# Procedure using HETOVAC VR-1

## Preparation and Start-Up

1. Ensure that the cooling trap chamber (CT 60e, the blue module at the bottom) is completely empty, clean, and dry.
2. Place the acrylic lid securely over the cooling trap chamber.
3. Make sure the drain valve (DRAIN) at the bottom is fully closed.
4. Turn on the refrigeration system of the trap by pressing the main power switch (MAINS). Allow the trap to reach its operating low temperature before proceeding.
5. Turn on the vacuum pump (the white and black module on the right) and let it warm up.
6. Open the lid of the Hetovac VR-1 (the top centrifuge unit) and load your samples into the rotor. Always ensure the rotor is perfectly balanced.

## Operating the Hetovac VR-1

7. Applying Vacuum: Open the vacuum valve very slowly. Opening it too quickly can cause sudden boiling (bumping), making your samples splash out of the tubes.
8. Open the lid of the Hetovac VR-1 (the top centrifuge unit) and load your samples into the rotor. Always ensure the rotor is perfectly balanced.
9. Close the transparent lid and start the rotor rotation by turning on the RUN switch.
10. The solvent will now evaporate from the samples, travel into the CT 60e trap where it freezes onto the walls, and the clean, dry air is drawn out by the vacuum pump.

## Shut-Down and Maintenance

1. Once the samples are completely dry, isolate the system by closing the main vacuum valve.
2. Slowly open the **bleed valve** on the Hetovac to break the vacuum, allowing the air pressure to equalize so you can safely open the lid.
3. Turn off the Hetovac rotor (**RUN** to OFF) and retrieve your samples.
4. Turn off the cooling trap refrigeration unit.
5. **Defrosting the Trap:** Let the accumulated ice inside the trap melt naturally, or accelerate the process by pouring warm water (maximum **50°C** / **122°F**) into the chamber. Open the **DRAIN** valve and place a container underneath the outlet spout to collect the waste solvent.