

2019 Minerals Yearbook

SODA ASH [ADVANCE RELEASE]

Soda Ash

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U.S. soda ash production in 2019 decreased slightly compared with that in 2018. Exports of soda ash in 2019 were about the same compared with those in 2018. The annual average unit value of soda ash increased by 3% in 2019 from that in 2018 and was slightly lower than the record high set in 2012. U.S. soda ash exports accounted for 60% of total domestic production, based on export data from the U.S. Census Bureau. U.S. soda ash production was 11.7 million metric tons (Mt) valued at \$1.8 billion in 2019. World soda ash production was 56.8 Mt, slightly more than the revised total of 56.1 Mt in 2018 (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 (soda ash from both sources is referred to as natural soda ash) or manufactured from one of several chemical processes (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.

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. Survey requests were 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 sodaash-producing nation in 2019, second to China. U.S. production of natural soda ash from California and Wyoming was 11.7 Mt in 2019. The U.S. soda ash industry operated at 84% of its 13.9-million-metric-ton-per-year (Mt/yr) (15.3-million-shortton-per-year) total nameplate production capacity (table 3). Three of the leading producers used nameplate capacities to determine export allocations set by a U.S. export association, the American Natural Soda Ash Corp. (ANSAC).

Several producers announced plans to increase soda ash production capacities at current operations or construct new greenfield operations. Solvay Chemicals, Inc. announced a 600,000-metric-ton-per-year (t/yr) expansion at its Green River, WY, facility, which was planned to be finalized by the end of 2021 (Morris, 2019). Genesis Alkali Wyoming Corp. planned to increase production capacity by 750,000 t/yr at its Granger, WY, plant with the new capacity coming onstream by the second quarter of 2022 (Greenfield, 2019e). Ciner Group, the parent company of Ciner Wyoming LLC, announced plans to increase capacity at its Green River, WY, facility and develop two greenfield trona mines. The Green River capacity was to be increased by 1 Mt/yr. The two greenfield operations were expected to each have soda ash production capacities of 2.5 Mt/yr. One of these new operations was planned as a joint venture with Şişecam Group, a diversified company in Turkey that produced glass and chemicals (Glass on Web, 2019). Ciner planned to have the Green River capacity expansion completed by 2022 and the two greenfield facilities operational by 2025 (Greenfield, 2019d).

The U.S. soda ash industry consisted of five companies in 2019—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 countries and their percentage of ownership of United States soda ash producers were India, 23%; Belgium, 15%; Turkey, 11%; and Japan, 5%.

The soda ash operation of Searles Valley Minerals, Inc., in Trona, CA, was affected by earthquakes in July that disrupted electrical and water services and cut rail and highway links to the facility. Force majeure was declared immediately after the earthquakes. The company was able to continue shipping from stockpiles through the summer months and limited production resumed in September before returning to near normal levels in October (Greenfield, 2019f).

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 was made to categorize company sales within the correct end-use sector. Quarterly reports sometimes were revised in subsequent quarters because of customer reclassifications or other factors. All U.S. soda ash companies responded to the quarterly surveys; reported data represented 100% of the total reported consumption data in this report.

In 2019, U.S. apparent and reported consumption decreased by about 3% compared with that in 2018 (table 1). Apparent consumption of soda ash was 4.83 Mt, and reported consumption was 4.72 Mt in 2019. Reported consumption and apparent consumption do not necessarily match 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 2019 was glass, 47%; chemicals, 29%; distributors, 6%; soap and detergents, 6%; flue gas desulfurization, 3%; pulp and paper, 1%; water treatment, 1%; and other, 7% (table 4).

Chemicals.—Soda ash is used to manufacture many sodiumbase inorganic chemicals, including sodium bicarbonate, sodium chromates, sodium phosphates, and sodium silicates. Chemical production accounted for 1.37 Mt of soda ash consumption in 2019.

