Setup details
Unistat® 510w & Chemglass 50-litre reactor

Temperature range:	-50...250 °C
Cooling power:	5.3 kW @ 250...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

Unistat® 510w

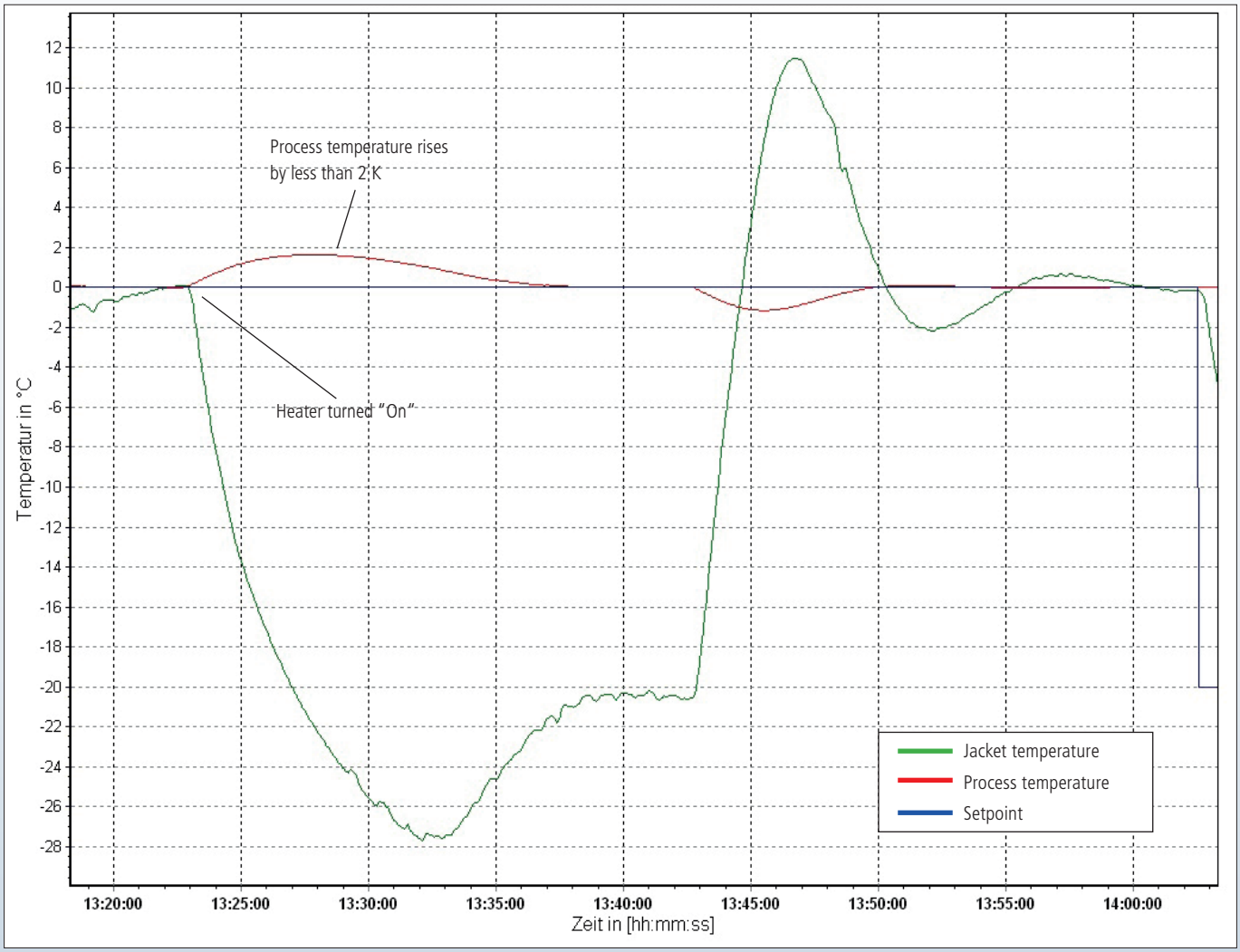
Controlling simulated exothermic reactions within a Chemglass 50-litre glass reactor

Requirement
This case study shows the effectiveness of a Unistat 510w connected to a 50-litre reactor in the control of a three simulated exothermic reactions of differing strengths at 0 °C and 20 °C generated by an electric immersion heater.

