



LOCATION DETAILS

School/Branch: School of Molecular & Biomedical Science

SAFE OPERATING PROCEDURE DETAILS

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PREPARED BY: Name, position, & Signature (insert names of supervisor, HSO, subject matter expert)

Kate Millan – Health & Safety Officer
Antony Richardson – Infrastructure Manager

Signature:

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RISK ASSESSMENT

See risk assessment dated: 10/01/2011

Risk Rating: Medium

PRIMARY RISKS IDENTIFIED

- Exposure to hazardous substances/biological agents
Frost/Extreme cold

SAFETY PRECAUTIONS

The following control measures MUST be adhered to:

- Appropriate personal protective equipment must be worn at all times, this includes the use of ultracold protective gloves.
All microorganisms in the freezer must be TRIPLE contained – e.g. must be in a capped container, inside a lidded box inside the freezer.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

The following PPE must be worn at all times:

- Ultracold protective gloves
Lab coat
Safety glasses

SAFE OPERATING PROCEDURE

STORAGE

- All microorganisms should be TRIPLE CONTAINED e.g. must be in a capped container, inside a lidded box inside the freezer.
All boxes and racks MUST be labelled.
All users must have an inventory of their contents of the freezer showing its position in the freezer.

IN AN EMERGENCY

- The lab manager who is responsible for items in the freezer must have their contact number posted on the fridge.
On call persons are NOT RESPONSIBLE for moving items in the freezer should the freezer breakdown after hours. Should the freezer not be repairable, you will be contacted to assist in the relocation of items to a back up freezer.

USING THE FREEZER

- Make sure you are wearing the appropriate gloves before opening the freezer door.
Open the door remove the appropriate rack or box - close the door. [Note when the freezer is opened ambient air enters the freezer, when the door closes this air cools and contracts, this can cause a slight vacuum; this makes the door difficult to open for a short time. Only time

**(typically less than 15 minutes) or fingers (to open the seal) are allowed to be used to relieve the vacuum.]**

3. Store or remove your material
4. Replace the box/rack in the freezer.

This process minimizes the period the door is open (not more than 10 seconds is the standard), to maintain the temperature and prevent ice build-up on the doors. **Note: All the freezers with CO2 back-up are set to deliver CO2 and sound the alarm at -60C. You must never allow the the temperature of the freezer to rise above this.**

## REGULAR MAINTENANCE

- Check CO2 cylinder weight once per week
- Defrost the doors once per week
- Completely empty and defrost the freezer once every two years.
- Check the heat exchanger is clear of obstruction to airflow twice per year.

## DEFROSTING

The defrosting of the inner and outer doors, on a regular and short term basis, is vital. At -80C the moisture, from the air, deposits onto the cold surface rapidly and profusely. Any build-up of ice, on the closing surfaces of the doors will make them difficult to seal and lead to damage of the catches. The doors will not seal tightly, ice build-up will accelerate and the freezer will have to work harder to maintain temperature; with the possibility of failure. If there is enough ice; the ability of the catch, especially if damaged, may be compromised and the door can spring open.

### Door Defrost procedure

- Turn off CO2 backup system
- Scrape ice from the face of the inner doors and the inside of the outer door.
- Scrape the ice from the inner and outer door sealing areas on the body of the freezer.
- Note: When scraping all possible care must be taken not to damage the rubber seals.
- Close the doors
- If or when the temperature is lower than -65C turn on the CO2 backup system.

### Complete Defrost

- Arrange for Ultracold space to decant the defrost machine's contents into.
- Turn off the CO2 backup
- Exchange contents into the spare ultracold freezer.
- Switch off defrost machine
- Make appropriate arrangements to deal with the melting ice
- Allow 48 hours to defrost.
- Dry the inside.
- Switch on and allow to reach operating temperature
- Check that it holds operating temperature for 24 hours.
- Refill the freezer
- When the temperature reaches -70C turn on CO2 backup

## ADMINISTRATION

Note: This Safe Operating Procedure must be reviewed :

- a) after any accident, incident or near miss;
- b) if equipment, substances or processes change;
- c) every 5 years