Glass.—Glass manufacture used 2.22 Mt of soda ash in different types of glass, as follows: container, 45%; flat, 43%; fiber, 8%; and other glass, 4%. 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 fourth in the use of soda ash with 272,000 metric tons (t) in 2019. 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 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 about 75% of household laundry detergent sales in the United States were liquid.

Stocks

Yearend 2019 stocks of dense soda ash in domestic plant silos, terminals, warehouses, and on teamtracks (small railroad sidings or spur tracks) were 289,000 t, which was 3% less than those in 2018 (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 for 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 2019 for bulk, dense natural soda ash, free on board (f.o.b.) Green River, WY, and Searles Valley, CA, was \$153.24 per metric ton (\$139.02 per short ton), which was a 3% increase from that in 2018 (table 1). The value is not a "price," but rather 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 the ANSAC, which is involved exclusively in the export trade of soda ash. Soda ash is defined as an alkali product designated by the chemical formula Na_2CO_3 , whether manufactured by brine evaporation and purification, the Solvay process, trona refining, or any other means. In its Securities and Exchange Commission submission in February 2019, Ciner Resources announced its intention to withdraw from the ANSAC effective December 31, 2021. After the termination of its relationship with the ANSAC, Ciner planned to distribute exports through the global distribution network of Ciner Group, the parent company of Ciner Resources (Ciner Resources LP, 2019).

Under the Treaty of Rome agreement of 1958, the ANSAC is not permitted to ship soda ash to the countries of the European Union (EU); therefore, 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), which was formed in the mid-20th century, was inactive for several years prior to 2016 before notifying the U.S. Federal Trade Commission (FTC), in a letter dated December 23, 2015, that the AESSA was revoking its registration as a Webb-Pomerene export association, effective immediately. The AESSA originally was formed to engage solely in storage, transportation, and other related logistical and technical support activities to promote and further its members' individual commerce in soda ash shipped to the countries of the EU. Both the ANSAC and the AESSA were formed as Webb-Pomerene export associations under the authority of the FTC.

According to the U.S. Census Bureau, U.S. exports of soda ash in 2019 were 7.02 Mt, which represented 60% of U.S. soda ash production (table 1). For comparison, exports accounted for only 5% of U.S. production in 1970, 26% in 1990, and 51% in 2010. In 2019, the regional distribution of United States soda ash exports to 51 countries was as follows: Asia, 48%; Central America and South America, 24%; North America, 21%; Australia and Oceania, 4%; Africa, 2%; and Europe, 1% (table 5). The average free alongside ship value was \$221 per metric ton in 2019 compared with \$210 per metric ton in 2018. In 2019, the 12 leading countries or localities that each received more than 200,000 t of soda ash, were, in descending order of tonnage, Mexico, 19%; Indonesia, 12%; Brazil, 11%; Malaysia, 7%; Chile, 6%; Australia, India, Japan, the Republic of Korea, Thailand, and Vietnam, 4% each; and Taiwan, 3% (table 6). About two-thirds of all U.S. soda ash exports went through the Columbia-Snake River, OR, customs district; the Laredo, TX, customs district ranked second with 13% of the total, and the Port Arthur, TX, customs district was third with 6% of the total (table 5).

Imports account for a very small portion of the soda ash supply in the United States. The quantity of soda ash imports in 2019 was 115,000 t, more than double the amount imported in 2018, and came from 17 countries or localities according to U.S. Census Bureau data adjusted by the USGS (table 7). Relatively large quantities of soda ash were imported from Turkey in March, June, and September 2019 after large increases in soda ash production in Turkey, which provided soda ash for export markets.

In 2019, 95% of United States soda ash imports were from Turkey (88%), Bulgaria (5%), and Mexico (2%) (table 7). The remaining imports were from Belgium, Brazil, Canada, China, France, Germany, India, Italy, Japan, Norway, Romania, Spain, Switzerland, and the United Kingdom. Although Canada, Norway, Switzerland, and Taiwan are listed as sources of soda ash imports, these countries or localities were 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 an active ingredient in algaecides and fungicides. The national average cost, insurance, and freight value of imported soda ash in 2019 was \$242 per metric ton, 10% less than the revised average cost for 2018.

