Compressed Gas Cylinder Safety Program

Provided By:

NATIONAL INDEPENDENT BUSINESS ALLIANCE

American Businesses…Stronger Together!

info@nibausa.com
1-844.252.1344
WWW.NIBAUSA.COM

NATIONAL INDEPENDENT BUSINESS ALLIANCE

DISCLAIMER:

YOU assume all responsibility and risk for the use of the safety resources available on or through this web page. The National Independent Business Alliance (NIBA) does not assume any liability for the materials, information and opinions provided on, or available through, this web page. No advice or information given by the NIBA or its employees shall create any warranty. Reliance on such advice, information or the content of this web page is solely at your own risk, including without limitation any safety guidelines and/or resources or any other information related to safety that may be available on or through this web page. The NIBA disclaims any liability for injury, death or damages resulting from the use thereof.

INTRODUCTION

This policy is designed to provide drivers, employees, and all other concerned parties with information regarding the policies and general practices of this company. Written information is provided herein. However, it is not the intent of the company to list all aspects of its programs, policies and or procedures within this policy. It is also understood that the information contained herein is subject to change at the discretion of the company. Additional policies and directives may be issued at any time.

It is the intent of this company to operate a Safe Workplace and in accordance with the regulations set forth by all applicable Regulatory Agencies. Nothing in this policy is designed to supersede these regulations.

All drivers are expected to operate drug-free, safely and courteously on the highways. Evidence that this requirement is not being honored will result in the immediate revocation of the safety clearance of the offending driver.

NATIONAL INDEPENDENT BUSINESS ALLIANCE

The purpose of this safety policy and procedure is to establish guidelines for the protection and safety of [COMPANY] employees who handle and use compressed gases.

Background

Compressed gases are typically stored under pressure in metal cylinders. These cylinders are designed and constructed to withstand high pressures. Improper handling and use of compressed gases can result in devastating consequences. This safety policy and procedure provides guidelines for the safe handling and use of compressed gases. It includes provisions for training and presents safe handling guidelines. It also presents the types, uses, inspection, and marking requirements of compressed gas cylinders. Additionally, this safety policy and procedure presents transportation and storage requirements for compressed gas cylinders.

Policy

It is the policy of [COMPANY] to provide a place of employment that is free from recognized hazards that cause or are likely to cause death or serious physical harm to employees or the public. Therefore, compressed gas cylinders will not be handled by any employees until they have been trained in the safe use, handling, storage, specific hazards and movement of compressed gas cylinders. When hazards exist that cannot be eliminated, engineering practices, administrative practices, safe work practices, Personal Protective Equipment (PPE), and proper training regarding Compressed Gas Cylinders will be implemented. These measures will be implemented to minimize those hazards to ensure the safety of employees and the public.

Responsibilities

Managers

- Provide adequate funds for the purchase of compressed gas cylinder equipment and related supplies
- Identify employees affected by this safety policy and procedure
- Provide proper training to affected employees
- Ensure compliance with this safety policy and procedure through the safety auditing process.

Safety Department

- Provide prompt assistance to managers/unit heads, supervisors, or others on any matter concerning this safety policy and procedure
- Assist in developing or securing the required training

- Coordinate with Purchasing Department to ensure all newly purchased compressed gas cylinders equipment and supplies comply with current safety regulations and this safety policy and procedure

Supervisors

- Not allow any employee who has not received the required training to handle any compressed gas cylinders
- Note defective cylinders and tag them for repair
- Conduct daily inspections of all compressed gas cylinders and equipment under their control or use

Employees

- Comply with all guidelines and procedures of this safety policy and procedure. Employees must immediately report any defective or damaged cylinders or equipment to their supervisor.

Definitions

Compressed Gas (Nonliquefied) - A gas, other than a gas in solution, which under the charging pressure is entirely gaseous at a temperature of 70^0 F.

Cylinder - A portable compressed gas container, fabricated to or authorized for use by the U.S. Department of Transportation (DOT), or fabricated to Transport Canada (TC) or the "Rules for the Construction of Unfired Pressure Vessels," Section VIII, ASME *Boiler & Pressure Vessel Code.*

Flammable Gas - A gas that is flammable in a mixture of 13 percent or less (by volume) with air, or the flammable range with air is wider that 12 percent regardless of the lower limit, at atmospheric temperature and pressure.

