NUS National University of Singapore	Department of Physics National University of Singapore	Ref. No	*Phy/SOP/HLN/2012*
Standard Operation Procedure **Title: Liquid Nitrogen Handling Procedures**		Rev. No	*003*
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Lab: All laboratories in Department of Physics			

Written by	Approved by	Issue date	Review date
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1. Introduction

There are many liquid nitrogen users in the Department of Physics. As such, it was deemed necessary for the Safety Committee to provide the handling guidelines.

2. Scope

These guidelines apply to all Physics students, staff and visitors working in laboratories and workshops.

3. Objective

The goal of this SOP is to provide guidelines to researchers, staff, students, and visitors in the correct liquid nitrogen handling procedures.

4. RESPONSIBILITY

a) It is the responsibility of the PI to discuss this SOP with all the lab members.

b) It is the responsibility of the lab users to be familiarized with the procedure

5. STANDARD HANDLING PROCEDURE

Liquid nitrogen presents hazards like frostbite and cryogenic burns. Therefore, it is absolute necessary to don the correct PPE when handling it.

5.1. Personal Protective Equipment (PPE)

Users are required to wear the following PPE when handling liquid nitrogen:

a) Lab coat with long sleeves that can be tucked into the gloves.
b) Cryogenic gloves
c) Cryogenic apron
d) Safety face shield
e) Handler must wear covered shoes and long pants

5.2. Equipment

a) Liquid nitrogen must be stored only in the approved Dewar flask.

b) Periodically check the liquid nitrogen dispensing mechanism to ensure that it has not rusted.

c) Dispensing mechanism of the Dewar flask must have a release valve.

d) Visually ascertain that the release valve and ensure that it is still in working condition, test it if there is a test release button.

5.3. Handling and Transport

a) Please refer to Physics SOP on Transport of Chemicals, Compressed Gases and Cryogenic Liquids

b) The above-mentioned PPE in 5.1 must be worn at all times when collecting or dispensing liquid nitrogen.

c) When dispensing liquid nitrogen in enclosed area, be aware that nitrogen gas leakage can engulf the room and cause asphyxiation.

d) Forceps must be used to handle any material that has been immersed in liquid nitrogen.

5.4. Training

a) Staff, students and visitors who are handling liquid nitrogen should familiarize themselves with the procedure.

b) PI must ensure that new students and staff are guided by experienced liquid nitrogen users from their lab.

c) Users are strongly advised to attend OSHE's Chemical Safety Training (OSHCHM01).

d) For spills, refer to Department SOP for Chemical Spill Response.

References

NUS Laboratory Chemical Safety Manual
https://share.nus.edu.sg/corporate/procedures/safety_and_health/Chemical-Safety-Manuals/Manual-chemical-safety.pdf