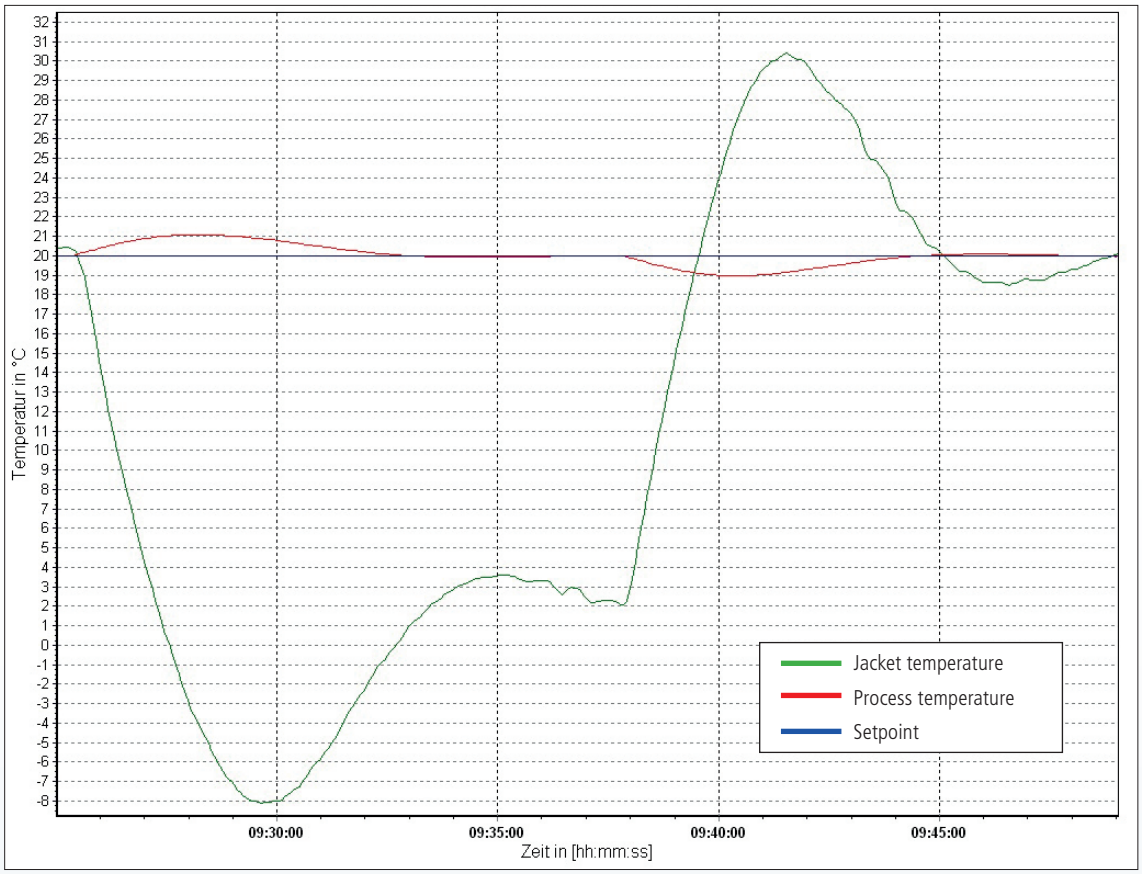
Method
The Unistat and reactor were connected using two 1.5 m insulated metal hoses. The reactor was filled with 37 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results
Once the "reaction" was under steady control the heater was turned "Off".
It can be seen how rapidly the ΔT between the process and jacket is increased to "suck" the thermal energy from the process to restore and maintain the process temperature set-point. The results can be viewed in the following graphics.

1. Simulated exothermic of 600 W at 0 °C



2. Simulated exothermic of 600 W at 20 °C



3. Simulated exothermic of 900 W at 20 °C