



2018 Minerals Yearbook

SODA ASH [ADVANCE RELEASE]

SODA ASH

By Wallace P. Bolen

Domestic survey data and tables were prepared by Annie Hwang, statistical assistant.

U.S. soda ash production and the amount of soda ash exported in 2018 were little changed compared with those of 2017. The annual average unit value of soda ash increased slightly in 2018 from that of 2017 and was 4% lower than the record high set in 2012. U.S. soda ash exports accounted for 59% of total domestic production, based on export data from the U.S. Census Bureau. U.S. soda ash production was 11.9 million metric tons (Mt) valued at \$1.77 billion in 2018 (table 1). World soda ash production was 56.9 Mt, slightly less than the revised total of 57.5 Mt in 2017 (tables 1, 8).

Soda ash, also known as sodium carbonate (Na_2CO_3), is an alkali chemical refined from the mineral trona or from 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 these processes 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 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 a cost-effective option in world markets because most of the world output of soda ash is made synthetically, which usually results in a more expensive product.

Legislation and Government Programs

In March, Congress passed the fiscal year 2018 omnibus bill, The Consolidated Appropriations Act of 2018. Within the section of the act for the U.S. Department of the Interior's Bureau of Land Management, the Bureau was asked to consider using its authority to reduce the Federal royalty rate for soda ash to 2%.

In April, the Wyoming congressional delegation contacted the Vice President of the United States concerning Japanese tariff rates on soda ash imports. The delegation requested relief from the 3.3% duty imposed by Japan to assist United States soda ash producers in competing with soda ash from China (Enzi, Barrasso, and Cheney, 2018). In November, the delegation reiterated this request to the U.S. Trade Representative (Associated Press, 2018).

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 (tables 1, 2).

The United States remained the world's second-ranked soda-ash-producing nation in 2018 behind China. U.S. production of natural soda ash from California and Wyoming was 11.9 Mt in

2018. Based on about 13.9 million metric tons per year (Mt/yr) (15.3 million short tons per year) of total nameplate production capacity, the U.S. soda ash industry operated at 86% of total capacity (table 3). Three of the largest 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 2018—four companies operating five plants in Wyoming that produced soda ash from underground trona ore and one company operating one plant in California that produced soda ash from sodium-carbonate-rich brines (table 3). One company that operated a mine and a plant in Wyoming also operated a plant in Colorado, which produced sodium bicarbonate using soda ash feedstock from the company's Wyoming soda ash facility. The operation in Colorado could produce soda ash from local nahcolite but because of production cost considerations chose to use the soda ash from Wyoming in place of the local material.

Each of the U.S. companies was either wholly or partially owned by foreign soda-ash-producing companies or foreign soda ash consumers. The U.S. soda ash industry was 54% foreign owned and 46% domestically owned. At yearend, the distribution of the percentage of ownership of United States soda ash producers was India, 23%; Belgium, 15%; Turkey, 11%; and Japan, 5%.

Consumption

The USGS collected consumption data by end use for soda ash 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 sometimes 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 in this report.

In 2018, U.S. apparent and reported consumption decreased slightly compared with that of 2017. Apparent consumption of soda ash was 4.98 Mt, and reported consumption was 4.85 Mt in 2018 (table 1). Reported consumption and apparent consumption do not necessarily correspond because reported consumption is sales reported by producers, whereas apparent consumption is the quantity available for domestic consumption calculated by subtracting exports from the sum of production, imports, and changes in inventories.

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 because of increased beverage consumption during the summer). Soda ash sales to the flat glass sector depended largely 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 for domestic consumption by end use in 2018 was glass, 47%; chemicals, 30%; distributors, 6%; soap and detergents, 6%; other, 5%; flue gas desulfurization, 4%; pulp and paper, 1%; and water treatment, 1% (table 4).

Chemicals.—Soda ash is used to manufacture many sodium-base inorganic chemicals, including sodium bicarbonate, sodium chromates, sodium phosphates, and sodium silicates. Chemical production accounted for 1.44 Mt of soda ash consumption.

