

**SODA ASH (SODIUM CARBONATE) STATISTICS<sup>1</sup>**  
**U.S. GEOLOGICAL SURVEY**

[All values are in metric tons (t) sodium carbonate unless otherwise noted]

Last modification: October 11, 2007

Year	Primary production	Imports	Exports	Stocks	Apparent consumption	Unit value (\$/t)	Unit value (98\$/t)	World production
1900	329,000				329,000			
1901					365,000			
1902					400,000			
1903					435,000			
1904	471,000				471,000			
1905					494,000			
1906					517,000			
1907					540,000			
1908					563,000			
1909	586,000				586,000			
1910	699,000				699,000			
1911	775,000				775,000			
1912	849,000				849,000			
1913	816,000				816,000			
1914	848,000				848,000			
1915	1,070,000				1,070,000			
1916	1,100,000				1,100,000			
1917	1,280,000	936	44,600		1,240,000			
1918	1,280,000	0	108,000		1,180,000			
1919	918,000	376	45,800		873,000			
1920	23,000	688	75,600		775,000	41.70	339	
1921	693,000	0	15,900		677,000	38.20	347	
1922	30,400	0	13,400		904,000	22.70	220	
1923	1,140,000	0	13,200		1,130,000	23.40	223	
1924	40,700	0	13,000		1,170,000	20.50	195	
1925	1,230,000	0	14,700		1,220,000	22.20	207	
1926	51,500	0	17,900		1,270,000	22.40	206	
1927	1,330,000	0	18,500		1,320,000	20.60	192	
1928	72,400	0	30,200		1,470,000	21.80	208	
1929	1,650,000	13,000	35,400		1,630,000	20.50	196	
1930	81,900	2,350	29,900		1,480,000	19.40	190	
1931	1,360,000	6	25,100		1,340,000	17.20	184	
1932	50,200	14	12,500		1,410,000	17.70	210	
1933	1,500,000	14	25,800		1,480,000	14.40	180	
1934	80,100	64	30,300		1,900,000	15.70	190	
1935	2,360,000	18	39,500		2,320,000	13.90	165	
1936	93,300	40	40,200		2,540,000	11.90	139	
1937	2,800,000	28	49,700		2,760,000	12.50	142	
1938	2,340,000	18	46,300		2,300,000	13.60	157	
1939	2,770,000	7	72,600		2,700,000	13.50	158	
1940	2,910,000	0	53,100		2,840,000	13.80	161	
1941	3,410,000	54	75,700		3,330,000	13.70	152	
1942	3,570,000	1	58,500		3,500,000	15.70	157	
1943	4,150,000	7,650	72,600		4,080,000	16.90	159	
1944	4,280,000	8,560	71,700		4,210,000	17.10	158	
1945	4,140,000	16,600	63,500		4,080,000	17.20	157	
1946	4,080,000	5,340	21,900		4,020,000	17.50	146	
1947	4,350,000	615	28,900		4,290,000	22.10	161	
1948	4,330,000	28	188,000		4,220,000	25.30	171	
1949	3,740,000	15	68,600		3,670,000	23.00	157	
1950	3,930,000	43,700	57,600		3,880,000	23.70	160	
1951	4,950,000	0	141,000		4,800,000	26.30	164	