Handling - Moving, connecting, or disconnecting a compressed or liquefied gas cylinder.

Liquefied Gas - A gas, which under charging pressure, is partially liquid at a temperature of 20 o C (70 o F).

Nonflammable Gas - A gas that does not meet the definition of a flammable gas.

Oxidizing Gas - A gas that can support and accelerate combustion of other materials.

Safety Relief Device - A device intended to prevent rupture on a cylinder under certain conditions of exposure.

Storage - An inventory of compressed or liquefied gases in containers that are not in thE process of being examined, serviced, refilled, loaded, or unloaded.

Toxic Gas - A gas having a health hazard rating of 3 or 4 defined in NFPA 704, *Standard System for the Identification of the Fire Hazards of Materials.*

Valve Protection Device - A device attached to the neck ring or body of the cylinder for the purpose of protecting the cylinder valve from being struck or damaged from impact resulting from a fall or an object striking the cylinder.

Valve Protective Cap - A rigid, removable cover provided for compressed gas container valve protection.

Employee Training

Employees who use and handle compressed gas cylinders will be trained before initial job assignment and/or job reassignment. Employees will be trained in the safe use, inspection, handling, and storage of compressed gas cylinders. Refresher training shall be provided at the discretion of the supervisor.

Safe Handling Guidelines

Serious accidents can result from the misuse, abuse, or mishandling of compressed gas cylinders. Employees assigned to the handling of cylinders under pressure should follow general safe handling guidelines.

Types of Gases

Compressed gas cylinders are used for a variety of gases in [COMPANY]. These gas cylinders fall into the following categories:

- Flammable
- Toxic and Poison
- Liquid

The flammable gas cylinders predominantly used in [COMPANY] are _____. *(NOTE - insert description of all flammable gases here)* Toxic and poison gas cylinders are used in a variety of applications within [COMPANY].

These cylinders should be marked with a poison gas label. *(NOTE - insert description of use of all toxic and poison gases here)*

Inspections

Compressed gas cylinders must be visually inspected daily for leaks, cracks, etc. This

visual inspection will include the cylinder, safety relief devices, valves, protection caps and stems. If a cylinder is thought to be defective, it should be returned to the supplier for replacement. Under no circumstances should employees attempt to repair defective cylinders. Gages should be checked to ensure that the gas under pressure is not left in hoses when operations are completed.

Marking

For the purpose of identifying the gas content, compressed gas cylinders shall be legibly marked with either the chemical or trade name of the gas. Such marking shall be by means of stenciling, stamping, or labeling, and shall not be readily removable. Whenever practical, the marking shall be on the shoulder of the cylinder for easy identification.

Transportation

Transporting gas cylinders requires careful consideration and appropriate precautions. These considerations and precautions include:

- Motor vehicle transport of cylinders
- Flammable gas and oxidizer cylinders transport
- Hand truck (dolly) transport of cylinders
- Cylinder transport precautions

Motor vehicle transport of cylinders shall only be done with vehicles equipped with racks or other means of securing the cylinders. Cylinders containing liquefied hydrogen or toxic gases shall be transported in open body vehicles.

Flammable gas and oxidizer cylinders transport must not be done together nor with poisons or corrosives. However, oxygen and acetylene cylinder joint transport is allowed if:

- The cylinders are transported in the rear truck bed below the cab level.
- A roll bar is installed over the rear truck bed to prevent the cylinders from falling out of the truck bed in the event of the vehicle overturning.
- Red label, yellow label, white label, green label, or poison label materials are not to be transported on the same load.
- Poison label materials are not to be transported with food or other items intended for human consumption.

Hand truck (dolly) transport of cylinders shall be used for the transfer of compressed gas cylinders from loading area to shop or laboratory or other within-building transfers.

