

## Unistat® 705w

**Cycling a Radleys 2-litre "Reactor-Ready" between 20 °C and 240 °C**

### Requirement

Unistats operate over a wide temperature range without the necessity to change the HTF and as they are hydraulically sealed there are no vapours, no oil residue, odour or degradation of the HTF due to oxidation at high temperatures.

This case study demonstrates the ability of a Unistat 705w to heat the process to 240 °C and then cool it back to 20 °C.

### Method

The reactor was filled with 1.5 litre of "P20.275.50" as a thermal load, the stirrer set to 250rpm and the control to "Process". The results were recorded on the Huber "Spyware" software.

### Results

It can be seen from the graphic that the ramp time from 20 °C to 240 °C takes approximately 45 minutes with the jacket temperature reaching 250 °C before cooling to guide the process temperature exactly to the set point of 240 °C. The cool down back to 20 °C is just as controlled and precise.

The repeated cycling of the temperature through this case study clearly demonstrates the extreme possibilities of the Unistat technology to precisely control temperatures over wide ranges.

### Setup details

Unistat® 705w & Radleys 2-litre "Reactor-Ready" glass reactor

Temperature range: -70...250 °C  
 Cooling power: 0.6 kW @ -20 °C  
 0.6 kW @ -40 °C  
 0.3 kW @ -60 °C

Heating power: 1.5 kW / 3 kW  
 Pump speed: 3500 rpm  
 Hoses: 2x1 m; M24x1.5 (#9325)  
 HTF: SilOil P20.275.50 (#6157)

Reactor: 2-litre vacuum jacketed glass reactor

Reactor contents: 1.5 litre P20.275.50 (#6259)

Reactor stirrer speed: 250 rpm  
 Control: process