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1952	4,320,000	0	96,100		4,230,000	26.70	164	
1953	4,810,000	0	150,000		4,660,000	28.00	170	
1954	4,730,000	0	149,000		4,590,000	28.30	172	
1955	5,080,000	0	139,000		4,870,000	26.90	164	12,800,000
1956	5,130,000	0	220,000		4,910,000	29.40	176	
1957	4,840,000	0	158,000		4,660,000	30.00	175	
1958	4,490,000	0	94,300		4,400,000	29.90	169	
1959	5,100,000	0	139,000		4,980,000	28.60	160	14,400,000
1960	4,850,000	0	141,000		4,730,000	28.40	156	
1961	4,810,000	0	120,000		4,710,000	28.00	153	
1962	5,080,000	0	138,000		4,930,000	27.40	148	
1963	5,260,000	0	167,000		5,100,000	27.20	145	
1964	5,710,000	0	250,000		5,400,000	26.30	139	
1965	5,820,000	0	251,000		5,570,000	25.60	133	
1966	6,180,000	0	314,000		5,860,000	25.80	130	
1967	5,980,000	0	276,000		5,690,000	25.90	126	
1968	6,020,000	0	261,000		5,760,000	22.70	107	
1969	6,350,000	0	294,000		6,090,000	22.50	100	
1970	6,430,000	0	305,000	51,000	6,130,000	23.20	97.40	19,100,000
1971	6,480,000	0	396,000	24,000	6,100,000	23.40	94.10	19,800,000
1972	6,830,000	0	435,000	48,000	6,390,000	24.60	95.80	20,500,000
1973	6,860,000	9,070	386,000	47,200	6,460,000	28.00	103	21,400,000
1974	6,860,000	29,000	512,000	32,700	6,380,000	37.30	123	22,400,000
1975	6,470,000	1,810	480,000	49,000	5,970,000	46.50	141	23,400,000
1976	6,740,000	0	585,000	92,500	6,230,000	54.80	157	26,100,000
1977	7,290,000	1,270	689,000	91,600	6,610,000	59.70	161	26,400,000
1978	7,510,000	7,050	707,000	68,900	5,480,000	60.10	150	27,200,000
1979	7,490,000	36,600	905,000	61,700	6,630,000	71.20	160	28,200,000
1980	7,510,000	16,600	993,000	121,000	6,470,000	99.00	196	28,300,000
1981	7,510,000	10,700	953,000	239,000	6,450,000	101	180	28,000,000
1982	7,100,000	16,400	1,010,000	294,000	6,050,000	97.40	165	26,800,000
1983	7,680,000	18,100	1,480,000	279,000	6,230,000	84.80	139	27,900,000
1984	7,720,000	15,100	1,500,000	292,000	6,230,000	73.90	116	29,200,000
1985	7,760,000	51,000	1,580,000	356,000	6,120,000	74.80	113	29,100,000
1986	7,650,000	96,100	1,860,000	267,000	5,980,000	72.30	108	29,400,000
1987	8,070,000	136,000	2,020,000	235,000	6,220,000	73.60	106	30,200,000
1988	8,740,000	121,000	2,240,000	261,000	6,590,000	73.80	102	31,300,000
1989	8,990,000	129,000	2,650,000	221,000	6,520,000	85.00	112	31,500,000
1990	9,160,000	146,000	2,390,000	287,000	6,840,000	91.30	114	32,000,000
1991	9,000,000	134,000	2,730,000	234,000	6,480,000	92.80	111	31,200,000
1992	9,380,000	72,000	2,960,000	371,000	6,360,000	89.20	104	30,700,000
1993	8,960,000	89,000	2,800,000	274,000	6,350,000	82.00	92.40	29,500,000
1994	9,320,000	79,000	3,230,000	203,000	6,240,000	77.70	85.40	29,600,000
1995	10,100,000	83,000	3,570,000	306,000	6,510,000	82.10	87.80	31,700,000
1996	10,200,000	107,000	3,840,000	271,000	6,480,000	91.10	94.60	31,800,000
1997	10,700,000	101,000	4,190,000	259,000	6,670,000	85.20	86.50	33,100,000
1998	10,100,000	83,000	3,660,000	273,000	6,560,000	83.00	83.00	32,600,000
1999	10,200,000	92,000	3,620,000	248,000	6,740,000	76.20	74.50	33,500,000
2000	10,200,000	75,000	3,900,000	245,000	6,430,000	73.00	69.10	34,500,000
2001	10,300,000	33,000	4,090,000	226,000	6,310,000	74.70	68.80	35,900,000
2002	10,500,000	9,000	4,250,000	222,000	6,250,000	75.00	67.90	37,200,000
2003	10,600,000	5,000	4,450,000	330,000	6,090,000	71.90	63.70	38,400,000

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<b>Year</b>	<b>Primary production</b>	<b>Imports</b>	<b>Exports</b>	<b>Stocks</b>	<b>Apparent consumption</b>	<b>Unit value (\$/t)</b>	<b>Unit value (98\$/t)</b>	<b>World production</b>
2004	11,000,000	6,000	4,670,000	338,000	6,290,000	70.30	60.60	40,600,000
2005	11,000,000	8,000	4,680,000	243,000	6,380,000	88.40	73.80	42,000,000
2006	11,000,000	7,000	4,820,000	290,000	6,100,000	106.50	86.10	42,400,000

<sup>1</sup>Compiled by K.E. Porter (retired) and D.S. Kostick.

Data are calculated, estimated, or reported. See notes for more information.

## Soda Ash Worksheet Notes

### Data Sources

The sources of data for the soda ash (sodium carbonate) worksheet are the mineral statistics publications of the U.S. Bureau of Mines (USBM) and the U.S. Geological Survey (USGS)—Minerals Yearbook (MYB) and Mineral Commodity Summaries (MCS) and its predecessor, Commodity Data Summaries (CDS). Data on sodium compounds were first reported in the 1932–33 Minerals Yearbook (MYB). Prior to this, the Mineral Resources of the United States (MR) series did not report on sodium compounds. USBM Information Circular 7212 (Harness and Coons, 1942) (IC 7212), published in June 1942, was the primary source of data for the years prior to 1942. Natural soda ash production and stock data were collected and reported by the USBM and USGS. Synthetic soda ash production (prior to 1979), import, and export data were collected and reported by the U.S. Census Bureau and reported in the MYB. The years of publication and corresponding years of data coverage are listed in the references section below. Blank cells in the worksheet indicate that data were not available.

