

Standard Operating Procedure

Cryogenics and Dry Ice

Hazard Description: A liquid cryogen is a liquified gas with a boiling point typically below 123 K (-150°C). Dry ice is frozen carbon dioxide. Dry ice sublimates from a solid to a gas at temperatures above -78.5°C.

The following hazards are associated with cryogenics and dry ice: burns, asphyxiation, fire hazards, formation of liquid oxygen, pressure hazards, and facility damage.

Labeling: Label all cryogen containers with a cryogen warning and the cryogen's name.

Storage: A dewar is an insulated container used to store and transport liquefied gases. It is insulated by a vacuum between its two walls and is equipped with a pressure relief device. Dewars and delivery lines should be inspected for leaks.

Handling: In addition to the requirements outlined in the Chemical Hygiene Plan the following should be considered when handling cryogenics.

- Cryogenics should only be used in well-ventilated areas.
- Do not touch cryogenic materials, or tools in contact with cryogenics, with bare skin or disposable gloves. Use tongs and insulated gloves.

Personal Protective Equipment: Reference SDS. Use cryogen handling insulated gloves. A face shield is required for transferring from any pressurized container.

Spill and Decontamination: Reference SDS. For a small spill of cryogenic liquid, evacuate the area, allow ventilation to dissipate the gas, and contact EH&S for oxygen deficiency monitoring prior to reentry.

For large spills, delivery line failures, tank/dewar or delivery failures, or any other uncontrolled release, immediately evacuate the room and pull the fire alarm to evacuate building.