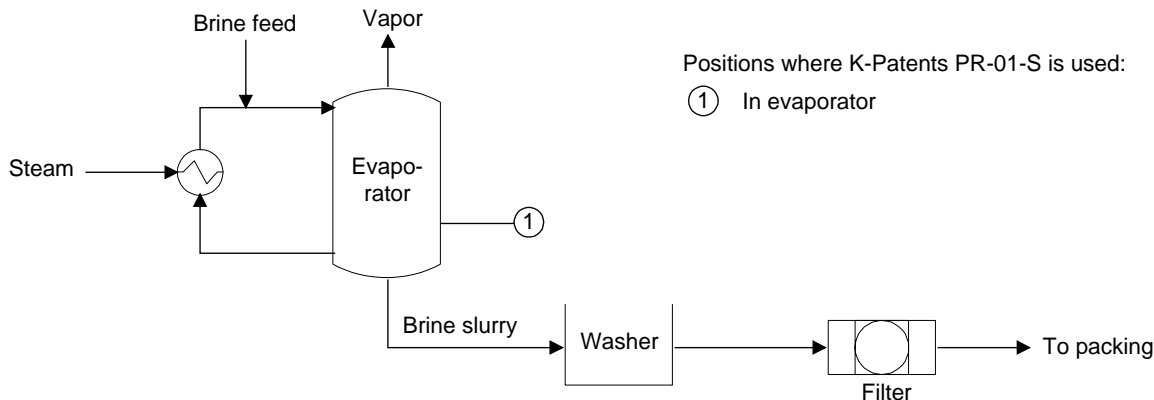


Sulphate in Brine / Salt Production



Sodium Sulphate (Na₂SO₄)

Soluble in brine

Introduction

Sodium chloride (NaCl) or common table salt, is a colourless crystalline solid soluble in water. A solution of dissolved salt in water is called brine.

Sodium chloride occurs as rock salt in nature, in natural brines and sea water. Rock salt deposits are located mainly in the USA.

The largest use of salt (in the form of brine) is in the electrolytic production of chlorine. In food industry salt is used as food flavour agent, for preservatives and as a colour developer.

Application

Salt is obtained in three different ways; solar evaporation of sea-water, mining of rock salt and from well brines (solution mining).

For special brine grades for food or chemical use, pretreatment of brine solution may be required to remove calciums. The main impurity left in the saturated brine feed is the dissolved sodium sulphate (Na₂SO₄).

The saturated brine solution is recycled through an heat exchanger in a crystallizing evaporator. By adding heat, the saturated brine solution starts to crystallize and is at the same time evaporated.

If the brine solution is heated too much, a larger amount of sodium sulphate will crystallize as well. This makes the salt impure. It is essential to know the amount of sulphate in brine to achieve quality salt and fast production.

The salt-brine slurry is then further washed and dried in a filter, before packing.

Installation

K-Patents Process Refractometer, PR-01-S measures the amount of the sulphate in brine in the crystallizing evaporator. By measuring the amount of the impurity, the crystallization process can be better controlled, thus giving purer salt and shorter production times.

Typical measurement ranges are 0-30g/l (0-0,25 lb/gal) sulphate in brine. Common temperatures are 40-60°C (104-140°F).