

Unistat® 510w

Cooling a Chemglass 50-litre jacketed glass reactor from 20 °C to 0 °C

Requirement

This case study examines the response time when the process set-point is changed from 20 °C to 0 °C in a Chemglass 50-litre jacketed glass reactor.

Method

The Unistat and reactor were connected using two 1.5 m insulated metal hoses. The reactor was filled with 37 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results

It can be seen that the jacket temperature ramps at an average rate of 2.4 K/min. to reach -29 °C within 20 minutes before ramping back up to guide the process temperature exactly to its new set-point with negligible under-shoot within 25 minutes.

Setup details

Unistat® 510w & Chemglass 50-litre reactor

Temperature range:	-50...250 °C
Cooling power:	5.3 kW @ 250 °C ... 0 °C 2.8 kW @ -20 °C 0.9 kW @ -40 °C
Heating power:	6.0 kW
Hoses:	2x1.5 m; M38x1.5 (#6659)
HTF:	DW-Therm (#6479)
Reactor:	50-litre Chemjacketed glass reactor (un-insulated)
Reactor content:	37 litre M90.055.03 (#6259)
Stirrer speed:	80 rpm
Control:	process

