COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

−80 Freezer Maintenance

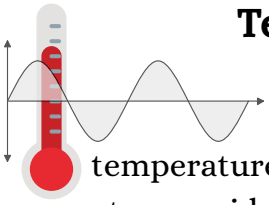
FAQ Sheet

By William A. Lannon

Proper maintenance of your -80°C freezers is essential for safeguarding valuable research materials and ensuring the long-term reliability of your equipment. By following these key practices, you can enhance the lifespan of your freezers and avoid costly failures.

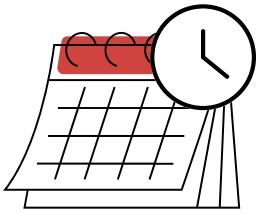
Door Management

When the temperature alarm sounds, it's a signal to close it the freezer immediately. To reduce open-door time, use racks to organize samples—open the door, remove the rack, close the door, retrieve your items, and return the rack. If the freezer temperatures warm to -50°C and takes ~12 hours to reach -80°C, both compressors run at full capacity, causing oil to migrate into the refrigerant lines and potentially causing further issues. Emergency contact information, available 24/7, should be clearly affixed to each freezer, ensuring that if an alarm goes off, the owner can be promptly notified and take action.



Temperature Monitoring

Set up a service contract with an external temperature monitoring systems to track compressor duty cycles and assess your freezer's health. By monitoring the sinusoidal temperature profile, you can often compare it to manufacturer data (PHCBI, Sanyo Panasonic, etc., provide service manuals upon request). If the duty cycle increases - meaning compressors are running longer—it could signal emerging issues. Early detection allows you to predict failures and call for service before they occur, saving you from costly repairs. (CUIMC Researchers, see the QR code below for Freezer monitoring information!)



Regular Maintenance

To ensure the freezer operates efficiently and reliably, the laboratory is required to perform scheduled maintenance according to the schedule below.

*Weekly Maintenance: Gently d*e-ice inner doors and gaskets, check for tears, and inspect latches and strike rollers. Avoid metal scrapers and wipe away melted ice to prevent refreezing.

Monthly Maintenance: Clean or replace condenser filters, gaskets, and coils as per manufacturer guidelines. Use an air compressor and foam cleaner for the condenser fins, being careful not to bend them.

Annual Maintenance: Perform semi-annual or annual defrosts, inspect the freezer for mechanical points of failure like shelves, hinges, and gaskets, or as needed.

By following these maintenance practices, researchers can ensure their freezers run efficiently and reliably.

Fun FAQ!

The frost and ice that build up inside your freezer add to its workload to cool due to water's high specific heat.

Have more questions? Reach out to EH&S at Labsafety@columbia.edu or give us a call

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<< QR Code: CUIMC Freezer Monitoring

QR Code: Refrigerator and Freezer Maintenance: Clean Your Coils! >>