# SALT

(Data in thousand metric tons unless otherwise noted)

**Domestic Production and Use:** Domestic production of salt decreased by 11% in 2012. The total value was estimated to be more than $1.6 billion. Twenty-eight companies operated 67 plants in 16 States. The estimated percentage of salt sold or used, by type, was salt in brine, 47%; rock salt, 36%; vacuum pan, 9%; and solar salt, 8%.

Salt for highway deicing consumed about 41% of total salt sales. The chemical industry accounted for about 39% with salt in brine representing about 94% of the type of salt used for feedstock. The chlorine and caustic soda manufacturing sector was the main consumer within the chemical industry. The remaining markets for salt, in declining order, were distributors, 8%; food processing, 4%, agricultural, 3%; general industrial and other uses combined with exports, 2% each; and primary water treatment, 1%.

| Salient Statistics—United States:[1] | 2008 | 2009 | 2010 | 2011 | 2012[e] |
|---|---|---|---|---|---|
| Production | 48,000 | 46,000 | 43,300 | 45,000 | 40,200 |
| Sold or used by producers[2] | 47,400 | 43,100 | 43,500 | 45,500 | 40,200 |
| Imports for consumption | 13,800 | 14,700 | 12,900 | 13,800 | 10,500 |
| Exports | 1,030 | 1,450 | 595 | 846 | 1,000 |
| Consumption: | | | | | |
| Reported | 53,100 | 45,000 | 48,600 | 47,600 | 49,700 |
| Apparent[2] | 60,200 | 56,400 | 55,800 | 58,500 | 49,700 |
| Price, average value of bulk, pellets and packaged salt, dollars per ton, f.o.b. mine and plant: | | | | | |
| Vacuum and open pan salt | 158.59 | 178.67 | 180.08 | 174.00 | 175.00 |
| Solar salt | 64.33 | 72.09 | 57.41 | 51.11 | 50.00 |
| Rock salt | 31.39 | 36.08 | 35.67 | 38.29 | 36.00 |
| Salt in brine | 7.99 | 7.85 | 7.49 | 8.15 | 8.00 |
| Employment, mine and plant, number[e] | 4,100 | 4,100 | 4,100 | 4,100 | 4,100 |
| Net import reliance[3] as a percentage of apparent consumption | 21 | 24 | 22 | 22 | 19 |

**Recycling:** None.

**Import Sources (2008–11):** Canada, 37%; Chile, 36%; Mexico, 9%; The Bahamas, 5%; and other, 13%.

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

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

**Government Stockpile:** None.

**Events, Trends, and Issues:** The 2011–12 winter was relatively mild nationwide. Many municipalities and local and State transportation departments reported an overabundance of rock salt inventories. As a result, rock salt production and imports in 2012 were substantially less than the previous year. Many contracts between the salt supplier and the consumer require that the customer must take delivery of at least 80 percent of its order, thereby adding additional salt to overfilled storage facilities. Because of the low demand for deicing salt, a few salt companies were forced to temporarily lay off many of their mine workers.

A Japanese company developed a lamp for camping or emergency uses that is powered by saltwater. The light-emitting-diode lantern uses salt dissolved in water as an electrolyte with a set of magnesium and carbon rods that serve as the positive and negative electrodes. The lantern produces enough illumination for 8 hours. The magnesium rod is good for about 120 hours of use but replacement rods can be purchased separately.

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The National Aeronautics and Space Administration (NASA) launched its Aquarius instrument on a satellite in June 2011. Since then, NASA produced the first global map of the salinity of the Earth's ocean surface to measure salinity variations and their connections between global rainfall, ocean currents, and climate variations. The data showed higher salinity in the subtropics and lower salinity in the equatorial rain belts. The salinity changes are linked to the influence of freshwater around the planet on ocean circulation. Many scientists have been studying global weather changes using a network of 3,000 floating sensors, called Argo. The Argo Ocean Profiling Network collects data from different depths including changes in salinity by measuring the electrical conductance of the seawater. The researchers have reported a 4 percent increase in the overall salinity of the oceans over the last half of the 20th century, and global ocean surface temperatures rising 0.5 degrees Celsius (0.9 degrees Farenheit).

The majority of local and State governments reportedly have ample supplies of rock salt for the winter of 2012–13. However, many weather forecasters indicate that it may be very severe in many parts of the United States, and that could reduce the deicing salt inventories substantially. It is anticipated that the domestic salt industry will be able to provide adequate salt supplies from domestic and foreign sources for emergency use in the event of adverse winter weather.

**World Production and Reserves:**

| | Production | | Reserves[4] |
|---|---|---|---|
| | 2011 | 2012[e] | |
| United States[1] | 45,000 | 40,200 | Large. Economic and subeconomic deposits of salt are substantial in principal salt-producing countries. The oceans contain a virtually inexhaustible supply of salt. |
| Australia | 11,700 | 11,700 | |
| Bahamas, The | 10,000 | 10,000 | |
| Brazil | 7,020 | 7,100 | |
| Canada | 12,600 | 11,000 | |
| Chile | 9,970 | 9,500 | |
| China | 72,000 | 73,000 | |
| France | 6,100 | 6,100 | |
| Germany | 18,800 | 18,500 | |
| India | 17,000 | 17,000 | |
| Mexico | 8,810 | 8,800 | |
| Netherlands | 5,000 | 5,000 | |
| Poland | 3,740 | 3,900 | |
| Spain | 4,350 | 4,400 | |
| Turkey | 4,000 | 3,000 | |
| Ukraine | 4,900 | 5,900 | |
| United Kingdom | 5,800 | 5,800 | |
| Other countries | 39,300 | 39,000 | |
| World total (rounded) | 286,000 | 280,000 | |

**World Resources:** World continental resources of salt are practically unlimited, and the salt content in the oceans is virtually inexhaustible. Domestic resources of rock salt and salt from brine are in the Northeast, Central Western, and 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.

[e]Estimated.

[1]Excludes Puerto Rico production.

[2]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.

[3]Defined as imports – exports + adjustments for Government and industry stock changes.

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