

Standard Operating Procedure

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| Title: | Safe Handling of Compressed Gases SOP | | |
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1 Introduction and Purpose

The purpose of this Standard Operating Procedure (SOP) is to ensure compressed gas cylinders are handled in a manner which will minimise the risk of accidents, specifically in the transportation and operation of cylinders on all Todd Energy sites.

2 References, Definitions and Abbreviations

[Guidelines for Gas Cylinder Safety \(BOC\)](#)

[PTW Checklist #49 - Working with Nitrogen](#)

[PTW Checklist #58 - Safe Handling of Compressed Gases](#)

3 Procedure

3.1 Health Hazards

The properties of compressed gasses are varied as are the associated health hazards. Some common issues are as follows.

- Asphyxiation – Some gases displace oxygen.
- Toxicity – Some gases are toxic below the odour threshold.
- Corrosive – Some gases are corrosive when in contact with eyes, skin and/or lungs.
- Cold Burns – Contact with some gases will cause cold burns, e.g., LPG.
- Flammable – Some gasses are flammable and/or explosive.

Note: Refer to the SDS in Chemwatch for any details about the properties and health hazards associated with a particular gas. This SDS will also provide guidance on PPE requirements and emergency response.

3.2 Transportation of Compressed Gases

Drivers responsible for the transportation of compressed gases SHALL be familiar with the properties and hazards associated with the various gases carried. The driver SHALL also be familiar with the regulations covering the carriage of compressed gases (HASNO & Dangerous Goods). Key points to remember when transporting compressed gases are as follows:

- Cylinders SHALL be properly secured during transport with valve caps fitted.
- Carriage of cylinders in closed vehicles SHALL be avoided.

1.1 Cylinder Handling

Key points to remember when handling cylinders are as follows:

- All connected equipment SHALL be disconnected, and the valve cap fitted prior to moving cylinders.
- A cylinder trolley or other suitable device should be used to transport cylinders, even over short distances.
- A system of securing the cylinder(s) to the trolley (or similar) should be used.
- Cylinders SHALL be lifted using certified lifting strops and/or lifting eyes. Preference is to lift in a certified cylinder rack.
- One cylinder at a time SHALL be lifted, unless in an appropriately approved rack.

1.2 Cylinder Storage

Key points on cylinder storage:

- Cylinders SHALL be stored in clearly marked, purpose-built compounds, with good ventilation.
- Entry and exit ways to compounds should be kept clear.
- Access to compounds should be restricted to authorised personnel only.
- All appropriate hazard warning signs SHALL be displayed.
- All cylinders SHALL be secured in such a manner so as to prevent toppling or rolling.
- Cylinder valves SHALL always be closed when not in use or empty. Wherever possible, protective valve caps should be in place and properly secured.
- Gas cylinders SHALL be segregated according to the requirements of the Dangerous Goods Act and HASNO requirements.
- Cylinders containing oxygen and oxidants SHALL be kept separate from fuel gases, by distance and/or fire-resistant partition.
- Cylinders containing flammable gases SHALL be stored away from other combustible materials.
- Storage areas containing flammable gases SHALL be checked for flammable or toxic concentrations of the gases in the atmosphere before entering.
- Full and empty cylinders should be kept segregated in the storage area.
- Full cylinders should be so arranged that the oldest stock is used first.
- Cylinders in storage are to be checked periodically for general condition and leakage.

1.3 Valve Safety

- Valves should always be opened slowly and only 1½ turns using the fitted valve handle or the recommended valve key.
- Never over tighten a cylinder valve as this can damage the spindle or the nylon seat in the valve.
- Any damaged or broken valve or spindle SHALL not be operated, and the cylinder must be returned to BOC Gas (or other authorised agent) for servicing and repair by a qualified service person.

1.4 Associated Regulators, Hoses and Equipment

- Only equipment designed to take the relevant gas pressure SHALL be used in conjunction with compressed gases.
- Pressure regulators SHALL be used wherever the compressed gas is supplying equipment designed to operate at a lower pressure than that supplied from the cylinder.
- Only recommended pressure regulators/pressure gauges with recommended ranges SHALL be used with compressed gases. Any defective regulators or gauges SHALL be replaced immediately.
- Before connecting a cylinder to a pressure regulator, check that the O-ring seal is in place and in good condition. Also ensure the regulator screw is completely backed off to avoid damaging the regulator.
- Wherever “flame” processes are involved, flashback arresters SHALL be fitted.
- Never use Oil or any other grease/sealant on cylinder or regulator screw threads
- Only certified and tagged hoses of approved quality SHALL be used.

1.5 General Safety

- All connections/joins should be leak tested once pressurisation occurs. ‘Snoop’ (or similar leak detector) is suitable. Any leak SHALL be corrected immediately.

Note: Depressurise the cylinder first.

- Cylinder labels should not be defaced or removed from any cylinder. If a cylinder has a missing or unreadable label it SHALL be returned to the supplier.
- Chemwatch SDS SHALL be referenced prior to handling/using compressed gases however, if any doubt still exists as to the correct handling of a particular gas, all enquiries should be directed to the local BOC Gas branch.
- Emergency response plans should be discussed and agreed prior to handling/using compressed gases so that in the unlikely event of an accident, emergency teams can deal with it quickly and effectively.

Revision and Approval Details

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