

Description:

The crystallization trainer is a bench-scale plant that demonstrates batch or crystallization from a solution of water saturated with a salt. The process is equipped with instrumentation to provide for control of operating temperature. A saturated, high temperature solution passes from the mix tank into a jacketed vessel with controlled temperature and cooling rates



Learning / teaching material provided

Including instructor notes, student exercises modules and service manuals.

Equipment Specification Highlights:

- See-through acrylic pre-mix tank - approximate working volume 5 to 7 liters
- Electric immersion heater circulator in mix tank
- See-through acrylic crystallizer vessel
 - Vessel bottom sloped for drainage
 - Electric mixerapproximate working volume 3 liters
- Integrated heater/cooler/temperature control/pump (bath) used to provide jacket water
- Complete cart-mounted unit with integral support structure
 - Demonstrator is portable subject to room/door height and access to electrical power.



Approximate overall dimensions
600 x 1300 x 1555 mm

Function:

This trainer consists of four main sections:

1. An acrylic mixing tank for the preparation of a heated salt/water solution with a digitally controlled immersion heater.
2. A jacketed crystallizer vessel of see-through acrylic material which allows visual observation of the crystal formation process. Vessel temperature is controlled with circulating jacket water.
3. The jacket water will be supplied from temperature bath with a digitally controlled immersion heater and internal circulation pump. A cooling coil will use cold tap water to provide a controlled cooling rate.
4. Temperature control is from the digitally controlled immersion heaters.

Control

The Crystallizer trainer will be controlled by a small PLC allowing the students to measure and record the temperature and flow rates. The students will start up, control and shut down the process operating it from an HMI. Options are available to provide signals to interface to existing client data acquisition systems or a lap top computer.

Students gain a real practical and theoretical understanding of the Crystallization process learning about temperature/solubility of salt in an aqueous solution.