Glass.—Glass manufacture used 2.28 Mt of soda ash, accounting for about 47% of domestic soda ash consumption, in different types of glass as follows: container, 46%; flat, 42%; fiber, 7%; and other glass, 5%. Glass containers are made for beverages (carbonated and noncarbonated drinks such as alcoholic beverages, sodas, and juices), chemical and household products, food, medical products, and toiletries and cosmetics.

Soaps and Detergents.—Detergents ranked third in the use of soda ash with 287,000 metric tons (t). Soda ash was used as a builder to emulsify oil stains, reduce the redeposition of dirt during washing and rinsing, provide alkalinity for cleaning, and soften laundry water. In addition, soda ash was a component of sodium tripolyphosphate (STPP), another major builder in detergent formulations. Soda ash consumption for STPP detergents has been decreasing owing to a decline in the use of phosphatic detergents because they can contribute to decreased quality of water habitats.

Liquid detergents, which do not contain any soda ash, competed with soda-ash-containing powdered detergents and have become the preferred form of household laundry detergent. In recent years, it was estimated that liquid detergents accounted for about 75% of household laundry detergent sales in the United States.

Stocks

Yearend 2018 stocks of dense soda ash in domestic plant silos, in terminals, in warehouses, and on teamtracks (small railroad sidings or spur tracks) were 297,000 t, which was slightly more than those in 2017 (table 1). Producers indicated that a supply problem could exist if inventories decreased to less than 180,000 t. Most consumers of soda ash did not have storage facilities to accommodate large quantities of soda ash and needed to rely on suppliers to provide the material on a timely basis.

Prices

The annual average unit value in 2018 for bulk, dense natural soda ash, free on board (f.o.b.) Green River, WY, and Searles Valley, CA, was \$148.69 per metric ton (\$134.89 per short ton), which was a slight increase from that of the previous year (table 1). The value is not a “price,” but rather it is the sum 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 differ from the annual average values reported to and by the USGS.

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 countries of the European Union (EU); however, the members of the U.S. soda ash industry formed another organization for shipping to this region. The American-European Soda Ash Shipping Association, Inc. (AESSA) 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 countries of the EU. ANSAC and AESSA were formed as Webb-Pomerene export associations under the authority of the U.S. Federal Trade Commission.

According to the U.S. Census Bureau, U.S. exports of soda ash for 2018 were 6.96 Mt, which represented about 59% of U.S. soda ash production. For comparison, exports accounted for only 5% of U.S. production in 1970, 26% in 1990, and 51% in 2010. In 2018, the regional distribution of U.S. soda ash exports to 49 countries was as follows: Asia, 43%; Central America and South America, 27%; North America, 22%; Australia and Oceania, 4%; Africa, 3%; and Europe, 1% (table 5). The average free alongside ship value was \$210 per metric ton in 2018 compared with \$200 per metric ton in 2017. In 2018, the 13 leading countries and (or) localities, each receiving more than 200,000 t of soda ash, were, in decreasing order of tonnage, Mexico, 19%; Brazil, 12%; Indonesia, 9%; Chile, 7%; Japan, Malaysia, and Thailand, 5% each; Australia, China, the Republic of Korea, and Vietnam, 4% each; and Canada and Taiwan, 3% each (table 6). About 60% of all U.S. soda ash exports went through the Columbia-Snake River, OR, customs district; the Laredo, TX, customs district ranked second with 15% of the total; and the Port Arthur, TX, customs district was third with 10% of the total (table 5).

Imports account for a very small portion of soda ash supply in the United States. The quantity of imports of soda ash in 2018 was 51,300 t, about three times the amount imported in 2017, and came from 16 countries according to U.S. Census Bureau data adjusted by the USGS (table 7). Relatively large quantities of soda ash were imported from Turkey in September 2018 after large increases in soda ash production in Turkey, which provided soda ash for export markets.

