

# Good Freezer Management Practices

## Freezer Administration

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| <b>Assign a point of contact for administration</b>    | <ul style="list-style-type: none"><li>• Should be aware of basic freezer operation and best management practices</li><li>• Responsive and understanding of laboratory needs (e.g. sample storage procedures, storage space/laboratory needs, etc.)</li></ul>                     |
| <b>Report changes in freezer operation</b>             | <ul style="list-style-type: none"><li>• Be mindful of unusual observations such as increase in noise or continual compressor operation</li><li>• Notify your freezer contact of these changes</li></ul>  |
| <b>Consider sharing freezer space with another lab</b> | <ul style="list-style-type: none"><li>• Can additional samples from other freezers be moved in?</li><li>• Can labs work together to share freezers before purchasing new ones?</li></ul>   |
| <b>Shut off empty freezers</b>                         | <ul style="list-style-type: none"><li>• Do not leave empty freezers running</li><li>• Give priority to retiring older and non-energy efficient freezers first</li></ul>  |
| <b>Determine a freezer cleaning schedule</b>           | <ul style="list-style-type: none"><li>• Deicing weekly and defrosting annually is recommended</li><li>• Plan ahead to reserve back-up freezer storage during defrosts</li><li>• Proper maintenance scheduling will help extend freezer life</li></ul>                            |
| <b>Plan freezer space needs ahead of time</b>          | <ul style="list-style-type: none"><li>• Review freezer space needs annually with PI or Laboratory Manager</li><li>• Consider needs of new researchers and planned expansions</li><li>• Identify opportunities to consolidate or share freezer spaces before purchasing</li></ul> |

## Freezer Maintenance and Usage

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| <b>Confirm preventative maintenance schedule with Facilities Management</b> | <ul style="list-style-type: none"><li>• Routine maintenance such as condenser coil cleaning and alarm testing ensures freezers are operating optimally and extends freezer lifetimes</li><li>• Coordinate with FM to establish a regular schedule for checkups and maintenance</li></ul>                |
| <b>Regularly check freezer for frost buildup</b>                            | <ul style="list-style-type: none"><li>• Frost and ice builds up naturally; remove excess frost using a brush or scraper</li><li>• When frost is difficult to clear, the freezer should be defrosted</li></ul>   |
| <b>Inspect door seals and gaskets for leaks and frost</b>                   | <ul style="list-style-type: none"><li>• Check the seal by closing the door on a piece of paper; if the paper falls out, the seal is poor and heat is leaking in</li><li>• Use a brush to clean off frost from the gasket</li><li>• If the seal is still poor, the gasket needs to be replaced</li></ul> |

<b>Inspect condenser coils</b>	<ul style="list-style-type: none"> <li>• The coils allow heat from the refrigerant to be exhausted</li> <li>• If accessible, gently brush or wipe coils free of dust</li> </ul>
<b>Ensure good ventilation around freezer</b>	<ul style="list-style-type: none"> <li>• Do not store materials on top of freezers</li> <li>• Keep 4" of space along all sides of the freezer for good air circulation</li> </ul>
<b>Reduce risk of freezer alarms</b>	<ul style="list-style-type: none"> <li>• Limit opening the door as much as possible</li> <li>• Limit quantities of room temperature materials to prevent overload</li> </ul>
<b>Host an annual freezer cleanout</b>	<ul style="list-style-type: none"> <li>• Cleanouts are an opportunity to clear out old samples and organize current ones</li> <li>• Use a "sample scoresheet" to determine which samples to keep</li> <li>• Discard samples that are: unlabeled/unknown; analyzed and unlikely to be used further; redundant/just-in-case; or used by a researcher no longer at the facility</li> </ul>

## Sample Storage

<b>Clearly label and inventory samples</b>	<ul style="list-style-type: none"> <li>• Users should include sample description, name, and date</li> <li>• Create inventory list that is posted on the freezer door</li> <li>• Only correctly labeled samples with clear ownership and purpose should be allowed</li> <li>• There may be a need to distinguish between active, archived, and disposable samples</li> <li>• Review annually (i.e., freezer cleanout)</li> </ul>
<b>Store samples at the highest temperature required</b>	<ul style="list-style-type: none"> <li>• Samples are often stored at lower temperatures than necessary; when possible, move these samples out to freezers at higher set points to save space and energy</li> <li>• Consult with literature and reliable lists to identify what samples can successfully be stored at higher temperatures</li> <li>• It may be possible to turn your freezer up to -70 °C for considerable energy savings and lifetime extension</li> </ul>
<b>Consider sample tube specifications</b>	<ul style="list-style-type: none"> <li>• Consider using compact storage racks based on ANSI/SLAS standards to increase number of stored samples</li> <li>• Use durable tubes with maximal sealing performance to minimize contamination and sample degradation</li> <li>• Select the appropriate tube volume for samples according to each project's needs</li> </ul>
<b>Limit door openings</b>	<ul style="list-style-type: none"> <li>• It takes 10 minutes to cool a freezer set at -80 °C back down to its set point for every 1 minute it is left open</li> <li>• A well-organized freezer reduces the time needed to search for samples, minimizing cooling requirements</li> </ul>