

# COLD STORAGE FACT SHEET

## Did you know?

A single  $-80^{\circ}\text{C}$  Ultra-Low Temperature (ULT) freezer uses the same amount of energy as a house EVERY DAY!

## Materials Management

1. Monitor your freezers remotely.
2. Inventory your samples.
3. Clean out unneeded, expired, or unidentifiable samples.
4. Utilize high density storage boxes that store 100 samples rather than 81 samples.
5. Use racking systems to stay organized and use space efficiently.
6. Create an online inventory that is searchable, which will reduce time spent searching with freezers open!



Check out our [website](#) for more tips and tricks to make your lab more sustainable!



Download the Green Labs Certification Form today! Submit to: [sustainability@caltech.edu](mailto:sustainability@caltech.edu)



## Cutting Edge Practices

1. Share cold storage units with other labs.
2. Barcode inventories.
3. Try room temperature storage for samples or reagents (including DNA, RNA, and plasmids, most of which are safe at room temperature).
4. Adopt room temperature storage.

## Retirements and Upgrades

1. Retire old units that are no longer needed.
2. Upgrade to an energy efficient unit (see <https://sustainability.caltech.edu/campus/buildings/freezer-program> for information on freezer rebates!).

## Temperature Tuning

1. Adjust ULT set points from  $-80^{\circ}\text{C}$  to  $-70^{\circ}\text{C}$ , which uses 30% less energy!
2. Store samples at appropriate temperatures (for example: consider storing DNA in a  $-20^{\circ}\text{C}$  freezer instead of a  $-80^{\circ}\text{C}$ ).

## Preventative Maintenance

1. Brush off frost from gasket around door seals and remove dust from the intake and coils with a vacuum.
2. Fully defrost freezers at least once a year (see our handy How-To Guide →).

## Freezer Defrost How-To Guide

If needed, you can book an extra freezer by emailing [bbereceiving@caltech.edu](mailto:bbereceiving@caltech.edu)!

1. Make sure your alternate freezer is at your required temperature.
2. Take a picture of your freezer so you remember where everything went before the transfer.
3. Move freezer racks into the new freezer using a cart, keeping the order the same as in the original freezer if possible.
4. Put any loose items (in doors, on shelves etc.) in bins and transfer those to the alternate freezer.
5. Turn off your now-empty lab freezer and set out trays or bins to collect the melting ice (we like to use the autoclave bins!). Cloths can be used to direct drips. Post a sign near or on the freezer to warn lab members of potential slipping hazards.
6. Once all the ice is melted, wipe out the freezer with a dry cloth and then turn on the freezer.
7. Once the freezer is at the correct temperature, put all items back in, following your picture as a guide.
8. Inventory your freezer to make it easier to find things, meaning your lab spend fewer minutes with the door open (and reducing the number of defrosts you must do every year!). Green Labs has inventory sheets available in multiple forms on our website.