In 2018, 97% of United States soda ash imports were from Turkey (68%), Bulgaria (9%), Italy (8%), Mexico (6%), China (4%), and the United Kingdom (3%). The remaining imports were from Canada, France, Germany, India, Japan, Norway, Poland, Romania, and Taiwan. Although Canada, Norway, and Taiwan are listed as sources of soda ash imports, these countries are not thought to produce soda ash. It is possible that the data were erroneous or that the product was transshipped

from another location. Some of the imports were thought to be sodium carbonate peroxohydrate, which is the active ingredient in algacides and fungicides. The national average cost, insurance, and freight value of imported soda ash in 2018 was \$270 per ton, 7% more than that of 2017.

World Review

Soda ash is a mature commodity, and the leading consumers of soda ash were, for the most part, developed nations where consumption tends to increase in proportion to rates of growth in population and gross domestic product. In developing countries, per capita consumption is lower than in developed countries because these countries do not yet have a well-established industrial base. 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 use sectors.

In 2018, world soda ash production was 56.9 Mt, which was a slight decrease from that of 2017. The leading producer was China (47%), and the United States ranked second (21%). In addition to the 21 producing countries listed in table 8, several other countries, which are listed in a footnote, were thought to produce soda ash, but reliable data for estimates of production were unavailable. Only Botswana, China, Ethiopia, Kenya, Turkey, and the United States produce soda ash from natural sources; the remaining nations manufacture soda ash through various chemical processes, primarily the Solvay process. China and Turkey are believed to produce soda ash using both natural sources and synthetic processes. Production in China is believed to be mostly synthetic, whereas production in Turkey is mostly natural.

Eight countries produced 1 Mt/yr or more of soda ash. They were, in descending order of tonnage, China, the United States, Russia, Turkey, Germany, India, Poland, and France. These nations accounted for 93% of world production in 2018. Romania and Ukraine had production installations that were rated at about 1 Mt/yr; however, adverse economic conditions caused these nations to produce below their facilities' design capacities.

Two major events dominated the worldwide soda ash industry in 2018—increased capacity and production from Turkey and decreased production in China. These two events probably worked together to keep supply and demand in balance and price fluctuations minimal.

China.—A combination of the enforcement of environmental regulations, first instituted in 2017, and planned maintenance at soda ash facilities resulted in decreased output in 2018 (Greenfield, 2018b). In response, exports decreased and imports increased as China moved in the direction of becoming a net importer (Lee, 2018b). Some pricing increased in the spring but stabilized at a relatively high level after some idled production began to come back online (Greenfield, 2018c). By mid-summer, production in China had increased to the point that prices dropped owing to the increased supply (Lee, 2018a). The supply-demand balance stabilized by the end of the year. However, production and exports for the full year were thought to be lower, and imports were greater compared with the previous year.

India.—Soda ash capacity expansion was announced by many producers which would result in a 52% increase by 2022 in response to demand that is increasing by 6% per year mostly from the flat glass industry. Gujarat Heavy Chemicals Ltd. (Noida, Uttar Pradesh) added 150,000 metric tons per year (t/yr) of capacity in March and planned to add another 150,000 t/yr by the end of 2020. Tata Chemicals India planned to add 250,000 t/yr over the next 2 years and an additional 500,000 t/yr in capacity by 2022; Nirma Ltd. added 220,000 t/yr in capacity in March. Rohit Surfactants Private Ltd (RSPL), a new soda ash manufacturer, planned to add 500,000 t/yr; that production will mostly be consumed in its own detergent manufacturing (Greenfield, 2018a).

Pakistan.—ICI Pakistan Ltd. began operations of an additional 75,000 t/yr of soda ash production in Khewra. With the additional production, total capacity for the plant was 425,000 t/yr (Shabbir, 2018).

Turkey.—Ciner Group, the parent company of Ciner Resources Corp., continued work on expansion plans at the new Eti Soda A.S. facilities near Ankara. By midyear, Eti Soda had completed capacity expansion at the new Kazan facility, which was reported to have a capacity of 2.7 Mt/yr. In September, the final of five production lines at Kazan began production (Tyler, 2018).

Outlook

Four groups dominate production and have become the world's leading suppliers of soda ash—ANSAC of the United States (which represented three of the five domestic producers in 2018), China's producers, Ciner Group of Turkey, and Solvay S.A. of Belgium. Turkish soda ash producers, with access to the world's second largest trona deposit, have become a major supplier after completing expansions in 2018. It is very likely that some smaller soda ash facilities throughout the world may close because of energy and environmental considerations and competition from the major producers.

With competition mainly from China and Turkey, United States soda ash production is expected to be essentially unchanged in 2019 followed by slight growth in 2020. U.S. exports, which were essentially unchanged in 2018, are expected to have modest growth in 2019. It is projected that United States suppliers will struggle to achieve higher sales prices as a result of increasing supply from new low-cost trona operations in Turkey and potential oversupply in China that may enter the export market. Overall global economic conditions are expected to continue to be more favorable to business during the next few years and stimulate greater world soda ash consumption. Global consumption of soda ash is projected to increase by about 2% per year during the next 5 years. The United States likely will continue to compete with producers in China for the Far East and Oceania markets and with producers in Turkey for European, Middle Eastern, and southern Asian markets. Asia and South America remain the most likely 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)

	2014	2015	2016	2017	2018
United States:					
Production:					
Soda ash:					
Quantity	11,700	11,600	11,800	12,000	11,900
Value	1,730,000	1,800,000	1,770,000	1,750,000	1,770,000
Value, average annual:					
Per short ton	\$134.87	\$140.88	\$135.92	\$132.68	\$134.89
Per metric ton	\$148.67	\$155.30	\$149.83	\$146.26	\$148.69
Wyoming trona	17,300	17,600	17,700	18,000	17,600
Exports:					
Quantity	6,670	6,400	6,760	6,990	6,960
Value	1,300,000	1,320,000	1,310,000	1,400,000	1,460,000
Imports for consumption:					
Quantity	39	40	35	19	51
Value	6,960	6,780	6,660	4,810	13,900
Stocks, December 31, producers ³	271	285	336	293	297
Consumption:					
Apparent	5,100	5,200	5,010	5,040	4,980
Reported	5,170	4,990	5,120	4,910	4,850
World, production	52,600	53,400	53,900 ^r	57,500 ^r	56,900

^rRevised.

¹Table includes data available June 23, 2020. Data 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)

Month	2017		2018	
	Soda ash	Wyoming trona ²	Soda ash	Wyoming trona ²
January	929	1,560	992	1,630
February	897	1,330	945	1,490
March	1,030	1,610	1,020	1,620
April	947	1,420	966	1,480
May	993	1,530	952	1,450
June	1,020	1,410	961	1,420
July	1,020	1,530	1,070	1,490
August	997	1,510	930	1,180
September	989	1,490	988	1,320
October	1,040	1,510	1,010	1,500
November	1,000	1,400	997	1,490
December	1,100	1,710	1,060	1,580
Total	12,000	18,000	11,900	17,600

¹Table includes data available June 23, 2020. Data 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 2018

(Million short tons unless otherwise specified)

Company	Partner(s)	Plant nameplate capacity	Plant location	Source of sodium carbonate
Ciner Wyoming LLC	Ciner Resources Corp. (51%) and Natural Resources Partners L.P. (49%)	3.25	Green River, WY	Underground trona.
Genesis Alkali Wyoming LP:				
Granger	XX	1.30	Granger, WY	Do.
Green River	Joint venture with Sumitomo Corp. (6%)	3.55	Green River, WY	Do.
Searles Valley Minerals, Inc.	XX	1.45	Trona, CA	Dry lake brine.
Solvay Chemicals, Inc., Green River	Joint venture with Asahi Glass Co. (20%)	2.95	Green River, WY	Underground trona.
Tata Chemicals (Soda Ash) Partners	Joint venture with Owens-Illinois, Inc. (25%)	2.80	do.	Do.
Total		15.30		
Total, million metric tons		13.90		

Do., do. Ditto. XX Not applicable.

