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 contents: 1.5 litre M90.055.03
                     (#6259)
Reactor stirrer speed: 150 rpm
Control: internal

Unistat® 425

Cooling a DDPS 2-litre jacketed glass reactor to T_{min}

Requirement
This case study is to find out the minimum temperature that a Unistat 425 can cool the jacket of a 2-litre jacketed glass reactor and the resultant process temperature.

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 jacket is cooled to -40 °C in around 33 minutes. The process temperature ramp rate slows as the ΔT narrows and has reached -39 °C when the test is stopped.

Jacket temperature ramps at 4 K/min.

Process temperature ramps at 2.3 K/min.

Legend:
— Jacket temperature
— Process temperature
— Setpoint

Technical details and dimensions are subject to change. No liability is accepted for errors or ommisions.