

Compressed Gasses



What is a Compressed Gas?

- Most products can change state depending on pressure and temperature.
- Compressed gasses can be either a liquid or a gas inside the gas cylinder.
- When the material is released into the atmosphere it turns into a gaseous state.
- Compressed gasses usually fall in 1 to 3 primary categories with many subsidiary categories:
 - Flammable
 - Non-flammable, non-toxic
 - Toxic



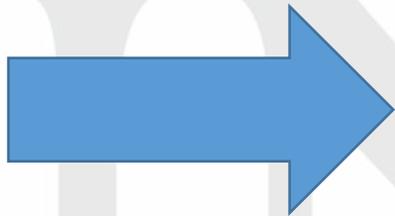
Gas Cylinders

- These cylindrical packages with valves are able to hold pressurized gasses inside.
- The color of the cylinder has no bearing of its contents.
- Its size has no bearing of its contents.



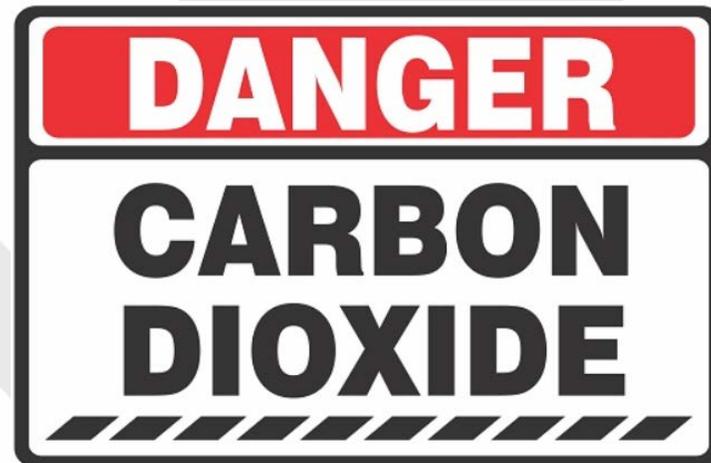
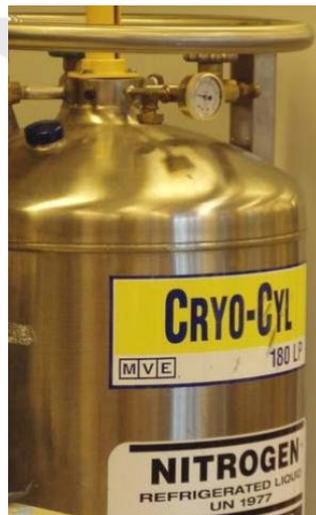
Hazards of Flammable Gasses

- The gasses may not be detectable using sense of smell.
- The contents of the cylinder may ignite in the presence of an ignition source.



Hazards of Non-Flammable Gasses

- The gasses may not be detectable using sense of smell.
- Although these contents may not ignite, they are hazardous in other ways:
 - Cryogenics – freeze skin tissue. When skin tissue freezes to this extent the tissue will die.
 - Oxygen displacing – where an oxygen displacing gas is, oxygen is not.



Hazards of Toxic Gasses

- Toxic gasses poison the body in numerous ways:
 - Cause birth defects
 - Stops certain organs from working properly within the body
 - Carcinogens
 - Etc.



Additional Hazards of Gasses

- Corrosive – Gasses can be considered acidic or basic. These materials corrode metals.
- Oxidizers – Add oxygen to the atmosphere, during a fire or explosion these materials make the fire burn much hotter.



Handling Gas Cylinders

- Always secure the gas cylinder to walls using a chain or other effective means.
- Use the appropriate dolly, forklift, or engineering controls to move gas cylinders.



Handling Gas Cylinders

- Visually inspect a gas cylinder, look for damage, valve covers, stability of cylinder (flat or round bottom).
- Never handle more than 1 cylinder at a time, rolling and kicking cylinders is not an approved method for movement



Storage of Cylinders

- Secure the gas cylinder.
- Use chains, belts, straps, cages, dolly's, etc.



Pressure Inside a Cylinder

- Be careful not to drop a gas cylinder or move a cylinder without the valve cover tightly attached.



Acetylene

- **Acetylene Gas**

Acetylene Gas(C₂H₂) – a colorless, flammable gas with a garlic-like odor. Acetylene has the highest flame temperature of any common hydrocarbon because of its triple-bond structure H-C≡C-H. Combustion with oxygen achieves a flame temperature of 5580° F (3087° C), releasing 1470 BTUs per cubic foot. Its high flame temperature allows it to be used in a variety of metal working applications like cutting, welding, brazing, and soldering.

