



Cryogenic Liquids are extremely cold and can produce a severe burn comparable to frostbite, or worse. Very small amounts of liquid are converted to large volumes of gas that can create asphyxiation and/or pressure hazards. Cryogenic liquids may only be used by persons trained in the safe use of gases. Please refer to section V, page 6, "**Compressed Gases**" section, for more on this subject.

When handling cryogenic liquids, the following precautions must be taken:

1. Wear a face shield **and** safety goggles. A face shield or safety eyewear with/without side shields worn alone, do not give adequate protection.
2. Wear a long sleeve garment such as a lab smock.
3. Cryo-thermal gloves or loose-fitting gloves are required. They allow the filler to remove them quickly to avoid a burn.
4. When handling large volumes, it is recommended high top shoes with cuff less pants, be worn outside the shoes. This is to prevent fluid from getting inside the shoes or being trapped in the pants cuff.
5. Transportation of liquefied gases must be accomplished in a manner that no occupant of the vehicle or bystander could possibly be exposed to a liquid spill or to a reduced oxygen atmosphere as a result of a liquid spill or boil off. All liquefied gas containers will be securely fastened to the vehicle in which they are being transported.
6. Where the volume of the expanded gas from a cryogenic liquid has the potential to displace significant amounts of oxygen in the work area, a survey must be completed by the user. The survey is to describe the extent of the potential hazard and the controls necessary to eliminate or control the hazard. For example; when transporting Liquid Nitrogen in an elevator the following procedure is to be followed:

Cryogenic Liquid Containers - Elevator Transport:

Care must be exercised when transporting liquid containers in elevators. If possible, transport the container only on a freight elevator that is not generally used for personnel transport. After the container is placed in the elevator, the elevator should be locked out to all other users. The sender should remain outside the elevator and activate it. Another person should be available on the receiving floor to take the liquid container off the elevator at its destination. If a freight elevator is not available, a passenger elevator can be used provided it is locked out to all other users. If it is absolutely necessary to have an attendant in the elevator with the container, an escape pack supplemental breathing apparatus must be carried in the elevator. Do not transport a liquid container at any time in an elevator with any other personnel in the car.

<http://www.gawda.org/> <https://risk.arizona.edu/training/cryogenics-safety>
<http://www.airgasscatalog.com/catalog/ap017.pdf>
<http://www.airproducts.com/~media/Files/PDF/company/safetygram-27.pdf>