

## COMPRESSED GAS CYLINDER SAFETY REMINDERS

Here at the University, we are as diverse in our activities as the people who perform them.

As a part of Environmental, Health, and Safety (EH&S) our job is to identify potential risk and minimize the hazards, no matter an employee's assigned task. A large number of our work force here at the University handles compressed gases; from Facilities, to medical staff, and to research personnel. A compressed gas is any container that has an absolute pressure exceeding 40 pounds per square inch at 70°F (21.1°C), or an absolute pressure exceeding 104 pounds per square inch at 130°F (54.4°C), or both, regardless of the pressure at 70°F (21.1°C). This includes cryogenic liquids (Nitrogen, Oxygen, Argon, etc.)

It is important to remember the proper handling, transport, and storage of such cylinders. Here are some friendly reminders when working with compressed gases:

- Only work with compressed gases if you have been properly trained through Blackboard and your Supervisor.
- Keep the protective gas cap on when not in use, especially in transport. Do not leave the regulator on when the tank is not in use.
- Properly secure the tank at all time with a chain or strap 2/3<sup>rd</sup>s up around the tank to a wall, lab bench, or compressed gas cart. Never attach a tank to a non-permanently affixed object (i.e. desks, tables, bookcases, etc.).
- Do not completely empty tanks; leave 25psi within the tank at all times.
- Do not use Teflon tape on connections.
- Do not force a regulator on to a cylinder. If the regulator does not easily attach, it is likely the wrong regulator for the tank.
- Never modify a tank's plumbing or valve system, and only use a compressed gas for its intended purpose.
- Do not mix gases inside of cylinders.
- All toxic gas (NFPA rating of a 3 or 4, or GHS rating of a 1 or 2) must be kept and used within an approved ventilated gas cabinet.
- All flammable gas cylinders must be bonded and grounded.
- If cryogenic liquid cylinders are used and/or dispensed in a small space, or if there are multiple tanks within a certain area, an oxygen sensor should be installed. Cryogenic liquid are simple asphyxiates that rapidly expand, displacing oxygen. Call EH&S for further information. Depending upon the location, monitors can cost as low as \$200.

Below are some issues that have been found through the University with compressed gas cylinders:



Multiple liquid nitrogen tanks in a linear equipment room, no oxygen sensor is present.



Liquid nitrogen being stored and dispensed in a small storage room with no oxygen sensor.



Poisonous gas being used within a fume hood, not an approved ventilated gas cabinet.



No chain/stand for cylinders.



Modified tank using inappropriate plumbing materials with Teflon tape.



No protective gas cap.

For more information please visit the University of Rochester EH&S website at [www.safety.rochester.edu](http://www.safety.rochester.edu), the Compressed Gas Association at <http://www.cganet.com>, or the Department of Labor's Occupational Safety & Health Administration at <https://www.osha.gov>.