

Is it possible to use a forced circulation evaporation process for aluminum sulfate?

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Is it possible to use a forced circulation evaporation process for [aluminum sulfate](#)? The answer is yes. Aluminum sulfate may be suitable for the forced circulation evaporation process.

Traditional aluminum sulfate evaporation and crystallization technology generally use a single-effect evaporator for atmospheric evaporation and concentration. The system has low evaporation intensity, high operating costs, and a poor operating environment.

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Using continuous feeding, continuous discharging, and countercurrent evaporation processes, the high-concentration concentrated liquid is discharged at the first effect and high temperature, ensuring the discharge concentration of aluminum sulfate, and will not precipitate solid aluminum sulfate due to low-temperature discharge. The dilute solution is advanced to the first-effect evaporator. After evaporation, it enters the second and third-effect evaporators in sequence. The concentrated liquid is discharged from the third effect and then enters the subsequent cooling and flaking section and the salt discharging section after discharging.

The raw steam enters the heating chamber of the first-effect evaporator in sequence, and the condensed water is discharged after heat exchange and condensation and can be returned to the boiler for use. The secondary steam generated by the evaporation of the

first-effect separation chamber enters the shell side of the second-effect heating chamber, and the condensate after condensing and heat exchange enters the third-effect jacket for flash evaporation and is mixed and discharged with the secondary steam condensate from the second-effect. The secondary steam evaporated by the three-effect is condensed and then discharged for the material chemical process. The use of condensed hydrating material can further reduce the content of calcium and magnesium ions in the solution and [reduce the scaling of the pipe wall](#).

Aluminum sulfate solution is highly corrosive. To improve the service life of the equipment, the main material of the evaporator is titanium, and the negative pressure low-temperature evaporation is adopted. The operating temperature is below 120°, which can effectively reduce the corrosion of the equipment.

In the production process of aluminum sulfate, evaporation and crystallization are indispensable, which is a relatively important step in the production of finished products. Aluminum sulfate is a more suitable choice for using the three-effect forced circulation evaporation process for evaporation and crystallization.



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