

Defrosting –20C Lab Freezers

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WHY?

-20C freezers must be defrosted periodically to maintain proper functionality. Lab freezers serve many people and projects over their lifespans, and some of those projects will inevitably be forgotten about and frozen onto the shelves if regular defrosting and inventory is not taking place. Defrosting and decluttering clears up valuable freezer space in the event of a neighboring freezer failure.

WHEN?

Best practice is to defrost a freezer when no more than ¼ - ½ inch of frost has accumulated, **OR** approximately once a year, **OR** when you no longer know what is in your freezer. Come up with a plan that works for your lab's freezer usage. The more frequently a freezer is opened, the more frequently it will need defrosting.

HOW?

1. **Set aside 2 days** when your lab group will be near the freezer to oversee its defrost.
2. **Identify temporary freezer space.** Keep careful track of where your things are stored and be courteous to neighbors if borrowing freezer shelves.
3. Take this opportunity to **update inventories and purge** unused/unwanted items.
4. **Notify all freezer users** of a defrost date and make sure all wanted items are removed by that hard deadline.
5. **Unplug the freezer** and let it melt.
 - a. Use a fan to speed things up.
 - b. Look for a valve at the bottom of the freezer. This often connects to a drainage tube behind the freezer.
 - c. Have spill pads and wash bins on hand to catch the melt.
 - d. Place a bin/pad under both edges of the door (at the hinge and at the end with the handle).
6. **Hazardous material considerations**
 - a. If your freezer stores **biohazardous materials**, the best practice is to treat all collected ice melt with a 1:10 final bleach concentration, and flush down the drain after 30 minutes. Spill pads can be bleached or autoclaved. If you discover improperly stored or leaking containers, this step is not optional.

- Spray interior of empty freezer and surrounding floor with fresh 1:10 bleach dilution and rectify any containment issues prior to turning the freezer back on.
- b. If your freezer stores **hazardous chemicals**, check for spills and expiration dates. Submit a [chemwaste pickup request](#) for expired/unwanted chemicals. Scrub any spills with soap and water. Before restocking your freezer, make sure chemicals are properly labeled, segregated, and in secondary containment if stored in the door.
 - c. If your freezer stores **radioactive materials**, consult radiation safety (radsaf@uw.edu) on best practices before you proceed. If any improper storage is suspected or discovered mid-defrost, you must contain the ice melt and contact radiation safety immediately.
7. **Inspect freezer for damage.** Excessive ice or grime can break the rubber door seals, which leads to temperature fluctuations and more frost buildup. Broken, unwanted freezers may be sent to [Surplus](#).
 8. **Clean freezer if necessary.** Wiping seals and coils periodically will extend lifespan of the machine and increase energy efficiency. Both bleach and ethanol may break down rubber seals, so be cautious to rinse cleaning products off with water when finished.
 9. **Once freezer is completely dry** (may take overnight), plug back in and wait for the temperature to return to -20C .
 10. **Organize and return items to your freezer.** Record updated inventory and ensure lab members can find their items.
 11. **Label freezer with most recent defrost date** to keep track of frequency.

CAUTIONS:

- Wear a lab coat and gloves when packaging biohazards.
- Don't use excessive force or sharp tools to chip away ice.
- Don't splash boiling water to try and speed up the melt.
- Hairdryers can help melt stubborn ice, but heat guns are too hot and can damage the machine components.
- Ensure you clean up any spills and put out "wet floor" signs, especially if the freezer is in a high traffic area like a hallway.
- Do not block any pathways or exits with your freezer defrost.