

University of St Andrews - School of Medicine Handbook
SAFETY PROCEDURES FOR THE CELL STORE ARCHIVE

This policy applies to all personnel who intend to use the MBSB Cell Store Archive

Risks & Control Measures

1. **Death by asphyxiation.** Spillage or leakage of a significant volume of liquid nitrogen (LN2), instantly converting to 683-times its volume of gas, will substantially and instantaneously reduce atmospheric oxygen. The room is fitted with an oxygen depletion monitor. There are three oxygen sensors and an alarm unit inside the Cell Store Archive, with the display panel beside the door outside the room. Normal atmospheric oxygen level is 20.9%. Always check the oxygen level in the Cell Store Archive on the external display panel before entering the room.
2. **Cryogenic burns from skin contact.** LN2, at -196°C, can cause severe low temperature burns and will penetrate clothing much faster than water. Always wear appropriate Personal Protective Equipment (PPE – see [Protocol](#)) if you are accessing an LN2 freezer or dispensing LN2.

Safety Rules

3. Do not enter the Cell Store Archive unless another member of staff is nearby and aware that you are in the room.
4. Those who plan to dispense large volumes of LN2 from the Internally Sited Intermediate Storage (ISIS) unit must ensure that they are accompanied by a colleague who remains outside the store but who can view the procedure.
5. Both the inner and outer doors must be latched fully open whenever a worker is inside the Cell Store Archive.
6. Advice on any aspect of the ISIS unit/LN2 dispensing system from John Macintyre (Mob: 07949 328022) or Mike Fearon (Mob: 07879 339291).

Alarm System

7. If the visual alarm (flashing light) is on:
 - a. O2 level has dropped below 19.5%, requiring urgent investigation and corrective action.
 - b. Do not enter Cell Store Archive.
 - c. If already in Cell Store Archive, replace lids on any open LN2 containers and then leave.
8. If the audible alarm (klaxon) sounds:
 - a. Oxygen level has dropped below 18.0%, requiring immediate evacuation.
 - b. All personnel must leave the Cell Store Archive immediately.
 - c. Do not re-enter the Cell Store Archive, even to attempt rescue of casualties.
 - d. Leave both doors wedged open.
9. After either a visual or audible alarm then immediately inform John Macintyre (Mob: 07949 328022) or Mike Fearon (Mob: 07879 339291). Do not re-enter the Cell Archive until both the audible and visual alarms have stopped, indicating that the oxygen concentration has risen to a

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safe level. If neither of the above can be reached, contact Security & Response (8999) to report the alarm.

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Version Control Record *(expand table as required)*

Date	Revision Description	Major Changes
29/8/2016	Published version	
4/11/2021	Review and minor updates	