Potential acute health effects

Eyes

: Contact with rapidly expanding gas may cause burns or frostbite.

Skin

: Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation

: Acts as a simple asphyxiant.

Ingestion

: Ingestion is not a normal route of exposure for gases



Hydrogen

- *Marking.* The hydrogen storage location shall be permanently placarded as follows: "HYDROGEN - FLAMMABLE GAS - NO SMOKING - NO OPEN FLAMES," or equivalent.

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

Skin Contact. No harm expected.

Swallowing. An unlikely route of exposure; this product is a gas at normal temperature and pressure.

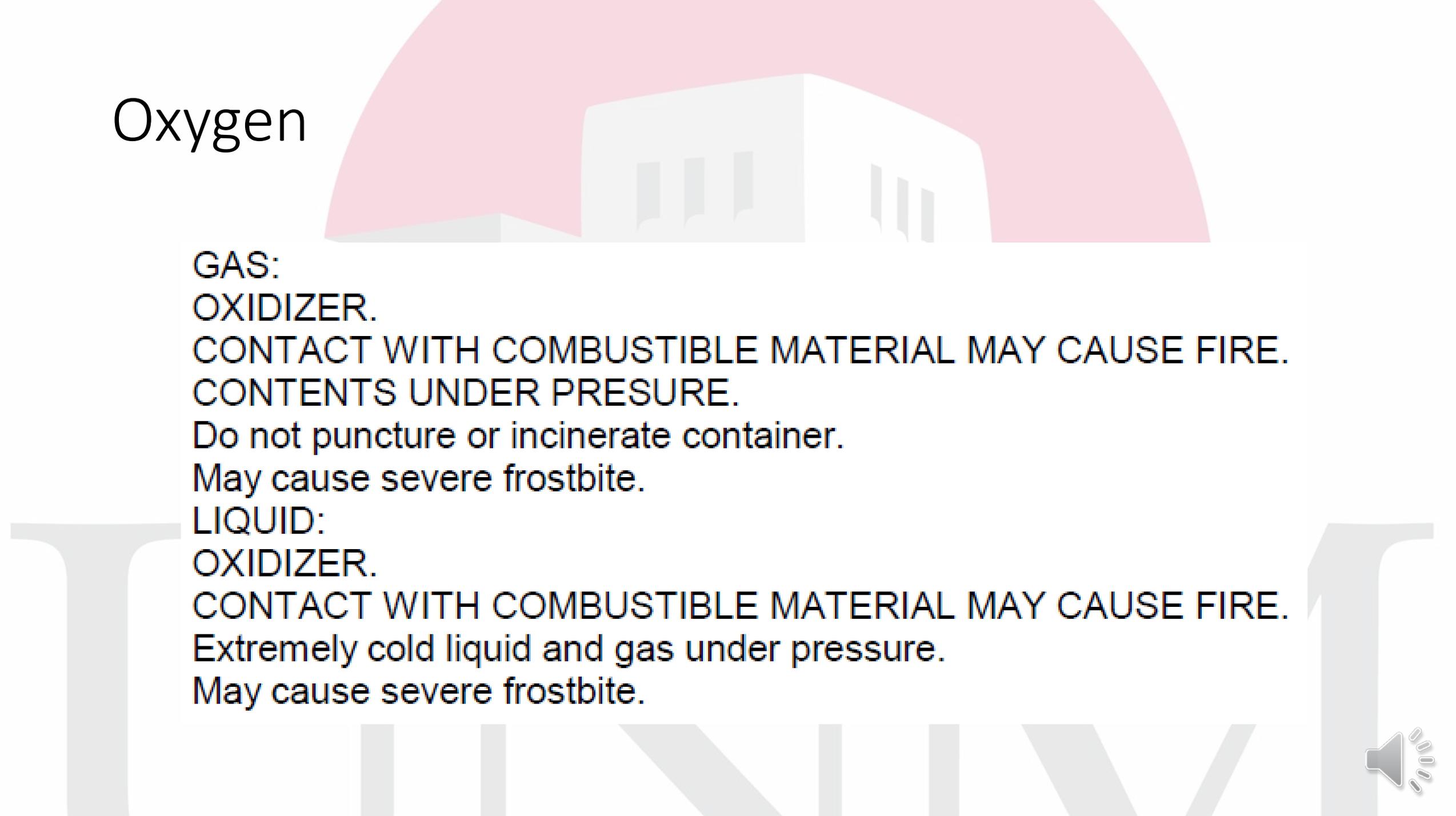
Eye Contact. No harm expected.

Effects of Repeated (Chronic) Overexposure. No harm expected.

Other Effects of Overexposure. Hydrogen is an asphyxiant. Lack of oxygen can kill.



