

Requesting Liquid Nitrogen For Experimental Use: Procedure

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PROCEDURE PURPOSE

To ensure that Liquid Nitrogen (LN₂) for experimental use is readily available to researchers at St George's, University of London (from now on referred to as St George's) while adhering to strict health and safety standards.

DEFINITIONS

St George's The Institutes	St George's, University of London Infection and Immunity Research Institute (IIRI) Molecular and Clinical Science Research Institute (MCSRI) Institute for Biomedical and Medical Education (IMBE) Population Health Research Institute (PHRI)
Cryostorage	Storage of samples in liquid nitrogen at -196°C
Dewar	A suitable flask in which LN ₂ can be safely contained
Cryosectioning	The cutting of thin sections from a block of frozen tissue

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1.1 SCOPE OF DOCUMENT

This procedure applies to everyone involved in laboratory-based research and teaching at St George's, including research groups in IIRI, MCSRI, IMBE and PHRI. It is also applicable to Research Operations staff.

1.2 DESCRIBE THE TASK

At St George's, LN₂ is mainly used for cryostorage. Cryostorage takes place within a specialised facility on the basement floor of Jenner wing. In the laboratories of Jenner Wing, however, LN₂ is mainly used to snap-freeze samples for storage at -80°C or during cryosectioning. Requests for LN₂ are made to Research Operations staff whose LN₂ distributors deliver the LN₂ to the laboratory.

1.3 HEALTH AND SAFETY CONSIDERATIONS

NB. Always follow the advice given in the [LN₂ guidelines](#) provided by the SHE Office.

Further information can be found in the local-rules template which is available on the [SHE Office webpages](#) . A copy of the local rules should also be present within the laboratory.

- LN₂ may cause asphyxiation and must be handled in well-ventilated areas.
- LN₂, at a temperature of -196°C, can cause severe cold burns and permanent eye damage even by brief exposure. [Appropriate PPE](#), including goggles and cryogenic gloves, must be worn when handling LN₂.
- Use pincers to withdraw objects immersed in LN₂.
- Use only approved containers able to withstand very cold temperatures, such as Dewars (carbon steel, plastic and rubber become brittle at these temperatures).
- Only use containers with loose lids. **NEVER SEAL LN₂ IN A CONTAINER**; pressure will build up and the container could potentially explode, forcefully discharging LN₂ with potentially devastating consequences.
- Unused LN₂ should be left to evaporate at room temperature in a fume hood with the extractor fan running. A notice should be placed on the fume hood, stating that liquid nitrogen is present.
- **NEVER POUR LIQUID NITROGEN DOWN THE SINK** as this could lead to serious damage to pipework.
- NEVER store liquid nitrogen in a sealed room such as a cold room, a lift or a room without adequate ventilation.

1.4 STEPS TO TAKE

1. Send an email, 24 hours in advance, to both Technical Assistants, [Gavin Linkson](#) and [Michael Aidan O'Reilly](#). This communication will ensure that at least one of them will be available to assist when required.
2. The email must contain your name, the laboratory that the LN₂ should be delivered to and the date and time that you require the LN₂.
3. In addition, you should arrange where you will leave the empty LN₂ container for the distributors to pick up and fill or when you will deliver the container.
4. LN₂ will be delivered to the laboratory as arranged or may be collected at the point of distribution.
5. A response will be given within 24 hours. If on the day of requirement the email isn't answered, contact Head of Laboratory Services, [Dr Penny Lympny](#).
6. If after delivery the LN₂ needs to be used elsewhere, follow the [LN₂ guidelines](#) provided by the SHE office. **REMEMBER, LN₂ MUST NEVER BE ACCOMPANIED WHILST BEING TRANSPORTED IN A LIFT.**

1.5 CONTACT FOR FURTHER ADVICE

Head of Laboratory Services – [Dr Penny Lympny](#)

Technical Assistant - [Gavin Linkson](#)

Technical Assistant - [Michael Aidan O'Reilly](#)

Research Operations Help Desk – email to be confirmed.

SHE Office - health@sgul.ac.uk