

Barrel Cooling Tests: Procedure, Configuration 1

1. Sub-cooling, Water flow, Evaporative rig instrumentation and the PT100 DAQ are switched on.
2. The two data-logging systems (Evaporative Rig & Scanner system) are started and the time noted.
3. The PT100 DAQ is operated for 30 minutes with all staves at room temperature (no evaporative cooling, no environmental cooling).
4. The environmental cooling is started and allowed to stabilize via monitoring of the dew point and temperature.
5. The heat load is applied across all 4 rows at relevant settings for the desired test. See Barrel Cooling Tests: Outline and Schedule.
6. The Evaporative Rig is adjusted to bring the coolant temperature (ie the temperature immediately post capillary) to -24°C (102J/g).
7. The power supply settings are checked and adjusted to the cold resistance.
8. The rig is monitored until the outlet pressures, sub-cooling temperature (if applicable) and main exhaust temperature appeared constant.
9. The experiment record sheet is filled in and the first data set recorded.
10. Data consisted of thermal images stored of the manifold area, instrumented cooling blocks, point temperature measurements on the inlet/exhaust manifold, dew point, mass flow etc. (see record sheet)
11. The thermal imaging data is recorded at 10-minute intervals.
12. The PSU status was checked each time that data was taken.
13. NO frost must be present on the exhaust leading up to the mass flow meter as this renders the measurement useless. This can also damage the meter. In this situation the rig will be readjusted, allowed to stabilize and then the data run will begin again.
14. At the start and finish of each test the reference resistance should be recorded.