Compressed Gas Cylinders

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1.0 Statement of purpose/objectives

This arrangement will assist in meeting Shropshire Council's core value to achieve more by working and learning together also meet the legislative requirements. The main requirements are to create a safe working environment by ensuring effective control measures are provided for employees who work with compressed gas cylinders.

2.0 Scope

The scope of this arrangement is to promote an active safety culture whilst using compressed gas; this applies to all Shropshire Council employees, agency workers and volunteers at work.

3.0 Definition

The legal term that covers gas cylinders is 'pressure receptacle'. This is a generic term covering many different types of pressure receptacle. For the purpose of this arrangement, the term 'gas cylinder' will mean all types of pressure vessel which may be kept or used in our workplaces.

4.0 Duty of care

Shropshire Council has a general duty of care to protect the health, safety and welfare of its employees so far as is reasonably practicable by ensuring safe working arrangements for the storage and use of compressed gas.

5.0 Assessment of risk at the workplace

Managers and employees must work together to identify potential hazards and the subsequent risk. A suitable and sufficient risk assessment must be carried out prior to the storage or use and disposal of compressed gas and compressed gas cylinders.

6.0 Information, instruction and training

Managers must ensure appropriate information, instruction and training is provided to employees prior to carrying out work activities involving compressed gases.

7.0 Implementation

Management guidance in the form of Frequently Asked Questions will be provided and updated to support the implementation of the arrangement.

8.0 Compliance

This arrangement will enable Shropshire Council to conform to statutory requirements and best current practice. Further references are provided in appendix 1

9.0 Review of arrangement

This arrangement will be reviewed by the Health & Safety Team in three years.

Approving Body

Consultation & Approval Health, Safety & Welfare Group – January 2012

Reviewed October 2021

Frequently Asked Questions

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Appendix 1 - Further information and references.

1. What is the legal term for a gas cylinder?

The legal term for a gas cylinder is transportable pressure receptacles or transportable pressure vessels.

2. What are the duties for the employer?

At Shropshire Council, manager's and supervisors have a duty to provide a safe workplace and safe equipment for our employees.

3. What are gas cylinders used for?

Various gases are used throughout the organisation for different purposes some examples are listed below:

- Water treatment
- Soldering, welding and flame cutting.
- Laboratory use (for teaching purposes).
- Dispensing beverages.
- Extinguishing fires.
- Heating and cooking, (field trips).

4. What are the main hazards?

The main hazards from gas cylinders is:

- The impact from the blast of a gas cylinder explosion or rapid release of compressed gas.
- Impact from parts of gas cylinders or valves that fail, or any flying debris.
- Contact with the released gas or fluid (e.g. chlorine).
- Fire resulting from the escape of flammable gas or fluid (e.g. Liquefied petroleum gas).
- Impact from falling cylinders

- Manual handling injuries.

5. What are the main causes of accidents from gas cylinders?

The main causes of accidents are;

- Inadequate training and supervision
- Poor installation
- Poor examination and maintenance
- Faulty equipment and/or design (e.g. badly fitted valves).
- Poor handling
- Poor storage
- Inadequately ventilated working conditions

6. What are the training requirements?

Accidents involving gas cylinders can cause serious injury or even death. Anyone who examines or uses a gas cylinder should be suitably trained and have the necessary skills to carry out their job safely and should be aware of the risks associated with the gas cylinder and its contents.

- In particular, Service Managers must ensure all new employees required to work with compressed gas cylinders receive adequate training and are closely supervised. The necessity for training will be identified during the risk assessment process.
- Details of manual handling training courses can be found on the Health and Safety Team web pages.
- Users should be able to carry out visual inspection of the gas cylinder and any attachments (e.g. valves, flexible hoses, flashback arrestors, and regulators) to determine whether they are damaged. Visible indicators may include dents, bulges, evidence of fire damage (scorch marks) and severe grinding marks etc.

7. What are the gas cylinder maintenance requirements?

The law requires that all gas cylinders are:

- Examined and tested by the relevant inspection body.
- Permanently marked by the relevant inspection body to show the date of the last periodic examination.

8. How should I handle and use gas cylinders?

- Always use gas cylinders in the upright position, unless specifically designed to be used otherwise.
- Always securely restrain cylinders to prevent them falling over
- Always double check that the cylinder/gas is the right one for the intended use.
- Before connecting a gas cylinder to equipment or pipework make sure that the regulator and pipework are suitable for the type of gas and pressure being used.
- When required, wear suitable safety shoes and other personal protective equipment when handling gas cylinders.
- Do not use gas cylinders for any other purpose than the transport and storage of gas.
- Do not drop, roll or drag gas cylinders.
- Close the cylinder valve and replace the dust cap, where provided, when the cylinder is not in use.
- Do not use valves, shrouds and caps for lifting cylinders unless they have been designed and manufactured for this purpose.

