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Burns Group Rotovap Standard Operating Procedure (SOP)

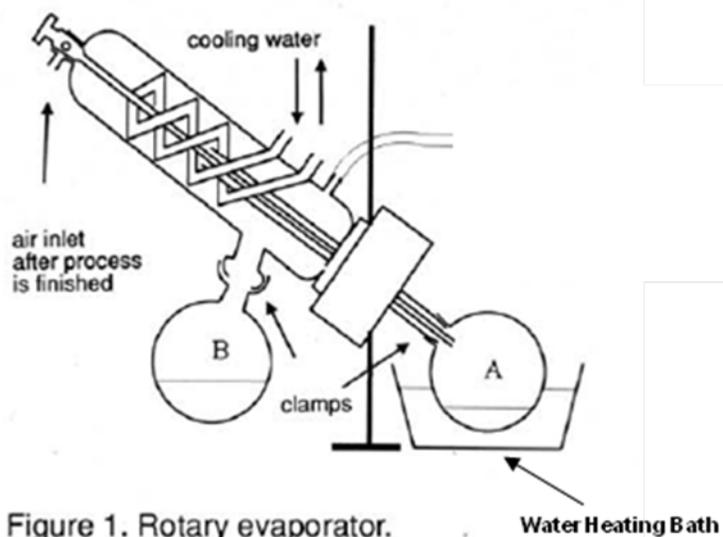


Figure 1. Rotary evaporator.



1. Turn chiller unit for rotovap condenser water on. Allow chiller to run for 5-10 minutes before you begin solvent removal on rotovap to allow water temperature to reach 10 °C in condenser.



chiller unit off



chiller unit on



CHILLER UNIT

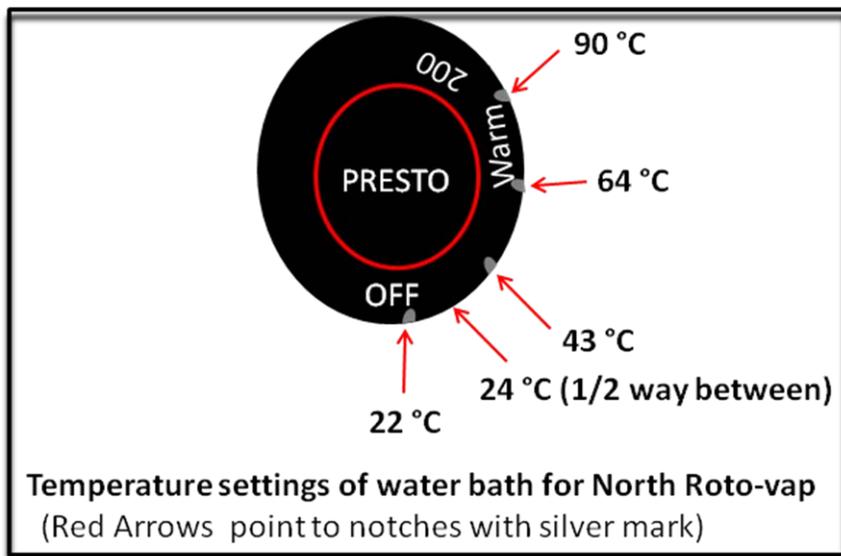
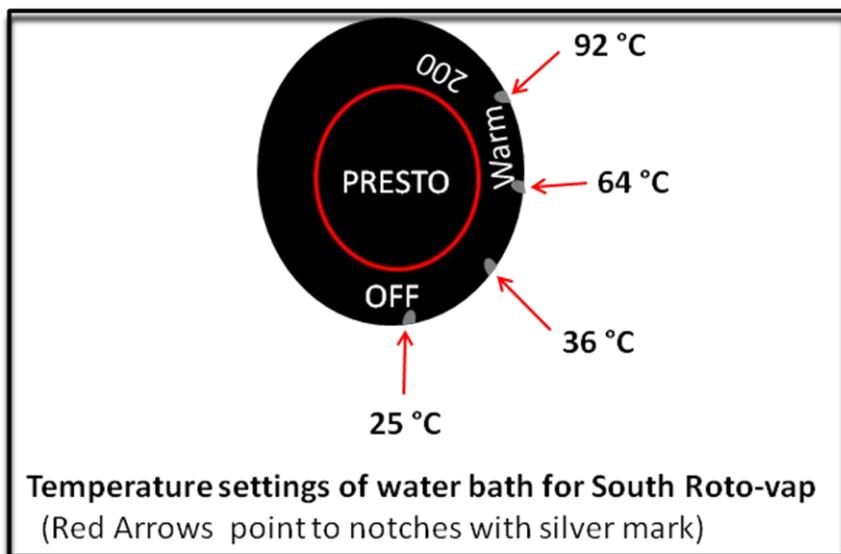
- Fill heating bath 2/3 to 4/5 of the way with DI water (depending on size of round bottom flask) and begin heating (via controller) to desired temperature (dependent upon boiling point of solvent). Monitor water temperature with thermometer.



Heating Bath
Temperature Control



Heating Bath and Thermometer



- Fill Ice/water bath under recovery flask B (used to cool the trap).



- Place ice and some water in dewar flask of secondary solvent trap that is located on the exhaust side of the Buchi V700 vacuum pump.



Dewar Flask/Secondary Solvent Trap



Buchi V700 Vacuum Pump

- Attach your round bottom flask (flask A in above diagram), **that is no more than half full (along with a bump trap whenever possible)**, to rotovap and begin to rotate the flask slowly.



- Cover the dewar opening of the secondary solvent trap with a Styrofoam cover .

Cover Opening on Secondary Trap



- Confirm that the bypass valve on the rotovap vacuum controller is open.
- Turn on the vacuum pump (by flipping the power switch on the V700) and open the needle valve of the vacuum line (in the middle of the lattice work on the island) to the rotovap.



V700 ON/OFF Switch

Rotovap Vacuum Controller



Bypass Valve

- Close the stopcock (on the top of the rotovap condenser) so that the rotovap is under vacuum.
- Once condensation is seen on round bottom flask A and cooling is evident, turn the bypass valve to the close position so that the bypass is shut off.

11. Raise Ice/water bath under recovery flask B so recovery flask is immersed in ice bath.



12. Slowly raise your heating bath to immerse round bottom flask A into heated water.



13. Let rotovap run until solvent is pulled off and product is dry. Make sure you see solvent condensing in the rotovap condenser and collecting in flask B.

14. If another portion is to be run, the first step is to lower the hot water bath and allow the round bottom flask to cool to room temperature while slowly rotating.

15. Once your flask A is at room temperature, the vacuum is released from the system by turning the stopcock, on the top of the rotovap, to open and the turning off the needle valve of the vacuum line.

16. The rotation is then stopped and the flask can be removed to be refilled (no more than one half full).

17. When reattaching the flask repeat from step 6.
18. When process is complete turn off vacuum first, then chiller water supply to rotovap condenser.
19. Lower ice/water bath under recovery flask B.
20. Remember to remove bump trap and recovery flask B to clean after use. Pour collected solvent in recovery flask B into the appropriate waste container.
21. Pour out ice baths from recovery flask and secondary solvent trap into the sink once you have finished with the roto-vap.
22. Remove the thermometer from the heating bath and allow the bath to cool to room temperature. Once the heating bath is at room temperature cover with glass cover to prevent water evaporation and prevent dust from getting into bath.

