YOUR SAFETY Department
SAFETY Solutions

COMPRESSED GAS SAFETY

The storage, handling, use, and inspection of compressed gas cylinders must follow guidelines set in the minimum standard as well as appropriate local regulatory requirements at your location. Company guidelines provide accepted storage, handling, and use practices and precautions for users of compressed gas. Employers must also follow local fire codes.

Employers are responsible for safe use of compressed gas cylinders and liquid containers and their contents. Compressed-gas hazards include oxygen displacement, explosion, and toxic effects as well as the physical hazards of a ruptured cylinder.

Employers must evaluate compressed-gas hazards and have an emergency-response plan that defines procedures and responsibilities to address emergencies.

SAFE HANDLING AND USE

- Compressed gases must be handled and used only by trained persons.
- Inform employees about chemical hazards by means of a hazard communication program, labels, and other forms of warning. Always consult the gas supplier's safety data sheets (SDSs) for specific information.
- Ensure that cylinders are clearly identified. Labels must not be defaced or removed. Do not accept or use containers whose content labels are not legible; segregate containers and return them to the supplier. Do not use the container color to identify the cylinder content; do not repaint the container. All gas lines leading from a compressed gas supply must be clearly labeled or identified.
- Leave valve protection caps in place (if provided) and hand-tightened until cylinders are secured and in use or connected for use. Some types of gas cylinders have valve outlet caps and plugs that form a gas-tight seal. Keep the device on the valve outlet except when containers are secured and connected.
- Keep cylinder valves closed except when the cylinder is being used. Closing the valve isolates the cylinder's contents from the surrounding atmosphere and prevents corrosion and contamination of the valve.
- When opening a cylinder valve, stand to the side of the regulator and open it slowly. Replace protective caps and outlet caps or plugs before returning empty cylinders to the supplier.
- Never tamper with or alter cylinders, valves, or safety-relief devices. Do not tighten connections or leaking fitting's or attempt other repairs while the system is under pressure.

FOR ENQUIRIES:

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- Do not subject cylinders to artificially low temperatures or temperatures above 125 degrees F, or 51.7 degrees C. Do not place them next to heat sources or allow a flame to contact any part of the cylinder.
- Do not place cylinders where they become part of an electric circuit or use them as a ground during electric welding.
- Transfer of compressed gases from one container to another should be performed only by the gas supplier or by personnel familiar with the hazards.
- They must be trained and qualified to use the proper equipment and must have detailed written operating procedures that include equipment inspections and maintenance procedures. Non-refillable cylinders cannot be refilled.
- Avoid dragging or sliding cylinders. Do not lift cylinders by the caps. Firmly secure the cylinder and move with a suitable hand truck, lift truck, or crane with a cradle or platform. Do not use lifting magnets. Slings, ropes, or chains are acceptable if the cylinder is equipped with lifting attachments. Never drop cylinders or strike them against one another or other surfaces.

CYLINDER STORAGE

- Storage areas should protect cylinders from damage.
- Group and store compressed gases based on their hazard class. Provide adequate space or segregate by partitions and post a conspicuous sign that identifies the gas or hazard class.
- Storage areas should be dry, well-drained, ventilated, and fire resistant. Avoid sub-surface storage. Cylinders can be stored in the open but should be protected from the ground or continuous dampness to prevent rusting.
- Prevent exposure to salt, corrosive chemicals, or fumes. Cylinders can usually be stored in the sun, check with the supplier.
- Always refer to the manufacturers' storage requirements and SDSs.
- Do not store on unprotected platform edges.
- Do not obstruct walkways or exits.
- Use brackets, chains, or straps around the upper third of the cylinder to secure cylinders in storage or in use.
- Store charged and empty cylinders apart. Empty cylinders have residual pressure and should always be handled as if full.
- Oxygen's primary hazard is an oxidizer, which with an ignition source and a fuel vigorously accelerates combustion. A minimum of 20 feet, or 6 meters, must be maintained between oxidizers and flammable gases and other combustible materials, such as oil or grease. A firewall (partition) 5 feet, or 1.5 meter, high with a half-hour fire rating can be substituted.
- Store flammables away from oxidizers, open flame, sparks, and other sources of heat or ignition in a well-ventilated area. Storage areas must have appropriate fire protection.
- Common oxidizing gases include chlorine, nitrous oxide, and fluorine. The primary hazard for acetylene and propane is flammability; both are secondarily asphyxiants. The two gases can be stored together.
- Argon and carbon dioxide are asphyxiants. Asphyxiants (including inert gases) can displace oxygen and may cause suffocation. Atmosphere-supplying respiratory protection is required in an oxygen-deficient atmosphere, which has less than 19.5% oxygen by volume.
- Corrosive and toxic gases present serious hazards. Keep exposures as low as possible and avoid inhaling or contact with skin or eyes.
- Safety showers and eyewash stations must be available for those using corrosive gases such as ammonia and chlorine.
- Cryogenic liquids are extremely cold and cause thermal burns upon contact with the body. Provide suitable personal protective equipment.

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- Commonly used liquid cryogens include argon, helium, methane, oxygen, and hydrogen. Hazards vary according to the specific cryogen and include explosion or flammability and asphyxiation.
- Store containers upright and follow distributors' recommendations.

- **CYLINDER INSPECTIONS**
- Workers must visually inspect compressed-gas cylinders. In general, inspect for exterior corrosion, denting, bulging, gouges or digs.
- Experience is important in the inspection of cylinders. Users who lack experience should return questionable cylinders.
- Leaking regulators, cylinder valves, or other equipment should be taken out of service.

THOUGHT OF THE DAY

BEING SAFE IS A STATE OF MIND – IT IS PRACTICED BY THOSE WHO SEEK LONG LIVES.

MINUTES OF MEETING

Date:_____**Person Conducting Meeting:**_____

Topic:_____

Branch: _____**Division:**_____

Attendees:

NAME	INITIAL	DATE

NAME	INITIAL	DATE

Additional Items Discussed:

_____

_____

Problem Areas or Concerns:

_____

_____

Comments:

_____

_____

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