



PPMS EverCool II Service Note 1099-411

Sample Chamber Flooding: How to Lower the Consumption of Helium Gas

Introduction

Sample Chamber operations for the PPMS can be a source of wasted helium gas if not used with caution. If you are running MultiVu version 1.5.3.0 (released April 2011) or higher then a change in the Ever Cool II initialization file might be set to curb helium usage in your system.

I. Troubleshooting

During Sample Chamber “Vent” and “Flooding” operations helium gas is used to create a positive flow of helium gas past the Sample Chamber opening so that little or no air is cryopumped in the cold regions (such as the neck) of the Sample Chamber. These operations are typically used in installation wizards when removing a puck or a Sample rod from the sample space.

If your PPMS EverCool II system uses several gas bottles (standard A- size compressed helium gas cylinder) per month or your liquid helium level in the Dewar is often above 90%, it may indicate that an excessive amount of time is spent with the chamber in the “Flooding” state.

II. Changing the EverCool.ini File

1. Make sure the Sample Chamber is purged and sealed with either the top flange or preferably the baffle set in place.



WARNING!!

Please do not set the system in Standby mode without the Baffle Set or Sample Chamber flange installed. This could result in air cryopumping and water condensing on cold surfaces inside the Sample Chamber.

2. Set the system in Standby mode from MultiVu by clicking Instrument → Shutdown → click OK.
3. Exit MultiVu.
4. Navigate to C:\QDPpms\Evercool\PpmsEvercool.ini and open the file in NotePad. Figure 1 shows the first five lines of the PpmsEvercool.ini file. The parameter that will need to be changed to limit the amount of time the Sample Chamber is allowed to “Vent” is called Max_Chamber_Vent_Minutes. This parameter is initially set to 0, which means that there is no limit on the vent time.

```
[Evercool]
Vane_Pump_Output_Clean=0
Pump_Clean_Timer=8121.294000
Shutdown_Time=1316650292.231000
Max_Chamber_Vent_Minutes=0
```

Figure 1. First 5 lines of the PpmsEvercool.ini file

5. To limit the amount time that the Sample Chamber is allowed to “Vent” to 5 minutes change the 5th line of the PpmsEvercool.ini file to: Max_Chamber_Vent_Minutes=5.
6. Save the file and close NotePad.

III. Starting up the System

1. Re-start MultiVu by double clicking the MultiVu icon.
2. Set Sample Chamber temperature to 298K and wait for temperature stability.
3. Test that the Sample Chamber “Vent” will stop after five minutes: click the pull down menu “Instrument” → “Sample Chamber” and click on the “Vent” button.
4. Remove the Sample Chamber baffle set of top flange and verify that you can feel a positive flow of helium gas.
5. After five minutes check that the Sample Chamber status is back to “Sealed” and that no more helium flow can be felt on top of the Sample Chamber.

IV. Simple Precautions

- Do not “Vent” or “Flood” the Sample Chamber unless your system temperature is at 298K.
- Do not forget to replace the top Sample Chamber flange or Baffle Set.
- Do not put system in Standby mode without capping the Sample Chamber with a top flange or Baffle Set.