

# Ultra-Low Temperature Freezer Cleanout Practices

To define a “cleaned out” freezer, please follow these guidelines and document your work. You will be generously rewarded by the UC Davis **Freezer Challenge**, plus you will sleep well knowing you are doing the right thing.

The goal is well-organized samples according to:

- a) experimental objective (e.g. molecule, biochemical pathway, organism)
- b) good record-keeping (logbook, spreadsheet, sample management software;
- c) appropriate temperature (e.g. DNA samples in an ultra-low temperature freezer can be moved to a -20°C freezer);
- d) consolidated and efficient use of space (e.g. little headspace above containers, boxes mostly full)



## Safety

- Send an email to EH&S so they know you are throwing out samples, by contacting Sean Barry at [sjbarry@ucdavis.edu](mailto:sjbarry@ucdavis.edu). If they have any concerns, they will assist your cleanout.
- You are the expert on your samples and responsible for proper disposal. You must determine whether the samples are hazardous and how they will be disposed. Please see the disposal guidelines and SafetyNet reminders.

## Documentation

If you are participating in **Freezer Challenge** and wish to receive incentives for your work, please follow these guidelines.

- Write down or photograph the initial state of the freezer with open doors (Gnarliest Photo award?)
  - a. Sample organization method (researcher, molecule or tissue, research objective)
  - b. Empty or head space on each shelf
  - c. Age of samples (candidate for Rip Van Winkle award?)
- Remove excess frost from freezer door and shelves, vacuum coils or lint filter.
- Inventory all sample boxes, racks or reagent kits via visual check or log.

A logged inventory is preferable

If a visual check is implemented, the lab manager or researcher must know what the sample contains and why it is important. Ask the PI when they are having a good day. See Priority Guidelines, below.

- Remove unwanted samples and quantify recovered volume:
  - d. Measure dimensions of a box or tub to place your discarded samples.
  - e. Count the number of times the bin is filled and write that down.
  - f. Record your achievements in this survey [HYPERLINK](#)
- Consolidate samples and reagents and eliminate voids.  
Stack boxes, well-plates neatly with labels facing forward if possible  
Researcher contacted so he/she can advise on proper disposal or archival

## Examples of sample valuation; Toss anything less than a 3

What long term value to your research group are these samples?

Sample Characteristics	Notes	
Unlabeled		0
Raw sample, analysis date unknown		1
Researcher gone, sample unknown		1
Results published, no further study likely		1
Researcher gone, more than 3 years		1
Just-in-case samples, saved during a process as backup and not needed		2
Short term test		2
Researcher gone, valuable DNA sample	Move to -20 °C	2
Sample redundant		2
Analysis complete, store until published		3
Researcher gone, still in contact, no records, documentation may be located	Contact researcher, Expire 6 mos	3
Researcher gone, unprocessed sample		3
Most samples converted to RTSS		4
Raw sample, analysis date likely		4
Analysis partial and pending		5
Researcher gone, valuable and delicate samples with documentation		6
Valuable series of samples, potential for retro study		6
Results published, likely further study		7
Irreplaceable and moderately precious		8
Irreplaceable and extremely precious for ecological work		9
Irreplaceable and extremely precious for disease prevention		10

## Space Consolidation Flow Chart/ Decisions/ Opportunities

Do you have a lot of empty space in some shelves?

If yes, consider:

Consolidating partially filled boxes

Sharing your freezer with another researcher

Do the containers fit snugly together?

If no, consider:

Place samples, boxes, etc. into specially made freezer racks (The Store Smart program has freezer racks available FOR FREE)

Do the containers stack to the top of the shelf?

If no, consider:

Finding ways to make more efficient use, including square bottles, stacking, racks, etc.

Are the containers larger than the final processed sample?

If yes, consider:

Contacting ESS for assistance to reduce the volume of your samples

Get the necessary equipment to decrease the size (i.e. freeze dryer)

Can you share space with a collaborator on your floor?

If yes, consider:

Avoid the purchase of a freezer by allowing a colleague to store samples in your freezer.

Are your samples organized only by researcher?

If yes, consider:

Saving according to experiment, molecule or process, and at the correct temperature.

Do your samples have expiration dates?

If yes, consider

Loading your samples onto software for good access and reminders for sample expiration

### Turn This:



### Into This:

