Compressed Gasses Safety

1 PURPOSE

To provide guidelines for transport, storage, handling, and use of cylinders containing compressed gas.

2 SCOPE

This procedure applies to all functional areas, operations, offices, including employees, vendors, visitors and contractors within the scope of the Integrated Management System (IMS).

3 DEFINITIONS AND ACRONYMS

Compressed Gas is gas within a closed container that has an absolute pressure higher than atmospheric pressure.

Cylinder a portable container of cylindrical shape used for transport and storage of compressed gas for welding, cutting, and other operations.

4 ROLES AND RESPONSIBILITIES

Document Owner

HMR

Responsible Roles and Position-Holders

Contractors/Vendors are businesses performing a service for the COMPANY. They are responsible for ensuring their employees working on COMPANY sites have the required training as specified in this procedure and that their employees understand and comply with the requirements as outlined in this procedure.

Employees and Contracted Employees are all employees in any position whether COMPANY or contracted employees working on any COMPANY site. They are responsible for complying with the requirements as outlined in this procedure and be familiar with the hazards associated with compressed gases.

Visitors are anyone not employed by the COMPANY in any capacity but are traveling or touring on a COMPANY site. They are responsible for complying with the requirements as outlined in this procedure.

HSLP is any COMPANY employee working under and including the Regional Director of HSLP. They are responsible for establishing the minimum requirements for compressed gases safety and periodically auditing for compliance to this procedure.

(Cont.)

Supervisor/Foreman can be a COMPANY employee or a contractor/vendor working or traveling on any COMPANY site. They are responsible for enforcement of all requirements, rules, and established guidelines as outlined in this procedure. They ensure personnel are provided with needed tools/equipment, the necessary proper instructions/training, and that they are familiar with the hazards associated with compressed gases.

Warehouse employees will keep vendors \ suppliers of compressed gases informed of the requirements of this standard and inspect all compressed gas cylinders to make sure that they are free of defects, properly labeled, and the hydrostatic tests are current as cylinders are received from vendors/suppliers.

5 DIRECTION

All employees, vendors, contractors, and visitors traveling/working on site shall comply with and ensure personnel accountable to them comply with the following requirements of this procedure.

General

Cylinders must be:

- Free from defects such as dents, major scratches, etc.
- Labeled properly as to the contents per Hazardous Materials and Chemicals.
- Have current hydrostatic tests.

Compressed gases shall only be handled and used by trained personnel familiar with the hazards and emergency procedures associated with the compressed gas.

Persons that operate pressurized containers must receive training about potential hazards, handling, storage and emergency procedures.

Isolation valves must never be installed between the pressurized container and the pressure relief device.

Cylinder valves must remain closed, even when empty, except when in use.

Valve covers must be in place at all times or the cylinders secured with valves in a safe location while connected to dispensing equipment.

Care must be used to prevent oil or grease from coming in contact with compressed gas cylinders, valves, gages, and hoses.

Pressurized containers must be inspected to ensure no leaks, corrosion and other forms of deterioration have developed prior to use.

Defects affecting safety shall be corrected before using equipment. A “Do Not Use” tag describing defect shall be attached to the defective equipment until the repairs have been made.

Care shall be used to insure damage to cylinders does not occur from dropping them or from striking them against other cylinders or surfaces.

a If a cylinder is dropped, struck violently, or received other damage:

- Notify your supervisor immediately.
- Attach a “DO NOT USE” tag describing the damage.
- Notify the manufacturer \ vendor for advice on how to proceed.

If a leak is detected in any cylinder:

b Take the cylinder to a properly ventilated open place, and let all gas escape.

c If the gas is flammable, combustible, or oxidizing; ensure smoking, use of open flames, or other potential flame initiation sources are kept away from the area.

d Notify your Supervisor immediately.

Never

Cut or weld on a compressed gas cylinder.

Attempt to disassemble or repair the cylinder valve. (Repairs must be made by the manufacturer)

Transfer gas from one cylinder to another, except with approved systems, such as compressed breathing air cylinders with cascading systems designed for that purpose.

