Ministat® 240

Ministat® 240 cycling a 1-liter Chemglass reactor

Requirement
This case study shows the lowest achievable process temperature and the control of a Ministat 240 connected to a Chemglass 1-liter glass jacketed reactor from a process temperature of +20°C to +100°C then down to -20°C and back to +20°C.

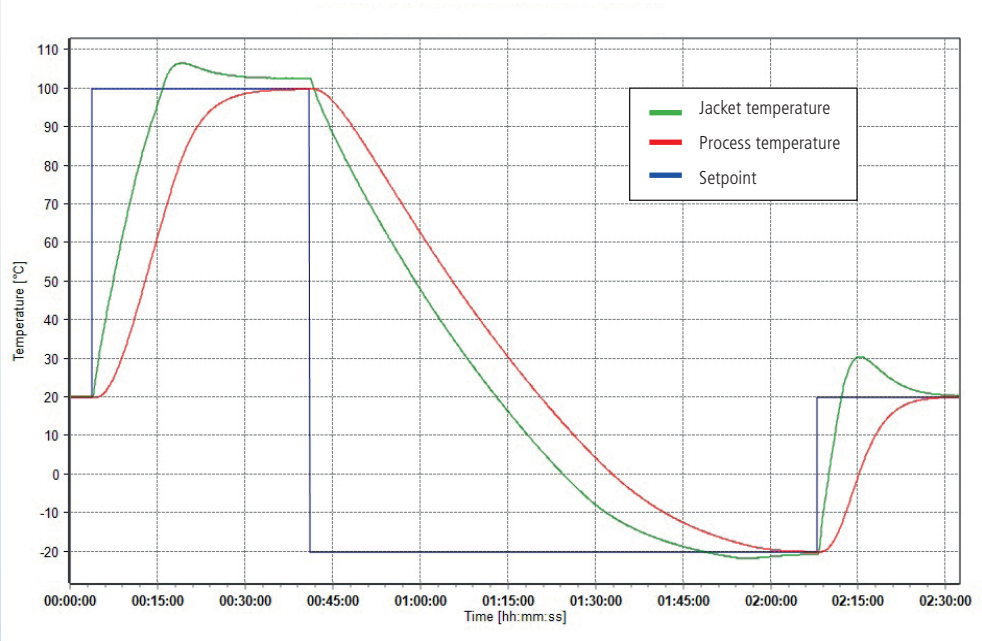
Method
The Chemglass 1-liter glass jacketed reactor was connected to Ministat® 240 using two 1-meter metal insulated hoses. The thermofluid used in the system was "M60.115/200.05". "Process" control was carried out via a Pt100 sensor located in the "process" mass. Stirrer speed was set to 130 rpm.

Setup details

Temperature range:	-45°C...+200°C
Cooling power:	0.60 kW @ +20°C 0.55 kW @ 0°C 0.35 kW @ -20°C
Heating power:	2.0 kW
Hoses:	2*1 m
HTF:	M60.115/200.05
Reactor:	Chemglass 1-liter glass jacketed reactor
Reactor content:	850mL M60.115/200.05
Stirrer speed:	130 rpm
Control:	process
Amb. temperature:	+25°C

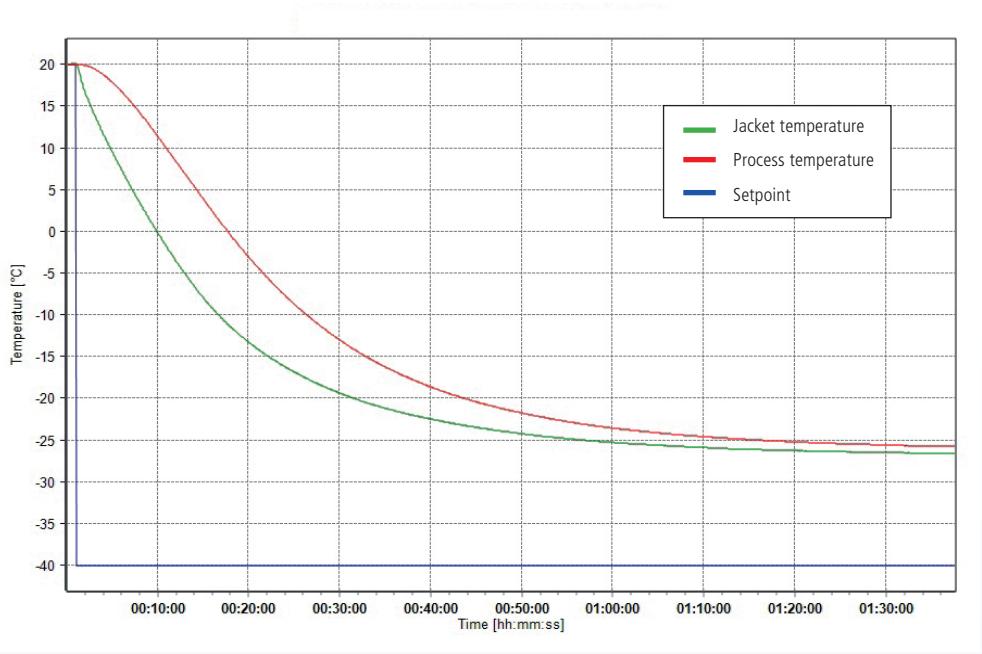
Results

1. Performance:
Cooling down and heating up in a range from +100°C to -20°C.
The Ministat® 240 needs 30 minutes to heat up the reactor from +20°C to +100°C, then 83 minutes to cool down the reactor from +100°C to -20°C and 20 minutes to heat the reactor once more up from -20°C to +20°C.



Version: 6/2020

2. Lowest achievable temperature (Tmin):
Once stable at +20°C under the "Process" control, a set point of -40°C is entered. The graphic shows that the lowest temperature achieved in a 1-liter Chemglass jacketed reactor was -25.5°C.



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