukraine	700	700	700	700	700
United Kingdom	900	900	500	500	500
United States ⁵	11,000 ⁴	11,100 ⁴	11,300 ⁴	9,310 ⁴	10,600 ⁴
Total	43,700 ^r	45,900 ^r	46,700 ^r	44,300 ^r	47,500

^rRevised. -- 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 20, 2011. 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.

⁵Natural only.

⁶Produced for local consumption only.

⁷Data for the Ethiopian calendar year ending July 7 of the year listed.

⁸Less than ½ unit.

⁹Production of natural soda ash from Beypazari deposit began in early 2009.