Cylinder transport precautions include:

- Cylinders having the valve protection cover in place while being transported (inter- and intra-building transport)
- Cylinders not being rolled or lifted by the valve or valve cap for moving
- Cylinder valves being shut off and valve caps in place during transit from location to location
- Cylinders that are dropped during transit being taken out of service and returned to the supplier for inspection
- Cylinders being securely supported at all times during transport
- Smoking being prohibited during loading, unloading, and hand transportation of flammable gas cylinders

Storage

The storage of compressed gas cylinders requires precautions and following theses safety guidelines. These include:

- General cylinder storage precautions
- Specific gas cylinder storage guidelines
- Cylinder storage room guidelines

General cylinder storage precautions include:

1. Cylinders being secured in an upright position in a safe, dry, well-ventilated place prepared and reserved for the purpose.
2. Cylinders not being kept in unventilated enclosures such as lockers.
3. Cylinders not being stored in the same area as flammable substances, such as oil and volatile liquids or near sources of heat, such as radiators or furnaces.
4. Cylinders not being stored near elevators, gangways, stairwells, or other places where they can easily be knocked down or damaged.
5. Cylinders being stored on a level fireproof floor.
6. Cylinders stored in the open being protected from contact with the ground and against extremes of weather.
7. Cylinder storage being planned so that cylinders are used in the order that they are received from the supplier.
8. Empty and full cylinders being stored separately, with empty cylinders being plainly identified as such to avoid confusion.
9. Empty cylinders being grouped together that have held the same contents.

Gas Specific Storage Guidelines

Oxygen cylinders should not be stored within 20 feet (6 meters) of highly combustible materials, oil, grease, wood shavings, or cylinders containing flammable gases. (However, for [COMPANY] operations, oxygen and acetylene are typically

paired on a common transfer cart for use.) If closer than 20 feet, cylinders should be separated by a wall with a fire-resistance rating of at least 30 minutes.

Hydrogen cylinders storage locations shall be permanently placarded as follows: "HYDROGEN-FLAMMABLE GAS-NO SMOKING-NO OPEN FLAMES," or equivalent.

Acetylene and liquefied fuel gas cylinders should be stored with the valve end up. If storage is within 100 feet (30.5 meters) of each other and not protected by automatic sprinklers, the total capacity of acetylene cylinders stored and used inside the building should be limited to 2,500 ft 3 . Acetylene storage areas must be well ventilated and open flames must be prohibited. Acetylene storage rooms should have no other compressed gases.

Cylinder storage room guidelines:

- Well ventilated to prevent the accumulation of explosive concentrations of gas
- No ignition sources
- Smoking prohibited
- All permanent wiring in conduit
- Electric lights (portable and fixed) equipped with guards to prevent breakage
- Electric switches located outside the room

Cylinder Protection

All gas cylinders with a water capacity of over 30 pounds shall be equipped with a valve protection cap or with a collar or recess to protect the valve. In addition, cylinders shall be maintained with the protective cap in place at all times unless in use.

Cylinder Servicing

Cylinder service, modifications or repairs will be performed by an authorized individual other than a [COMPANY] employee. Any damaged or faulty equipment will be repaired or replaced by the service representative. Cylinder valves that cannot be opened by hand will not be forced open with tools and will be returned to the supplier for service.

Compressed Gas Cylinders Safe Handling Guidelines

1. Accept only cylinders approved for use in interstate commerce for transportation of compressed gases.
2. Do not remove or change the marks and numbers stamped on the cylinders.
3. Cylinders must never be dragged, pushed, or pulled across the floor.
4. Transport cylinders weighing more than a total of 40 pounds (18.2 kg) on a hand Or motorized truck, securing them from falling.

5. Keep the cylinders clean and protect them from cuts or abrasions.
6. Do not lift compressed gas cylinders with an electromagnet. Where cylinders must be handled by a crane or derrick, as on construction jobs, carry them in a cradle or suitable platform and take extreme care that they are not dropped or bumped. Do not use slings.
7. Do not drop cylinders or allow them to strike each other violently.
8. Do not use cylinders for rollers, supports or any purpose other than to contain gas.
9. Do not tamper with safety devices in valves or on cylinders.
10. Consult the supplier of the gas when in doubt about the proper handling of a compressed gas cylinder or its contents.
11. Clearly write EMPTY in chalk on empty cylinders that are to be returned to the vendor.
12. Close cylinder valves and replace valve protection caps, if the cylinder is designed to accept a cap.
13. Load cylinders to be transported to allow as little movement as possible. Secure them to prevent violent contact or upsetting.
14. Always consider cylinders to be full and handle them with corresponding care.
15. Securely support compressed gas cylinders at all times. Cylinders must not be left "free-standing"at anytime, e.g., cylinders unloaded from truck to loading dock must be secured until placed on a hand truck for delivery within the building.