

## SALT

(Data in thousand metric tons, unless otherwise noted)

**Domestic Production and Use:** Domestic production of salt increased slightly in 2001, with total value estimated at \$1 billion. Thirty-two companies operated 69 plants in 15 States. The estimated percentage of salt sold or used, by type, was salt in brine, 52%; rock salt, 31%; vacuum pan, 10%; and solar salt, 7%.

The chemical industry consumed about 42% of total salt sales, with salt in brine representing about 92% of the type of salt used for feedstock. Chlorine and caustic soda manufacture was the main consuming sector within the chemical industry. Salt for highway deicing accounted for 36% of U.S. demand. The remaining markets for salt, in declining order, were distributors, 7%; industrial, 6%; agricultural, 4%; food, 3%; primary water treatment, 1%; and other combined with exports, 1%.

<b>Salient Statistics—United States:</b> <sup>1</sup>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001<sup>e</sup></b>
Production	41,400	41,200	44,900	45,600	45,100
Sold or used by producers	40,600	40,800	44,400	43,300	45,100
Imports for consumption	9,160	8,770	8,870	8,960	10,000
Exports	748	731	892	642	900
Consumption:					
Reported	49,500	44,200	50,000	54,000	54,200
Apparent	49,000	48,800	52,400	51,600	54,200
Price, average value of bulk, pellets and packaged salt, dollars per ton, f.o.b. mine and plant:					
Vacuum and open pan salt	119.61	114.93	112.49	113.95	117.00
Solar salt	38.81	37.56	52.08	50.46	42.00
Rock salt	20.50	21.90	22.55	20.67	20.00
Salt in brine	6.67	5.93	6.65	5.70	6.00
Stocks, producer, yearend <sup>e 2</sup>	800	400	500	2,300	—
Employment, mine and plant, number	4,150	4,150	4,100	4,100	4,100
Net import reliance <sup>3</sup> as a percentage of apparent consumption	17	17	15	16	17

**Recycling:** None.

**Import Sources (1997-2000):** Canada, 45%; Chile, 22%; Mexico, 15%; The Bahamas, 10%; and other, 8%.

<b>Tariff:</b>	<b>Item</b>	<b>Number</b>	<b>Normal Trade Relations</b>
			<u>12/31/01</u>
	Iodized salt	2501.00.0000	Free.

**Depletion Allowance:** 10% (Domestic and foreign).

**Government Stockpile:** None.

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**Events, Trends, and Issues:** A major U.S. salt producer that was the third largest salt producer in the world sold its North American operations for \$640 million to an entity formed by affiliates of a private investment firm based in New York. The sale includes the vacuum pan salt plant in Kansas, the rock salt mine in Louisiana, the vacuum pan salt facility in Michigan, the salt marketing rights to a plant in Tennessee, the solar salt, sulfate of potash, and magnesium chloride facilities in Utah, and the rock salt and vacuum pan salt plants in Canada.

A major U.S. salt company sold its Australian solar salt operation at Port Hedland, Western Australia, to its Australian salt competitor for \$95 million plus some additional payments contingent on future performance. The acquisition made the company the world's largest salt exporter. The plant produced and exported about 3 million tons annually.

A salt-tolerant tomato was genetically engineered to grow in saline environments. The new tomato is able to divert the intake of sodium to the leaves instead of to the tomato itself. Irrigation in arid areas often results in an accumulation of salt deposits that reduces the yield in cropland because salt is toxic to many plants. An estimated 25% of the total irrigated land in the world is threatened by this salt buildup, and that 1% of the global irrigated land is lost annually to salinization. Genetic modification of other salt-sensitive crops was being conducted to increase crop yield in dry sections of China, India, Pakistan, and the Western United States.

Demand for chlorine and coproduct caustic soda was lower than expected in 2001. Rising energy costs and a downturn in the domestic economy contributed to a decline in polyvinyl chloride (PVC) production for construction supplies, such as PVC pipe and tubing, siding, and window and door frames. As a result, several chloralkali facilities were idled or curtailed production until the economy showed signs of recovery which was not apparent by yearend.

Consumption of salt in 2002 is expected to be higher than that of 2001.

### World Production, Reserves, and Reserve Base:

	Production		Reserves and reserve base <sup>4</sup>
	2000	2001 <sup>e</sup>	
United States <sup>1</sup>	45,600	45,100	Large. Economic and subeconomic deposits of salt are substantial in principal salt-producing countries. The oceans contain an inexhaustible supply of salt.
Australia	8,800	8,000	
Brazil	6,000	7,000	
Canada	11,900	12,500	
China	31,300	32,000	
France	7,000	7,100	
Germany	15,700	15,800	
India	14,500	14,500	
Italy	3,600	3,600	
Mexico	8,900	8,600	
Poland	4,200	4,500	
Russia	3,200	3,000	
Spain	3,200	3,300	
Ukraine	2,390	2,400	
United Kingdom	5,800	5,700	
Other countries	41,900	41,000	
World total (may be rounded)	214,000	214,000	

**World Resources:** World resources of salt are practically unlimited. Domestic resources of rock salt and salt from brine are in the Northeast, Central Western, and southern Gulf Coast States. Saline lakes and solar evaporation salt facilities are near populated regions in the Western United States. Almost every country in the world has salt deposits or solar evaporation operations of various sizes.

**Substitutes:** There are no economic substitutes or alternates for salt. 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.

<sup>e</sup>Estimated. — Zero.

<sup>1</sup>Excludes Puerto Rico production.

<sup>2</sup>Reported stock data are incomplete. For apparent consumption and net import reliance calculations, changes in annual stock totals are assumed to be the difference between salt produced and salt sold or used.

<sup>3</sup>Defined as imports - exports + adjustments for Government and industry stock changes.

<sup>4</sup>See Appendix C for definitions.