### Primary Production

Primary production data are the sum of synthetic or manufactured soda ash production by the Solvay process and natural soda ash production from brine deposits (Searles Lake, Trona, CA., and Owens Lake, Lone Pine, CA.) and trona deposits (Green River, WY.). Natural production data for the years 1916–40 are from IC 7212. Data for the years 1900–40 include soda ash, sodium bicarbonate, and trona. Data for the years 1923–26 and 1930 also include sal soda. Production data for the years 1935–41 include soda ash, bicarbonate, and trona. Production data for the years 1942–43 include only soda ash and trona. Synthetic (manufactured) production data from USBM and USGS mineral commodity records for the years 1909–40 were reported in IC 7212. Production data are not available for manufactured soda ash for the years 1901–03, 1905–08, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, and 1936 because the data were not reported by the U.S. Census Bureau and Bureau of Foreign and Domestic Commerce. Manufactured soda ash production data for the years 1941–44 are from the text in the MYB. The MCS reported both natural and manufactured (Solvay) production for the years 1955–78. Natural and manufactured production data were combined for the years 1979–86 to keep from disclosing individual company data. U.S. production of soda ash has been 100% from natural sources since 1986.

### Imports

The U.S. Census Bureau collected import data for soda ash for the years 1929–50. Import data were reported for soda ash for the years 1973–2006 in the MYB. The 1982 MYB reported sodium carbonate and sodium bicarbonate import data (quantity and value) for 1981 and 1982. Subsequent MYB publications only reported the sodium carbonate data.

### Exports

Sodium carbonate export data were not reported in the MYB for the years 1900–36, as they would include mostly manufactured sodium salts and therefore would not be comparable with natural salts contained in the MYB reports. The U.S. Census Bureau collected export data for soda ash for the years 1917–36. Prior to 1949, exports were not separately classified as natural or manufactured, and sodium sulfate and soda ash were combined. Export data for the years 1935–47 are included in the “Estimated consumption” table in the MYB.

### Stocks

Stocks reported in the MCS and the MYB are for the years 1970–2006.

### Apparent Consumption

Apparent consumption was estimated for the years 1900–36 using the following formula:

$$\text{APPARENT CONSUMPTION} = \text{PRIMARY PRODUCTION} + \text{IMPORTS} - \text{EXPORTS} \pm \text{STOCK CHANGES.}$$

Apparent consumption was estimated for the years 1901–03 and 1905–08 by linear regression. Estimates for apparent consumption were also made for the years 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, and 1936 by averaging the values for the intervening years. Apparent consumption data for the years 1937–2006 were reported in the MYB and the MCS.

### Unit Value (\$/t)

The “Unit value” was derived by dividing the total revenue received for the sale of all bulk, dense natural soda ash sold on an f.o.b. plant basis, by the quantity of soda ash sold. It was reported in the MYB for the years 1920–2006. The average price of sales (natural soda ash) was assumed to apply to both natural and synthetic soda ash production prior to the energy shortage in the early 1970s. List prices were reported in the MYB for Green River (trona), Searles Valley (brine), and synthetic soda ash, but were not used to estimate unit value because negotiated contract prices were always significantly lower than the published prices.

### Unit Value (98\$/t)

The Consumer Price Index conversion factor, with 1998 as the base year, is used to adjust unit value in current U.S. dollars to the unit value in constant 1998 U.S. dollars.

## **World Production**

World production of sodium carbonate (both natural and manufactured) was first reported in the 1973 MYB. Prior to 1970, data were incomplete. The combined natural and synthetic soda ash production data were reported in the MYB for the years 1978–88. The synthetic soda ash production data were estimated by taking the difference between the total of the production reported in the MYB and the natural production reported in the MCS. Natural and synthetic soda ash production data were reported in the MCS for the years 1988–2006, and total sodium carbonate data are reported in the MYB for the years 1989–2006.

## **References**

- Harness, C.L., and Coons, A.T., 1942, Sodium carbonate: U.S. Bureau of Mines Information Circular 7212, 35 p.  
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U.S. Geological Survey and U.S. Bureau of Mines, 1996, Mineral Commodity Summaries, 1996.

## **Recommended Citation Format:**

U.S. Geological Survey, [year of last update, e.g., 2005], [Mineral commodity, e.g., Gold] statistics, in Kelly, T.D., and Matos, G.R., comps., Historical statistics for mineral and material commodities in the United States: U.S. Geological Survey Data Series 140, available online at <http://pubs.usgs.gov/ds/2005/140/>. (Accessed [date].)

## **For more information, please contact:**

[USGS Soda Ash Commodity Specialist](#)