



Setup details

Unistat® 910w & DDPS reactor

Temperature range:	-90...250 °C
Cooling power:	4.7 kW @ -40 °C 3.1 kW @ -60 °C 0.9 kW @ -80 °C
Heating power:	6.0 kW
Hoses:	2x1.5 m; M38x1.5 (#6656)
HTF:	DW-Therm (#6479)
Reactor:	25-litre vacuum insulated jacketed glass reactor
Reactor content:	18.75 litre M90.055.03 (#6259)
Stirrer speed:	70 rpm
Control:	process

Unistat® 910w

Cooling a DDPS 25-litre jacketed glass reactor to T_{min}

Requirement

The graphic shows the performance of a Unistat 910w cooling a DDPS 25-litre vacuum insulated jacketed glass reactor to " T_{min} " under process control from 20 °C to -90 °C.

Method

The Unistat and reactor are connected using two 1.5-metre insulated metal hoses. The reactor is filled with 18.75 litre of "M90.055.03", a Huber supplied silicon based HTF.

Results

The „internal“ (jacket) temperature cools to -65 °C in just 15 minutes in order to pull the process to the lowest possible temperature. The reactor is un-insulated and because of high losses the cooling rate asymptotes early with the „internal“ (jacket) temperature going no lower than -82 °C during the 2-hour test with a corresponding process " T_{min} " of -75 °C.