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 population and gross domestic product rates of growth. In developing countries, per capita consumption is lower than in developed countries because these countries do not 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 end-use sectors.

In 2019, world soda ash production was 56.8 Mt, which was a slight increase from that in 2018 (table 8). The leading producer was China (48%), and the United States ranked second (21%). In addition to the 21 producing countries and (or) localities listed in table 8, several other countries, which are listed in one of the table's footnotes, 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 produced soda ash from natural sources; the remaining nations manufacture soda ash through various chemical processes, primarily the Solvay process. China and Turkey were thought to produce soda ash using both natural sources and synthetic processes. Production in China was thought to be mostly synthetic, whereas production in Turkey was mostly natural.

Eight countries produced 1 Mt/yr or more of soda ash. They were, in descending order of tonnage, China, the United States, Turkey, Russia, Germany, India, Poland, and France. These nations accounted for 93% of world production in 2019. 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.

China.—Soda ash production was estimated to have increased by 3% in 2019 compared with that in 2018 because several operations produced at higher rates after some maintenance projects were completed. Tangshan Sanyou Chemical Industries Co., Ltd., Shandong Haihua Co., Ltd., and Lianyungang Alkali Industry Co. each announced production increases during the year. Increased competition from soda ash exported from Turkey to eastern Asia resulted in less international demand for soda ash from China, which may have affected prices in the region (Lee, 2019). Glassmakers in China consumed less soda ash as environmental inspections increased the likelihood of production restrictions at the glass plants. Prices for soda ash in China dropped to the lowest levels in 2 years (Greenfield, 2019a).

Romania.—Poland's Ciech S.A. suspended soda ash production at its operations in Romania on September 18, 2019, owing to a 120% increase in the price of steam that the plant used. The plant's production capacity was 600,000 t/yr but production ranged from 400,000 to 450,000 t/yr. In response, the company was considering a joint venture that would produce the steam for its use (Greenfield, 2019b, c).

Turkey.—Ciner Group announced a two-part expansion plan at its 2.5-Mt/yr Kazan plant in Ankara. The first capacity expansion of 600,000 t/yr would be completed by 2021, and an additional 1-Mt/yr expansion would be completed by 2025 (Greenfield, 2019d).

Outlook

Four groups dominate production and have become the world's leading suppliers of soda ash—the ANSAC of the United States (which represented three of the five domestic producers in 2019), China's producers, Ciner Group of Turkey, and Solvay S.A. of Belgium. Soda ash producers in Turkey, with access to the world's second largest trona deposit, have become major suppliers after completing expansions in 2018. It is very likely that some smaller soda ash facilities elsewhere will close because of energy and environmental considerations and competition from the major producers.

It is likely that United States suppliers will struggle to achieve higher sales prices because of increasing supply from new lowcost trona operations in Turkey and potential oversupply in China that may enter the export market. If overall global economic conditions are favorable during the next few years, it is likely that there would be greater world soda ash consumption. 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)

	2015	2016	2017	2018	2019
United States:					
Production:					
Soda ash:					
Quantity	11,600	11,800	12,000	11,900	11,700
Value	1,800,000	1,770,000	1,750,000	1,770,000	1,800,000
Value, average annual:					
Per short ton	\$140.88	\$135.92	\$132.68	\$134.89	\$139.02
Per metric ton	\$155.30	\$149.83	\$146.26	\$148.69	\$153.24
Wyoming trona, quantity	17,600	17,700	18,000	17,600	18,400
Exports:					
Quantity	6,400	6,760	6,990	6,960	7,020
Value	1,320,000	1,310,000	1,400,000	1,460,000	1,550,000
Imports for consumption:					
Quantity	40	35	19	51	115
Value	6,780	6,660	4,810	13,800 ^r	28,000
Stocks, December 31, producers'	285	336	293	297	289
Consumption:					
Apparent	5,200	5,010	5,040	4,980	4,830
Reported	4,990	5,120	4,910	4,850	4,720
World, production	53,400	53,900	57,400 ^r	56,100 r	56,800 °

^eEstimated. ^rRevised.

