MPMS Test

Subject: Test of the impedance capillary on Quantum Design's MPMS.

This is a short test whether the capillary which connects the Dewar and the cooling annulus of the Quantum Design MPMS is blocked. It also tests the vacuum sleeve of the capillary inlet and the heaters which are controlling the flow of Helium from the Dewar to the cooling annulus. The only tool needed is the gas-flow meter connected to the outlet of the vacuum pump.

1. Set some temperature above 100K and wait for stabilization. (Note: ANY temperature above 100K is suitable for the test, if you system is at room temperature, perform the test at 300K) After 5 min record the flow rate through the vacuum pump:

    flow rate: _____ cc/min

2. Open the "Chamber/Gas Control Diagnostics" Window (Menu "Utilities -> Diagnostics -> Chamber...").

3. !!!! IMPORTANT !!!! In order not to damage the isolation vacuum by local overheating during this test the system should be set to "Standby Mode" after the temperature requested in p. 1 were reached stable and the flow rate were recorded!
(Menu "Instrument" -> Standby -> yes)

4. Click to the High-Button in the Impedance Heater part of that window and press the associated "Set"-Button. Then **wait for 60 seconds**.

5. Open the cooling valve (valves-part of that Window; change the setting to "Open" and press the "Set"-Button. Then record the flow rates after 3, 5 and 10 minutes:

    3 min: _____cc/min
    5 min: _____cc/min
    10min: _____cc/min

6. Leave the cooling valve open, reset your time and set the impedance heater to off (press "OFF" and then "SET"). Record the time when the flow exceeds 500cc/min and the flow rate the system finally gets (this can take up to 20 min of time).

    time for 500cc/min: _____min,
    final flow rate: _____l/min

7. Close the "Chamber/Gas Control Diagnostic"-Window and set any temperature. This allows the software to take control over the temperature regulation and to switch valves and heaters as needed for automatic temperature control.

Please NOTE during this test the temperature will not be stable.

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