



Setup details

Unistat® 425 & DDPS reactor

- Temperature range: -40...250 °C
- Cooling power: 2.5 kW @ 0 °C
1.8 kW @ -20 °C
- Heating power: 2.0 kW
- Hoses: 2x1 m; M24x1.5 (#9325)
- HTF: DW-Therm (#6479)
- Reactor: 2-litre jacketed glass reactor
- Reactor content: 1.5 litre M90.055.03 (#6259)
- Stirrer speed: 150 rpm
- Control: process

Unistat® 425

Heating and cooling a 2-litre jacketed glass reactor under differing control dynamics

Requirement

A standard feature of the "Unistat-Pilot Controller" is to choose "fast, small overshoot" or "without overshoot" when reaching a set-point.

The graphic shows the differences in performance between these settings. In this test the Unistat 425 is programmed to alternate between 20 °C and 60 °C.

Method

The Unistat 425 is connected to the 2-litre DDPS glass reactor using two insulated metal 1-metre hoses. The reactor is filled with 1.5 litre of "M90.055.03", a silicon based HTF.

Results

The first process curve (fast, small overshoot) reaches 60 °C in just 14 minutes with the second process curve (without overshoot) takes 24 minutes to reach the set-point. It can be seen that the overshoot is minimal in the "fast, small overshoot" mode.