¹Table includes data available May 19, 2020. Data are rounded to no more than three significant digits, except average annual values.

TABLE 2

U.S. PRODUCTION OF SODIUM COMPOUNDS, BY MONTH¹

(Thousand metric tons)

	20	2018		19
		Wyoming		Wyoming
Month	Soda ash	trona ²	Soda ash	trona ²
January	992	1,630	1,000	1,680
February	945	1,490	920	1,440
March	1,020	1,620	941	1,680
April	966	1,480	999	1,500
May	952	1,450	994	1,310
June	961	1,420	946	1,610
July	1,070	1,490	972	1,640
August	930	1,180	929	1,490
September	988	1,320	977	1,550
October	1,010	1,500	1,010	1,520
November	997	1,490	1,010	1,430
December	1,060	1,580	1,030	1,540
Total	11,900	17,600	11,700	18,400

¹Table includes data available May 19, 2020. Data are rounded to no more than three significant digits; may not add to totals shown. ²Includes solution-mined trona.

TABLE 3U.S. PRODUCERS OF SODA ASH IN 2019

(Million short tons unless otherwise noted)

		Plant		
		nameplate		Source of
Company	Partner(s)	capacity	Plant location	sodium carbonate
Ciner Wyoming LLC	Ciner Resources Corp. (51%) and	3.25	Green River, WY	Underground trona.
	Natural Resources Partners L.P. (49%)			
Genesis Alkali Wyoming Corp.				
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)

				2018					2019		
NAICS ²		1st	2d	3d	4th	1st quarter-	1st	2d	3d	4th	1st quarter-
code	End use	quarter	quarter	quarter	quarter	4th quarter	quarter	quarter	quarter	quarter	4th quarter
3272	Glass:										
327213	Container	279	284	257	233	1,050	250	250	255	250	1,010
327211	Flat	222	243	240	256	960	228	234	239	253	954
327993	Fiber	39	40	43	42	164 ^r	39	41	44	42	166
327212	Other	26	25	25	26	102	27	23	23	22	95
	Total	566	591	565	557	2,280	545	548	562	566	2,220
32518	Chemicals	338	369	356	372	1,440	335	358	333	343	1,370
325611	Soaps and detergents	79	66	72	70	288 ^r	69	67	71	65	272
322	Pulp and paper	12	13	11	11	47	10	10	9	10	39
221310	Water treatment ³	11	12	12	9	44	10	11	10	10	41
56221	Flue gas desulfurization	47	43	52	49	191	47	38	39	38	162
4246	Distributors	79	74	75	74	302	71	61	68	61	261
	Other	71	69	65	59	265	84	74	108	88	354
	Total domestic consumption ⁴	1,200	1,240	1,210	1,200	4,850	1,170	1,170	1,200	1,180	4,720
	Exports ⁵	1,750	1,590	1,720	1,760	6,820	1,710	1,760	1,780	1,790	7,040
	Exports, Canada	47	49	47	48	190	44	49	43	42	178
	Total industry sales ⁶	2,950	2,830	2,930	2,960	11,700	2,880	2,920	2,980	2,970	11,800
	Total sales from plants	3,010	2,860	3,020	3,030	11,900	2,890	2,970	2,990	3,030	11,900
	Total production	2,960	2,880	2,990	3,070	11,900	2,860	2,940	2,880	3,040	11,700

^rRevised.

¹Table includes data available through May 13, 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 power plants for water treatment. Sales of mine water are excluded.

