

Brines. Salt is recovered from brine by evaporation. The methods employed may be classed into two groups; first, evaporation by means of the wind and the heat of the sun, called *solar evaporation*; second, by means of artificial heat, *artificial evaporation*.

Natural brines are usually subjected to solar evaporation. This method is only economically applicable in localities where there are regular, continuous seasons of little or no rainfall. Solar evaporation may be used alone or simply for the purpose of concentrating the brine to a certain degree, to be followed by artificial evaporation as the last step in the recovery of the salt. This first concentration is sometimes accomplished by freezing. Ice is allowed to form on the surface of the brine and then broken and removed. Since the ice in forming releases the salt contained in that portion of the water it leaves the balance of the brine more nearly saturated. This method may be used in cold countries in preparing weak brines for artificial evaporation.

Artificial evaporation is accomplished by means of artificial heat either directly applied to the vessels containing the brine or indirectly by means of steam. In some processes the evaporation is effected in open vessels, while in other processes closed vessels are used and the evaporation aided by means of a partial vacuum.

The solar evaporation being the slowest, produces a very coarsely crystalline grade of salt, while the process involving the use of the partial vacuum is rapid and gives a very finely crystalline product.

Brines are very liable to contain impurities such as calcium sulphate and carbonate, magnesium chloride and sulphate, potassium chloride, as well as bromides and iodides, in such proportions as to render the salt unfit for many purposes unless means be taken to prevent them from being deposited from the brine along with the salt. This may be accomplished by taking advantage of the different degrees of solubility of these various compounds. The compounds having a lower degree of solubility than the salt will be precipitated first, then the salt, and finally the compounds of higher degrees of solubility. With