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

(Thousand metric tons)

NAICS ² code	End use	2017					2018				
		1st quarter	2d quarter	3d quarter	4th quarter	Total	1st quarter	2d quarter	3d quarter	4th quarter	Total
3272	Glass:										
327213	Container	273	296	284	271	1,120	279	284	257	233	1,050
327211	Flat	242	252	235	259	989	222	243	240	256	960
327993	Fiber	36	36	36	36	144	39	40	43	42	165
327212	Other	27	27	25	26	105	26	25	25	26	102
	Total	577	611	581	592	2,360	566	591	565	557	2,280
32518	Chemicals	344	338	333	352	1,370	338	369	356	372	1,440
325611	Soaps and detergents	73	74	73	73	293	79	66	72	70	287
322	Pulp and paper	10	9	12	9	40	12	13	11	11	47
221310	Water treatment ³	8	9	9	11	37	11	12	12	9	44
56221	Flue gas desulfurization	54	50	61	51	215	47	43	52	49	191
4246	Distributors	78	73	71	66	288	79	74	75	74	302
	Other	65	75	83	84	307	71	69	65	59	265
	Total domestic consumption ⁴	1,210	1,240	1,220	1,240	4,910	1,200	1,240	1,210	1,200	4,850
	Exports ⁵	1,680	1,630	1,830	1,790	6,940	1,750	1,590	1,720	1,760	6,820
	Exports, Canada	53	46	50	48	197	47	49	47	48	190
	Total industry sales ⁶	2,890	2,870	3,060	3,030	11,800	2,950	2,830	2,930	2,960	11,700
	Total sales from plants	2,920	2,930	3,120	3,100	12,100	3,010	2,860	3,020	3,030	11,900
	Total production	2,860	2,960	3,000	3,140	12,000	2,960	2,880	2,990	3,070	11,900

¹Table includes data available through June 23, 2020. Data 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 powerplants for water treatment. Sales of mine water are excluded.

⁴Imports reported by the producer and (or) 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 joint producers and distributed by purchasers into appropriate end-use categories.

TABLE 5
REGIONAL DISTRIBUTION OF U.S. SODA ASH EXPORTS, BY CUSTOMS DISTRICT, IN 2018¹

(Metric tons, unless otherwise specified)

Customs district	Africa	Asia	Australia and Oceania	Europe	North America	South America and Central America	Total	Percentage of total
Atlantic:								
Miami, FL	--	--	--	--	--	1,830	1,830	(2)
Mobile, AL	--	--	--	126	--	--	126	(2)
New York, NY	--	579	--	1,680	--	--	2,260	(2)
Norfolk, VA	134	300	--	1,330	--	--	1,760	(2)
Philadelphia, PA	--	--	--	1,680	--	--	1,680	(2)
Savannah, GA	--	--	--	273	--	--	273	(2)
Washington, DC	--	--	--	92	--	--	92	(2)
Wilmington, NC	--	--	--	262	--	--	262	(2)
Gulf:								
Houston-Galveston, TX	96	--	--	--	--	222,000	222,000	3
New Orleans, LA	12	29	--	40	24	--	105	(2)
Port Arthur, TX	183,000	--	--	86,400	--	453,000	723,000	10
North-central:								
Chicago, IL	--	370	27	261	--	--	657	(2)
Cleveland, OH	--	74	--	184	--	--	258	(2)
Detroit, MI	--	--	--	66	145,000	--	145,000	2
Duluth, MN	--	--	--	--	14,100	--	14,100	(2)
Great Falls, MT	--	--	--	--	30,800	--	30,800	(2)
Pembina, ND	--	--	--	--	2,880	--	2,880	(2)
St. Louis, MO	--	--	--	13	--	--	13	(2)
Northeast:								
Buffalo, NY	--	--	--	94	4,280	--	4,370	(2)
Ogdensburg, NY	--	--	--	--	271	--	271	(2)
St. Albans, VT	--	--	--	--	33	--	33	(2)
Pacific:								
Anchorage, AK	--	34	--	--	--	--	34	
Columbia-Snake, OR	--	2,900,000	285,000	--	--	1,020,000	4,200,000	60
Los Angeles, CA	--	114,000	52	--	6,000	148,000	267,000	4
San Diego, CA	--	7,440	--	--	100,000	30,000	137,000	2
San Francisco, CA	--	1,440	--	--	--	200	1,640	(2)
Seattle, WA	--	--	--	--	9,930	--	9,930	(2)
Southwest:								
El Paso, TX	--	--	--	--	182,000	--	182,000	3
Laredo, TX	--	--	--	--	1,010,000	--	1,010,000	15
Nogales, AZ	--	--	--	--	650	--	650	(2)
Unknown	--	--	--	--	487	--	487	(2)
Total	183,000	3,020,000	285,000	92,500	1,510,000	1,870,000	6,960,000	100
Percentage of total	3	43	4	1	22	27	100	XX