⁴Imports reported by the producer 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 coproducers and distributed by purchasers into appropriate end-use categories.

TABLE 5

REGIONAL DISTRIBUTION OF U.S. SODA ASH EXPORTS, BY CUSTOMS DISTRICTS, IN 2019¹

(Metric tons)

			Australia and		North	South America and		Percent
Customs districts	Africa	Asia	Oceania	Europe	America	Central America	Total	of total
Atlantic:				-				
Miami, FL		39				1,320	1,360	(2)
Mobile, AL				150			150	(2)
New York, NY		575		298		130	1,000	(2)
Norfolk, VA		1,000		1,610			2,610	(2)
Philadelphia, PA				596			596	(2)
Savannah, GA				913			913	(2)
Washington, DC				40			40	(2)
Wilmington, NC				600			600	(2)
Gulf:								
Houston-Galveston, TX	18	60		277	72,000	155,000	227,000	3
New Orleans, LA		22		37			60	(2)
Port Arthur, TX	166,000			10,100		269,000	445,000	6
North-central:								
Chicago, IL		297		26			323	(2)
Cleveland, OH		135					135	(2)
Detroit, MI					129,000		129,000	2
Duluth, MN					3,630		3,630	(2)
Great Falls, MT					26,100		26,100	(2)
Pembina, ND					4,350		4,350	(2)
Northeast:								
Buffalo, NY				57	11,400		11,500	(2)
Ogdensburg, NY					1,260		1,260	(2)
Pacific:								
Anchorage, AK		60					60	(2)
Columbia-Snake, OR		3,230,000	279,000			1,160,000	4,670,000	66
Los Angeles, CA		130,000	24	50	4,000	117,000	252,000	4
San Diego, CA					118,000		118,000	2
San Francisco, CA		1,850					1,850	(2)
Seattle, WA					13,600		13,600	(2)
Southwest:								
El Paso, TX					220,000		220,000	3
Laredo, TX					890,000		890,000	13
Nogales, AZ					778		778	(2)
Unknown				31			31	(2)
Total	166,000	3,360,000	279,000	14,800	1,490,000	1,700,000	7,020,000	100
Percentage of total	2	48	4	(2)	21	24	100	XX

XX Not applicable. -- Zero.

¹Table includes data available through May 5, 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 LOCALITY $^{\rm 1}$

		2018			2019	
	Quantity	Value ²	Unit value	Quantity	Value ²	Unit value
	(thousand	(thousand	(dollars per	(thousand	(thousand	(dollars per
Country or locality	metric tons)	dollars)	metric ton)	metric tons)	dollars)	metric ton)
Argentina	95	21,600	227	90	20,800	232
Australia	266	55,700	209	268	62,300	232
Belgium	3	311	110	2	307	128
Brazil	861	173,000	200	792	166,000	210
Canada	208	43,600	210	190	46,000	242
Chile	466	101,000	217	407	94,300	232
China	254	43,800	173	190	28,800	152
Colombia	176	36,900	209	182	41,100	226
Costa Rica	31	6,970	229	16	3,760	243
Ecuador	33	6,660	205	39	8,810	225
El Salvador	18	3,580	199	16	3,450	216
Guatemala	55	12,200	221	45	11,300	253
India	139	22,700	164	272	48,600	179
Indonesia	611	132,000	215	827	186,000	225
Japan	313	58,000	185	268	55,300	206
Korea, Republic of	311	61,700	199	263	56,100	213
Malaysia	378	77,800	206	518	116,000	224
Mexico	1,300	302,000	232	1,310	308,000	235
Netherlands	12	2,400	200	10	2,570	254
New Zealand	19	3,270 ^r	171	12	2,210	192
Nigeria	26	8,080 ^r	309	35	10,800	309
Peru	96	21,200	221	99	22,500	228
Philippines	56	12,100	218	65	14,400	221
Saudi Arabia	59	8,940	152	66	12,800	194
South Africa	80	15,600	195	64	11,300	175
Spain	(3)	106	(3)	1	136	139
Taiwan	207	43,200	209	215	49,000	228
Thailand	345	76,500	222	300	68,700	229
Tunisia	77	16,900	220	67	15,700	234
United Arab Emirates	90	14,300	159	73	13,300	183
United Kingdom	74	14,400	193	(3)	6	110
Venezuela	41	10,500	259	19	5,070	267
Vietnam	259	55,700	215	302	68,300	226
Other	6	1,110	195	4	710	166
Total	6,960	1,460,000	210	7,020	1,550,000	221

