Operation of Vacuum Dessicator
July, 2006

Dear All,
I received a dessicator from Fisher Scientific today, connected it with vacuum pump, and now I am testing the performance and leak level. Once I checked the performance of this desiccator I will notify all of you once again (probably one week later?). Now the desicattor sysytem is placed close to our old desiccator at the left-side of our microscope. If you do not like the location please let me know your preference.

At first I need to explain about our pump, which is the least expensive one in the Cole-Parmer catalog ($165).
(a) The pump does not have power on/off switch! If you want to start/stop motor, simply plug/unplug it.
(b) The vacuum pump is designed for maximum vacuum of 20" (not 30"!). I believe this vacuum level is fine for our purpose.
(c) The motor will run fairly hot when operated, but this is normal.

Second, the desiccator is very expensive (~$800). Please pay your highest attention to keep the inside clean since it is made by acrylic resin!! If you wipe the surface of cabinet it with acetone, I believe the wiped part becomes white and ugly.
This desiccator has two valves: one is leak valve (right-side) that exhausts air within desiccator cabinet, and the other is vacuum valve (left-side) that is connected with pump. There is a pressure gauge on the top of the cabinet, and the door has 5 keys that is used to tightly close the door before starting vacuuming.

Below is the instruction manual for our vacuum desiccator system.
(1) Gereral status (when storing samples under vacuum condition): two valves are closed and the pump is not operated.
(2) How to open the desiccator: open the leak valve. After checking the vacuum gauge that reached to 0 MPa, open 5 keys on the front door and then open the door.
(3) How to vacuum the desiccator: Close the door, lock 5 keys, close the leak valve, start pump, and then open the vacuum valve. Once the pressure reached to 0.74 MPa (red mark porision on the vacuum gauge), close the vacuum valve softly (please do NOT tighten it hardly!) and then stop the pump. Now the status is identical with (1).

Note!! Please be aware that this vacuum desiccator system is not intended for degassing of epoxy resin. From my experience, it is so easy to contaminate inside of the cabinet by spilting/flooding of liquid epoxy during vacuuming. If we would like to use this system for such a purpose, I suggest to buy another less expensive desiccator (and a pump) that is used only for this purpose.

I believe this desiccator is very easy to use, and very useful to store our samples for a long time without use of silica gel.

Atsushi