CRYOGENIC LIQUIDS AND CRYOSTATS

Standard Operating Procedure

Lab: Engineering Sciences Building 155

Department: Materials Science and Engineering

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Section 1: Overview

Type of SOP: ☒Process   ☒Hazardous Material   ☐Hazardous Class of Materials   ☐Equipment

Synopsis:

> *This document will provide a list of precautions that users of cryogenic fluids must take to avoid freeze burns and other accidents associated with handling extremely cold cryogenic agents. We w*

Section 2: Risk Assessment Summary (Hazards and control measures)

Equipment Hazards and Hazardous Conditions:

Extreme Temperatures
INPROPER USE OF THIS EQUIPMENT CAN LEAD TO PHYSICAL/MECHANICAL DAMAGE TO THE HUMAN BODY OR PROPERTY DAMAGE TO NEARBY LAB EQUIPMENT. HAZARDOUS IN CASE OF SKIN CONTACT. EXTREME TEMPERATURES MAY CAUSE BURNS.
Bodily Injury
INPROPER USE OF THIS EQUIPMENT CAN LEAD TO PHYSICAL/MECHANICAL DAMAGE TO THE HUMAN BODY. BE CAREUL OF TIPPING/SPILLING CONCERNS. ALWAYS SEEK HELP IN MOVING HEAVY EQUIPMENT

Personal Protective Equipment

Safety Eyewear
Thermal Gloves
Lab Coat
Closed Toed Shoes
Long Pants
Hearing Protection

<u>Engineering Controls</u>

Pressure Release Valves (set on cryostat for low pressure, 22 PSI release)
Cryostat Handtruck (allows for easy transportation through MRL facilty and on/off freight elevator)

Section 3: Procedures

Tank Preparation
1. Remove any extraneous hoses and attachments from cryostat. Affix cryostat to a handtruck.
2. Use Freight Elevator to transport the tank to the Loomis nitrogen filling facility (by the MRL stockroom).

Liquid Nitrogen Refill
3. After filling out the appropriate forms, deliver the cryostat to the Loomis facility for nitrogen filling. Large cryostats should take an hour to fill.
4. Using the handtruck, transport the cryostat through the third floor of the MRL facility and transport the cryostat back to the ESB lab.
5. Reattach hoses to the cryostat.