

Laboratories frequently use cryogenic tanks, containing liquified gas, in research applications. Cryogenic tanks pose two major hazards: extreme cold (temperatures colder than -90°C) and a large expansion ratio as the cold liquified gas contacts ambient air. The expansion ratio necessitates a pressure relief device on the tanks. See the QR code below for more information

Occasionally, small amounts of gas will be vented to relieve pressure from the tank, creating a burst of gas and loud venting noise. This is normal!



Fun FAQ!

A tank dispensing cryogenic liquid should have a pressure at or below 22 PSIG.

Hazard: Extreme Cold Temperatures

The extreme cold of cryogenic liquids can cause major skin or eye damage if there is direct exposure to the liquid. To protect the user, the below PPE is

- Cryogenic gloves
- Lab coat
- Face shield/Safety glasses



Example of PPE for handling Cryogenics

Hazard: Asphyxiation

Due to the rapid expansion as the cryogenic liquid turns to gas, a leaking tank could create an oxygen deficient atmosphere and lead to asphyxiation.

- FDNY requires that any laboratory space with 60 gallons (230 L) or more of cryogenic liquid be equipped with an oxygen sensor to alert users if there is low oxygen.
- Contact EH&S if a laboratory space qualifies and does not have an oxygen sensor.

Common Issues and How to Fix Them

My pressure relief valve is venting for long periods... What do I do?

Pressure relief valves are designed to vent when internal gaseous pressure passes the relief valve threshold. It is normal for a short burst of venting from the valve. Problems occur if the valve is stuck open. This usually occurs to do ice crystal formation inside the valve and will result in continuous venting.

Solution: Wearing PPE, place a warm cloth on the stuck valve to thaw. Repeat until venting stops. Alternatively, warm water can be poured over the valve. Contact vendor if venting continues.



Two types of oxygen sensors found in CU labs

My oxygen Sensor is in Alarm... What do I do?

Normal oxygen levels are 20.9%. If oxygen levels fall below 19.5% a sensor will go into alarm.

Solution: Do not panic – evacuate and close off room. Call EH&S (business hours) or Public Safety (after hours). Responders will determine if the alarm is true or false.

Have more questions? Reach out to EH&S at Labsafety@columbia.edu or give us a call

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Manhattanville/Morningside: (212) 854 - 8749



@Columbiaehs

QR Code: Airgas: An AirLiquide Company. Appendix: Cryogenic Liquid Containers.