XX Not applicable. -- Zero.

¹Table includes data available through June 23, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

²Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. EXPORTS OF SODA ASH, BY COUNTRY OR LOCALITY¹

Country or locality	2017			2018		
	Quantity (thousand metric tons)	Value ² (thousands)	Unit value	Quantity (thousand metric tons)	Value ² (thousands)	Unit value
Argentina	180	\$37,400	\$208	95	\$21,600	\$227
Australia	272	54,900	202	266	55,700	209
Belgium	137	31,300	228	3	311	110
Brazil	831	159,000	191	861	173,000	200
Canada	223	43,000	193	208	43,600	210
Chile	401	85,200	212	466	101,000	217
China	157	26,500	212	254	43,800	173
Colombia	138	27,000	195	176	36,900	209
Costa Rica	18	4,080	226	31	6,970	229
Ecuador	26	5,280	205	33	6,660	205
El Salvador	17	3,460	206	18	3,580	199
Guatemala	44	9,770	224	55	12,200	221
India	117	17,700	151	139	22,700	164
Indonesia	684	136,000	198	611	132,000	215
Japan	251	42,900	171	313	58,000	185
Korea, Republic of	291	53,400	184	311	61,700	199
Malaysia	352	66,700	189	378	77,800	206
Mexico	1,150	258,000	225	1,300	302,000	232
Netherlands	57	11,500	203	12	2,400	200
New Zealand	16	2,890	181	19	3,260	171
Nigeria	42	10,900	181	26	8,070	309
Peru	70	15,300	218	96	21,200	221
Philippines	53	10,900	206	56	12,100	218
Saudi Arabia	73	11,600	159	59	8,940	152
South Africa	73	12,300	169	80	15,600	195
Spain	149 ^r	33,600 ^r	226 ^r	(3)	106	(3)
Taiwan	193	36,000	187	207	43,200	209
Thailand	314	61,500	196	345	76,500	222
Tunisia	101	20,700	205	77	16,900	220
United Arab Emirates	89	14,300	160	90	14,300	159
United Kingdom	132	24,700	186	74	14,400	193
Venezuela	54	13,000	240	41	10,500	259
Vietnam	274	56,200	205	259	55,700	215
Other	16 ^r	3,100 ^r	188	6	1,110	195
Total	6,990	1,400,000	200	6,960	1,460,000	210

^rRevised.

¹Table includes data available through June 23, 2020. Data 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.

