

SALT

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Domestic production of salt was estimated at 42 million tons in 2022, essentially unchanged compared with that in 2021. The total value of salt sold or used was estimated to be \$2.5 billion, a slight increase from \$2.4 billion in 2021. Salt was produced by 26 companies that operated 64 plants in 16 States. The top producing States were Kansas, Louisiana, Michigan, New York, Ohio, Texas, and Utah. These seven States produced about 94% of the salt in the United States in 2022. The estimated percentage of salt sold or used was, by type, rock salt, 43%; salt in brine, 40%; vacuum pan salt, 9%; and solar salt, 8%.

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 91% 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, 3%; general industrial, 2%; and primary water treatment, 1%.

Salient Statistics—United States:¹

	2018	2019	2020	2021	2022^e
Production	43,900	^e 45,000	^e 43,000	^e 42,000	42,000
Sold or used by producers	44,200	^e 45,000	^e 43,000	^e 42,000	42,000
Imports for consumption	17,900	18,700	15,800	18,100	18,000
Exports	986	1,020	1,250	1,060	700
Consumption:					
Apparent ²	61,100	62,500	^e 58,000	^e 59,000	59,000
Reported	53,000	51,800	^e 49,000	^e 50,000	49,000
Price, average unit value of bulk, pellets and packaged salt, free on board (f.o.b.) mine and plant, dollars per metric ton:					
Vacuum and open pan salt	214.12	211.57	^e 215	^e 220	230
Solar salt	114.32	126.18	^e 120	^e 125	130
Rock salt	60.78	59.90	^e 58	^e 57	60
Salt in brine	8.30	7.56	^e 8.00	^e 8.00	8.50
Employment, mine and plant, number ^e	4,100	4,100	4,000	4,100	4,000
Net import reliance ³ as a percentage of apparent consumption	28	28	25	29	29

Recycling: None.

Import Sources (2018–21): Chile, 29%; Canada, 28%; Mexico, 13%; Egypt, 11%; and other, 19%.

Tariff:	Item	Number	Normal Trade Relations
			12–31–22
	Salt (sodium chloride)	2501.00.0000	Free.

Depletion Allowance: 10% (domestic and foreign).

Government Stockpile: None.

Events, Trends, and Issues: Demand for salt in 2022 remained lower than 2019 levels after the coronavirus disease 2019 (COVID-19) pandemic affected production and consumption of salt throughout the world in 2020 and 2021. Increased energy costs also negatively affected salt markets as increased processing and especially transportation costs negatively affected the ability to import and export salt at competitive prices for some international transactions.

For much of the 2021–22 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 2022 were estimated to be near or slightly less than those in 2021 because demand from many local and State transportation departments were essentially unchanged from the previous year.

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For the 2022–23 winter, the National Oceanic and Atmospheric Administration predicted a La Niña weather pattern for the third 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 winter than a normal winter for the Midwest, interior Northeast along the Canadian border, and northwestern area of the United States. Within this area, only the upper Midwest and the northwestern area of the United States were predicted to experience below average temperatures. A warmer and drier pattern than average was predicted for the southern area of the United States. These forecasts would indicate that demand for rock salt could increase slightly in the upper the Midwest and northwestern areas of the United States but decrease in the northeastern United States.

Demand for salt brine used in the chloralkali industry was expected to increase in 2023 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		Reserves⁴
	<u>2021</u>	<u>2022^e</u>	
United States ¹	^e 42,000	42,000	Large. Economic and subeconomic deposits of salt are substantial in principal salt-producing countries. The oceans contain a virtually inexhaustible supply of salt.
Australia	12,200	13,000	
Brazil	^e 7,400	7,400	
Canada	11,800	11,000	
Chile	8,570	9,000	
China	^e 64,000	64,000	
France	5,400	5,500	
Germany	^e 15,000	15,000	
India	^e 45,000	45,000	
Iran	^e 2,700	2,700	
Italy	1,900	2,000	
Mexico	^e 9,000	9,000	
Netherlands	6,120	6,200	
Pakistan	^e 3,000	3,300	
Poland	^e 4,000	4,000	
Russia	^e 6,500	6,000	
Saudi Arabia	2,330	2,400	
Spain	^e 4,200	4,200	
Turkey	^e 6,900	6,900	
Ukraine	^e 1,800	1,000	
United Kingdom	^e 2,400	2,800	
Other countries	<u>^e31,000</u>	<u>32,000</u>	
World total (rounded)	294,000	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.