^rRevised.

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

²Free alongside ship value.

 $^{3}Less$ than $^{1}\!/_{2}$ unit.

Source: U.S. Census Bureau.

U.S. IMPORTS OF SODA ASH, BY COUNTRY OR LOCALITY, IN 2019^{1.2} TABLE 7

(Metric tons unless otherwise specified)

														Percent	Total value ²
													Total	of total	(thousand
Country or locality	January	February	March	April	May	June	July	August	September	October	November	December	quantity	quantity	dollars)
Bulgaria	288	612	432	882	648	810	648	560	486	414	126	I	5,910	5	2,350
China	LL	72	180	41	56	66	257	120	88	120	20	148	1,280	1	783
France	4	91	41	91	64	50	66	13	75	94	43	52	757	1	1,170
Mexico	304	97	252	150	244	57	19	258	532	1	384	405	2,700	2	1,020
Romania	95	172	38	38	1	1	76	76	38	100	76	1	709	1	312
Turkey	1	ł	32,000	ł	ł	35,000	ł	ł	34,800	ł	ł	ł	102,000	88	20,400
United Kingdom	146	197	91	73	143	183	75	108	89	161	129	142	1,530	1	1,020
Others	24	6	ю	10	(3)	1	12	39	186	1	1	518	804	1	883
Total	978	1,250	33,000	1,290	1,160	36,200	1,190	1,170	36,300	891	617	1,270	115,000	100	28,000
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Table includes data available through May 1, 2020. Data are rounded to no more than three significant digits; may not add to totals shown. ²Cost, insurance, and freight values 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}

Country or locality ³	2015	2016	2017	2018	2019
Bosnia and Herzegovina	82	98	102	100 e	100 e
Botswana, natural ⁴	243	280	227	297 ^r	290 °
China, natural and synthetic	25,920	25,850	27,670	26,200 r	27,000 °
Egypt	130 °	40	e	e	e
Ethiopia, natural ^{4, 5}	7	4 ^r	6 ^r	18 ^r	18 ^e
France ^e	1,000	1,000	1,000	1,000	1,000
Germany ^e	2,600	2,600	2,600	2,500	2,500
India ^e	2,500	2,400	2,500	2,500	2,500
Italy ^e	500	500	500	500	500
Japan	230	217	220	220 °	220 ^e
Kenya, natural ⁴	320	302	304 ^r	339 ^r	330 ^e
Mexico ^e	290	290	290	300	300
Pakistan	449	476	476	546 ^r	530 °
Poland	1,074	1,250	1,281	1,239 ^r	1,250 °
Romania	505	516	540	536	540 °
Russia	3,078	3,234	3,376 ^r	3,416 ^r	3,400 °
Turkey, natural and synthetic	1,854	1,977	3,274	3,400 °	3,500 °
Ukraine	600 ^e	600 ^e	608 r	619 ^r	620 ^e
United Kingdom	400	400 ^e	400 ^e	400 ^e	400 ^e
United States, natural ⁴	11,600	11,800	12,000	11,900	11,700
Uzbekistan ^e	90	90	90	90	90
Total	53,400	53,900	57,400 r	56,100 r	56,800 °

(Thousand metric tons)

^eEstimated. ^rRevised. -- Zero.

¹Table includes data available through June 9, 2020. 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, Brazil, Bulgaria, 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.