TABLE 7
U.S. IMPORTS OF SODA ASH, BY COUNTRY OR LOCALITY, IN 2018¹

(Metric tons unless otherwise specified)

Country or locality	Month												Total		
	January	February	March	April	May	June	July	August	September	October	November	December	Quantity	Percent of total quantity	Value ² (thousand dollars)
Bulgaria	342	342	738	451	342	126	612	324	450	270	414	216	4,630	9	1,590
China	57	257	336	228	241	76	100	93	152	150	135	58	1,880	4	1,170
France	--	62	69	69	19	19	69	19	--	39	175	108	646	1	337
Germany	1	3	1	4	61	3	2	--	1	2	2	(3)	80	(3)	378
Italy	190	342	190	21	398	791	604	--	17	931	532	--	4,020	8	802
Japan	5	--	4	7	13	--	6	15	15	8	--	1	74	(3)	202
Mexico	72	182	267	470	136	132	36	422	497	240	340	154	2,950	6	1,080
Poland	--	--	--	--	116	--	58	57	152	--	--	--	383	1	164
Romania	--	--	--	--	--	--	--	--	57	152	--	--	210	(3)	90
Turkey	8	--	10	8	8	8	(3)	--	35,000	--	--	--	35,000	68	7,040
United Kingdom	94	91	94	286	86	73	70	92	161	143	115	91	1,390	3	929
Other	8	3	--	--	(3)	3	4	--	2	1	5	(3)	27	(3)	96
Total	776	1,280	1,710	1,540	1,420	1,230	1,560	1,020	36,500	1,940	1,720	627	51,300	100	13,900

-- Zero.

¹Tables includes data available through June 23, 2020. Data are rounded to no more than three significant digits; may not add to totals shown.

²Cost, insurance, and freight value at U.S. ports.

³Less than ½ unit.

Source: U.S. Census Bureau; data adjusted by the U.S. Geological Survey.

TABLE 8
SODA ASH: WORLD PRODUCTION, BY COUNTRY OR LOCALITY^{1,2}

(Thousand metric tons)

Country or locality ³	2014	2015	2016	2017	2018
Bosnia and Herzegovina	73	82	98	102 ^r	100 ^e
Botswana, natural ⁴	269	243	280	227	240 ^e
China, natural and synthetic	25,260	25,920 ^r	25,850	27,670 ^r	27,000 ^e
Egypt	130 ^e	130 ^e	40	-- ^e	-- ^e
Ethiopia, natural ^{4,5}	4	7	8 ^e	8 ^e	8 ^e
France ^e	1,000	1,000	1,000	1,000	1,000
Germany ^e	2,560	2,600	2,600	2,600	2,500
India ^e	2,370	2,500	2,400	2,500	2,500
Italy ^e	500	500	500	500	500
Japan	341	230	217	220 ^e	220 ^e
Kenya, natural ⁴	410	320	302	310 ^e	300 ^e
Mexico ^e	290	290	290	290	300
Pakistan	284	449	476	476 ^r	475 ^e
Poland	1,053	1,074	1,250 ^r	1,281 ^r	1,300 ^e
Romania	420	505	516	540 ^r	536
Russia	3,052	3,078	3,234	3,489 ^r	3,500 ^e
Turkey, natural and synthetic	1,828	1,854	1,977	3,274 ^r	3,400 ^e
Ukraine ^e	600	600	600	600	600
United Kingdom	400	400	400 ^e	400 ^e	400 ^e
United States, natural ⁴	11,700	11,600	11,800	12,000	11,900
Uzbekistan ^e	90	90	90	90	90
Total	52,600	53,400	53,900 ^r	57,500 ^r	56,900

^eEstimated. ^rRevised. -- Zero.

¹Table includes data available through July 16, 2019. All data are reported unless otherwise noted. Totals, U.S. data, and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Synthetic unless otherwise specified.

³In addition to the countries and (or) localities listed, Bosnia and Herzegovina, Brazil, Chad, Iran, the Republic of Korea, the Netherlands, Spain, and Tanzania may have produced soda ash, but available information was inadequate to make reliable estimates of output.

⁴Natural only.

⁵Production is based on fiscal year, with a starting date of July 8 of the year shown.