

## Aspects of Chemical Brine Treatment for Salt Production Processes

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### Abstract

In some cases of cavern leaching it is neither feasible nor economic to dispose of the raw brine. In such cases the raw brine can be used to manufacture salt.

In order to eliminate the liquid purge from the cavern leaching and salt production processes a very efficient chemical raw brine treatment and salt crystallization process can be utilized which produces practically no liquid purge.

This article introduces a brine purification process based on caustic and soda as well as a modified process utilizing  $\text{Ca}(\text{OH})_2$ , soda and flue gas ( $\text{CO}_2$ ). It will also be shown that there is an economical threshold for designing the process depending upon the sulfate content of the raw brine.

Furthermore, the practice of recycling the mother liquor from the evaporation process to the brine purification plant will be explained and it will be shown that a solution for brine processing can be found to practically eliminate liquid discharge as well as to handle raw brines with low sulfate content.

**Key words:** Brine Chemistry, Brine Disposal, Brine Purification, Salt Processing, Salt Properties