



Setup details

Ministat® 125-cc®-NR & Radleys 10-litre jacketed reactor

Temperature range: -25...150 °C
 Cooling power: 0.21 kW @ 0 °C
 0.05 kW @ -20 °C

Heating power: 1 kW
 Pump speed: 4500 rpm
 Hoses: 2x1 m; M16x1 (#9608)
 HTF: M40.165.10 (#6164)
 Reactor: 10-litre jacketed glass reactor

Reactor contents: 8 litre P20.275.50 (#6158)

Reactor stirrer speed: 160 rpm
 Control: process



Ministat® 125-cc®-NR

Cooling an un-insulated Radleys 10-litre glass jacketed reactor to T_{min}

Requirement

The Ministat range comprises of three models of which the Ministat 125-cc-NR has the lowest power. Typically designed for reactors up to 5 litre, this case study shows how the Ministat performs on a comparatively large load.

Method

The reactor was filled with 8 litre of P20.275.50 as a thermal load. The control was set to "Process" and the stirrer speed was set to 160 rpm. The results were recorded using the Huber "Spy-Light" software. The HTF (Heat Transfer Fluid) used was M40.165.10.

Results

It can be seen from the graphic that the comparatively low powered Ministat 125-cc-NR ramps gradually down reaching a minimum temperature of approximately -3.9 °C with a corresponding process temperature of just below -2 °C. This demonstrates the remarkable ability of the small Ministat 125-cc-NR to cool a 10-litre uninsulated reactor well enough for batch temperatures of 0 °C.

Despite the relatively small size of the Ministat for a 10-litre reactor, the closeness of control can be seen at the end of the heat up curve with the process temperature stabilising quickly at 20 °C.