Storage Areas

Smoking, use of open flame, and other sources of ignition shall not be permitted in compressed gas storage areas.

Areas shall be prominently posted with the hazard class or the name of the gases to be stored and “NO SMOKING” signs where appropriate.

No flammable and combustible materials may be stored in these areas. (gasoline, oil, solvents, boxes, cartons, paper, trash, etc.)

Areas must be well ventilated and/or have protection from exposure to corrosives and moisture.

Temperatures may not to exceed 125 degrees Fahrenheit (51.7 degrees Celsius).

Cylinders must be separated according to their contents keeping cylinders with different contents stored in separate locations.

Oxidizing gas cylinders (oxygen, chlorine, etc.) must not be stored closer than 20 feet to flammable gas cylinders (acetylene, propane, etc.), unless they are separated by a non-combustible barrier of at least 5 feet in height with a fire resistance rating of at least 30 minutes.

Cylinders must always be stored in a “valve end up” position, unless specifically designed for inverted or horizontal storage.

All cylinders, full or empty, shall have the protective caps in place and the cylinders secured in a safe manner with chains, straps, or stands designed to prevent them from falling.

Some cylinders such as small cutting torch cylinders, medical breathing oxygen cylinders, and SCBA bottles are not equipped with protective caps so the valves must be protected by other means.

Empty cylinders must be separated from full cylinders, and appropriate signs must be placed to identify whether they are empty or full.

Oxygen cylinders must not be stored in rooms or areas used or designated for the storage of flammable or combustible material, including greases.

Cylinders shall not be stored near elevators, stairwells, walkways, or any other location where heavy moving objects may damage them.

All electrical connections within the storage area must be properly insulated.

Tools, materials or other objects must never be placed on top of or between stored cylinders.

Specific manufacturer recommendations shall be followed for all compressed gas storage.

Transport/Move

Cylinders must be transported/moved with the valve cap or protective cover correctly in place. Cylinders not designed for protective caps shall have the valves protected from any contact.

Cylinders should be kept in a vertical “valve end up” position, unless specifically designed for inverted or horizontal transport such. Follow specific MSDS recommendations for gas.

- **a** Acetylene cylinders should never be used in a horizontal position and if transported in a horizontal position they must be left upright for a minimum of 30 minutes.

Compressed gas cylinders may be rolled on their bottom edge but never dragged or rolled horizontally on the cylinder’s side.

Use care to prevent damage to the cylinders.

Never use cylinder valves to secure compressed gas cylinders.

For the manual transport of cylinders, wheeled carts specially designed for the purpose of transporting cylinders must be used.

To position cylinders in storage locations or in wheeled carts, the cylinder must be slightly tilted to one side with respect to its vertical axis in order to rotate it on the bottom. No other method shall be used.

Electromagnets, straps, chains or similar objects must never be used to lift or move cylinders.

Never use the valve cover to lift, hook, or handle a cylinder.

Suitable cradles or racks shall be used for hoisting compressed gas cylinders.

Before hoisting compressed gas cylinders, dispensing equipment must be removed and the valve cap or protective cover placed on the cylinder.

Do not transport compressed gas cylinders in vehicle operating compartments.

Use

When making a connection to a cylinder valve, always stand to the side of the valve opening the valve momentarily to clear the valve of any debris.

Never tighten connection or fittings that are under pressure.

When using oxygen cylinders, open the valve completely. This prevents leaks from the valve spindle.

Never set acetylene regulators above a pressure greater than 15 PSI.

Flashback arrestor must be utilized on all flammable, combustible, and oxygen cylinders.

Prevent sparks from falling upon cylinders within the work area. Move the cylinders further away from the area or protect them with welding screens.

Be sure to obtain hot work permits as specified by SOP Hot Work.

If you notice that an acetylene cylinder is heating up, evacuate all personnel from surrounding areas, wet the cylinder with water until it cools down and inform your supervisor.

Do not use compressed gas cylinders for anything other than their intended purpose and only use equipment designed and intended for use with the particular gas.

Never direct any compressed gas at yourself or anyone else.

Always close the cylinder valve and release pressure in the attachments after use and before attempting to disconnect any attachment.