Oxygen



GAS:

OXIDIZER.

CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.

CONTENTS UNDER PRESURE.

Do not puncture or incinerate container.

May cause severe frostbite.

LIQUID:

OXIDIZER.

CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.

Extremely cold liquid and gas under pressure.

May cause severe frostbite.



Nitrous Oxide



Potential acute health effects

Eyes

: May cause eye irritation. Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.

Skin

: May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.

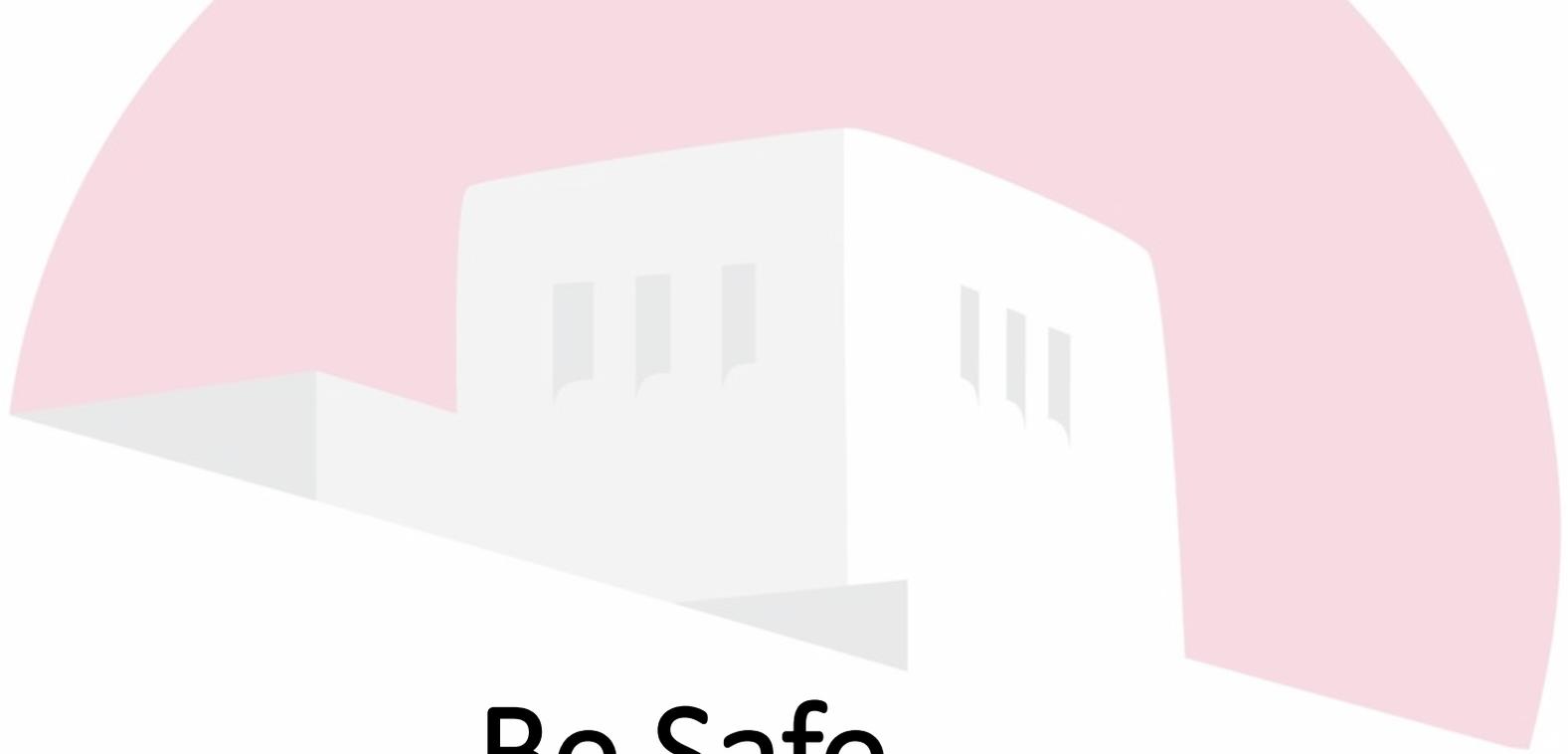
Inhalation

: Acts as a simple asphyxiant.

Ingestion

: Ingestion is not a normal route of exposure for gases. Contact with cryogenic liquid can cause frostbite and cryogenic burns.





Be Safe

INTERNM



Acknowledgement

I _____, have completed the Compressed Gasses training.
(Print Name)

Date: _____

Please print the acknowledgement sheet, fill in requested information and email to srsweb@unm.edu to complete training.