

SALT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Domestic production of salt was estimated to have decreased slightly in 2021 compared with that in 2020 to 40 million tons. The total value of salt sold or used was estimated to be about \$2.5 billion. Twenty-six companies operated 63 plants in 16 States. The top producing States were Kansas, Louisiana, Michigan, New York, Ohio, Texas, and Utah. These seven States produced about 95% of the salt in the United States in 2021. The estimated percentage of salt sold or used was, by type, rock salt, 44%; salt in brine, 40%; vacuum pan salt, 10%; and solar salt, 6%.

Highway deicing accounted for about 42% of total salt consumed. The chemical industry accounted for about 39% of total salt sales, with salt in brine accounting for 90% of the salt used for chemical feedstock. Chlorine and caustic soda manufacturers were the main consumers within the chemical industry. The remaining markets for salt were distributors, 9%; food processing, 4%; agricultural, 2%; and general industrial and primary water treatment, 1% each. The remaining 2% was other uses combined with exports.

Salient Statistics—United States:¹

	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u> ^e
Production	39,900	43,900	^e 42,000	^e 41,000	40,000
Sold or used by producers	38,700	44,200	^e 41,000	^e 40,000	39,000
Imports for consumption	12,600	17,900	18,600	15,800	16,000
Exports	1,130	986	1,020	1,250	1,000
Consumption:					
Apparent ²	50,200	61,100	^e 58,000	^e 54,000	54,000
Reported	45,500	53,000	^e 50,000	^e 46,000	47,000
Price, average value of bulk, pellets and packaged salt, free on board (f.o.b.) mine and plant, dollars per ton:					
Vacuum and open pan salt	208.04	214.12	^e 215.00	^e 215.00	220.00
Solar salt	115.88	120.56	^e 125.00	^e 120.00	120.00
Rock salt	60.41	60.78	^e 59.00	^e 57.00	56.00
Salt in brine	9.49	8.30	^e 9.00	^e 9.00	9.00
Employment, mine and plant, number ^e	4,100	4,100	4,100	4,000	4,100
Net import reliance ³ as a percentage of apparent consumption	23	28	30	27	29

Recycling: None.

Import Sources (2017–20): Chile, 30%; Canada, 27%; Mexico, 12%; Egypt, 11%; and other, 20%.

Tariff:	Item	Number	Normal Trade Relations
			<u>12-31-21</u>
	Salt (sodium chloride)	2501.00.0000	Free.

Depletion Allowance: 10% (domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: The global COVID-19 pandemic affected production and consumption of salt throughout the world in 2020 and 2021. The chloroalkali industry was most affected because international trade declined, but the entire salt sector was negatively affected to varying degrees.

For much of the 2020–21 winter, temperatures were near or above average with lower or average precipitation throughout most of the traditional U.S. snowbelt. The number of winter weather events including freezing rain, sleet, and snow is a better predictor of demand for rock salt than total snowfall. Several low snowfall or icing events usually require more salt for highway deicing than a single large snowfall event. Rock salt production and imports in 2021 were expected to be near or slightly less than those in 2020 because demand from many local and State transportation departments decreased. Most local and State governments in regions that experienced a less intense winter season reportedly had remaining stockpiles and therefore less need to replenish supplies of rock salt for the 2021–22 winter.

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For the 2021–22 winter, the National Oceanic and Atmospheric Administration predicted a La Niña weather pattern for the second consecutive year. A strong La Niña historically favors an average to warmer temperature pattern, but a moderate La Niña favors a colder winter. Based on several factors, the forecasts slightly favor higher precipitation than a normal winter for the Midwest, interior Northeast, and Northwest areas of the United States. All these areas were predicted to be warmer than average except for the Northwest, which is expected to receive more precipitation than average. A warmer and drier pattern than average was predicted for the southern areas of the United States. These forecasts would indicate that demand for rock salt could decrease in the Midwest and northeastern United States.

Demand for salt brine used in the chloralkali industry was expected to increase in 2022 as demand for caustic soda and polyvinyl chloride increases globally, especially in Asia. Salt exports from Australia and especially India have increased in recent years to meet the increasing demand in China, but tensions between China and both countries could affect trade.

World Production and Reserves:

	Mine production		Reserves ⁴
	2020	2021 ^e	
United States ¹	^e 41,000	40,000	Large. Economic and subeconomic deposits of salt are substantial in principal salt-producing countries. The oceans contain a virtually inexhaustible supply of salt.
Australia	^e 11,000	12,000	
Brazil	^e 7,400	7,400	
Canada	^e 10,000	10,000	
Chile	9,570	10,000	
China	^e 63,000	64,000	
Djibouti	3,100	3,200	
France	^e 5,400	5,400	
Germany	15,300	15,000	
India	^e 29,000	29,000	
Iran	^e 2,600	2,600	
Italy	1,540	2,000	
Mexico	^e 9,000	9,000	
Netherlands	^e 6,000	6,200	
Pakistan	3,750	4,000	
Poland	3,780	4,000	
Russia	^e 8,100	8,000	
Saudi Arabia	2,640	2,700	
Spain	^e 4,200	4,200	
Turkey	^e 6,900	6,900	
Ukraine	^e 2,000	2,000	
United Kingdom	^e 4,700	4,700	
Other countries	^e 30,000	33,000	
World total (rounded)	280,000	290,000	

World Resources:⁴ World continental resources of salt are vast, and the salt content in the oceans is nearly unlimited. Domestic resources of rock salt and salt from brine are primarily in Kansas, Louisiana, Michigan, New York, Ohio, and Texas. Saline lakes and solar evaporation salt facilities are in Arizona, California, Nevada, New Mexico, Oklahoma, and Utah. Almost every country in the world has salt deposits or solar evaporation operations of various sizes.

Substitutes: No economic substitutes or alternatives for salt exist in most applications. Calcium chloride and calcium magnesium acetate, hydrochloric acid, and potassium chloride can be substituted for salt in deicing, certain chemical processes, and food flavoring, but at a higher cost.

^eEstimated.

¹Excludes production from Puerto Rico.

²Defined as sold or used by producers + imports – exports.

³Defined as imports – exports.

⁴See Appendix C for resource and reserve definitions and information concerning data sources.