



Unistat® 1005w

Controlling an Asahi 10-litre triple wall reactor

Requirement

This case study demonstrates the ability of the Unistat 1005w to cool the contents of an Asahi vacuum insulated 10-litre reactor to -100 °C.

Method

The Asahi reactor was connected to the Unistat 1005w using two M30 x 1.5 2-meter insulated metal flexible hoses. The HTF used was "Kryothermal S", a dedicated low temperature HTF with a minimum operating temperature of -120 °C.

Results

Once stable at 20 °C under "Process" control, a set-point of -50 °C is entered. The jacket rapidly cools to approximately -68 °C to pull the process to -50 °C in approximately 1-hour.

The second curve shows the process stable at 20 °C before a new set-point of -100 °C is entered. Again the jacket rapidly cools to -116 °C pulling the process to -100 °C in just over 1.5 hours

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 x 2 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

