



CASE STUDY

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# Controlling the formation of undesirable crystals during evaporation by using a Supressed Boiling Evaporator



# Control on crystal type using Supressed Boiling Evaporator

Case Study | Speciality Chemicals Industry

A customer wanted to remove a large quantity of water by evaporation for a crystallization application. The salts while being thrown out from mother liquor would scale the heat transfer surface. The salts also had a tendency to form an undesired crystal form if the supersaturation was not controlled.

**Laboratory studies** and data from the customer provided an insight on the conditions which lead to the undesired morph formation. Based on these insights, a trial plan was established for a **Supressed Boiling Evaporator (SBE)**. The plan specified the evaporation rate to ensure that it was in line with the crystal growth rate and also the right moment for seeding. The suppressed boiling by suitable hydraulic head shifts the boiling from tubes to the separator and minimises the scaling of the tubes.

Trials were conducted over several days in the suppressed boiling evaporator in the **Technoforce pilot plant**. A method was established to accurately predict the product concentration which enabled the operators to identify the right moment for seeding. The controlled evaporation rate ensured crystallization path to remain in the safe zone. Thus, the formation of the undesired form of crystals was kept under control.

Since SBE, in multiple effect configuration, can be scaled up for large capacities with minimum energy use, it provides the right solution for such applications.

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## Our Expertise

Evaporation

Drying

High Vacuum Distillation

Extraction

Crystallization

Zero Discharge Systems

**TECHNOFORCE™**



**Improved Purity**  
of crystals



**70 %**  
Less energy required