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## 1. INTRODUCTION

This procedure guides the dispensing of cryogenic liquids in the ISU Chemistry Department. Cryogenics are gases cooled until they become liquids. They are housed in pressurized, insulated tanks that often weigh hundreds of pounds. Cryogenics can freeze things instantly and kill living tissue on contact. For this reason, cryogenics are stored in a secure location with controlled access.

## 2. PRECAUTIONS AND LIMITATIONS

- 2.1. Insulated gloves must be worn while dispensing.
- 2.2. The area must be kept well ventilated (door open/hood sash elevated) while dispensing.
- 2.3. Dispense using a metal transfer line into an appropriate insulated container (dewar).
- 2.4. Move cryogen tanks with an appropriate cryogenic tank cart.
- 2.5. Always wear all appropriate personal protective equipment (safety glasses/lab coat/etc.).

## 3. APPARATUS AND MATERIALS

- 3.1. Insulated gloves
- 3.2. Metal transfer line

## 4. REAGENTS

- 4.1. None

## 5. INSTRUCTIONS

- 5.1. Open the valve labeled "Liquid" until gas can be heard escaping.
  - 5.1.1. Allow some gas to be released.
- 5.2. Open valve a full rotation and let gas vent for a few seconds.

**Note:** *An intense whistling sound may be heard until gas has vented and liquid begins to emerge. Use hearing protection as necessary.*

- 5.3. Place the end of the metal transfer line into the collection container the liquid is to be collected in.
- 5.4. Open valve only enough to allow a steady stream of liquid to flow into the container.



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5.4.1. Adjust valve as necessary.

**Note:** *As the container becomes full, droplets of liquid may begin splashing out of the container. Slow dispensing rate by closing the valve until splashing stops.*

5.5. Continue collection until container is full.

5.6. Close valve on tank.

**Note:** *Do not over tighten the valve.*