

Unistat® 1005w

Controlling an Asahi triple wall reactor to -90 °C

Requirement

This case study demonstrates the ability of the Unistat 1005w to control exactly the contents of an Asahi vacuum insulated 10-litre reactor at -90 °C

Method

The reactor was connected to the Unistat 1005w using two 2-metre flexible insulated metal hoses. The HTF used was "Kryothermal S", a dedicated low temperature HTF with a minimum operational temperature of -120 °C.

Results

From 20 °C a new set-point of -90 °C is entered. The jacket temperature cools to -112 °C bringing the process to -90 °C in approximately 75-minutes. The jacket temperature adjusts

and holds the contents of the reactor exactly at -90 °C before a new set-point is entered to return the process to 20 °C.

Setup details

- Temperature range: -120...100 °C
- Cooling power: 1.5 kW @ 100...-40 °C
1.4 kW @ -60... -80 °C
1.0 kW @ -100°C
- Heating power: 2.0 kW
- Hoses: 2 x2 m; M30x1.5 (#6386)
- HTF: Kryothermal S
- Reactor: 10-litre insulated jacketed glass pressure reactor
- Reactor content: 10 litre M90.055.03
- Stirrer speed: ~ 200 rpm
- Control: process