9. How should I store gas cylinders?

- Gas cylinders should be stored in a dry, safe place on a flat surface in the open air. If this is not reasonably practical store in an adequately ventilated building or part of a building specifically reserved for this purpose.
- Gas cylinders containing flammable gas should not be stored in part of a building used for other purposes.
- Protect gas cylinders from direct sunlight and external heat sources that may adversely affect their mechanical integrity.
- Gas cylinders should be stored away from sources of ignition and other flammable materials.
- Gas cylinders should be stored upright, when designed for this, and suitable measures have been provided to prevent them from toppling over. Full and empty cylinders should be stored separately.
- Avoid storing gas cylinders so that they stand or lie in water.
- Ensure the valve is kept shut on empty cylinders to prevent contaminants getting in.
- Store gas cylinders securely when they are not in use. They should be properly restrained, unless designed to be freestanding.
- Gas cylinders must be clearly marked to show what they contain and the hazards associated with their contents.
- Store cylinders where they are not vulnerable to hazards caused by impact, e.g. from vehicles.
- LPG cylinders must not be stored within 3m of any compressed gas cylinders (including acetylene). The separation requirement can be relaxed when the quantity of LPG stored is less than 50kg. (Seek advice from the Health and Safety Team).
- Toxic and corrosive gases are to be stored separated from all other gases by at least 1m.

10. What signage is required?

All gas cylinders must be clearly marked to show what they contain and the hazards associated with their contents. The workplace's who have responsibility for compressed gas cylinders are responsible for their own signage.

All gas storage areas are to have clear signage to identify the hazards associated with the storage facility. The hazards associated with gases may include:

- Flammable
- Toxic/Corrosive
- Inert
- Oxidising

It is the responsibility of the line manager/supervisor to ensure the correct signage is in place. The Health and Safety Team can advise on the signage to be used if required.

11. What is the colour scheme for gas cylinders?

The colour scheme standard (BS EN 1089-3) governs the colour coding of gas cylinders.
Under the colour scheme - Certain gases have a specific colour for the shoulder of the gas bottle:

- Argon – Dark green
- Carbon Dioxide – Grey
- Helium – Brown
- Nitrogen – Black

- Nitrous Oxide – Blue
- Oxygen – White
- Acetylene – Oxide red/maroon

Other gases will have the hazard property displayed on the shoulder of the gas bottle:

- Flammable – Red
- Toxic/Corrosive – Yellow
- Inert – Bright Green
- Oxidising – Pale Blue

Note: more than one hazard property may be shown on the cylinder shoulder e.g. red and yellow. For further information or clarification please contact the Health and Safety Team.

12. Compressed gas monitoring

Line managers/supervisors will monitor compressed gas installations and storage facilities to ensure all safety precautions are being observed and compressed gas cylinder records maintained. The monitoring will be included as a function of the Health and Safety Audit programme.

Line managers/Supervisors must be informed of any additional compressed gas or LPG bottles being located at their premises. Additions will be included in the register accordingly.

The Shropshire Council Fire Safety Officer will review the location of compressed gas and LPG storage facilities on all premise fire plans.

13. Can gas cylinders be carried in a closed vehicle?

The vehicle used for conveyance must be properly designed, of adequate strength and good construction, properly maintained, displaying appropriate signage, thus making it suitable for its purpose. The use of open vehicles is always recommended, but small quantities of cylinders can be transported in closed vehicles if proper precautions are taken.

14. Do I have to comply with the Carriage of Dangerous Goods and Use of Transportable Pressure Receptacles Regulations 2004?

Yes, everyone carrying gas cylinders in the course of their work in a vehicle must follow basic legal safety requirements; however, the full requirements of the Carriage Regulations may not apply.

15. What is the legislation relating to gas cylinders?

The principal sets of regulations covering gas cylinders are:

- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.
- The Pressure Equipment (Safety) Regulations 2016 which came into force on 8th December 2016 and have subsequently been amended by Schedule 24 of the Product Safety and Metrology (Amendment) (EU Exit) Regulations 2020.
- Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations

16. Has any type of gas cylinder been excluded from this arrangement?

Yes, this arrangement does not cover breathing apparatus or fire extinguishers.

Appendix 1

Further information and references

The Health and Safety Toolbox (HSG268 (2014)) replaces the Essentials of health and safety at work (Third edition).

Control of Substances Hazardous to Health Regulations (COSHH).

The Workplace (Health, Safety and Welfare) Regulations.

The use and storage of compressed gas and compressed gas cylinders.

Provision of Use of Work Equipment Regulations (as amended).

The British Compressed Gas Association (B.C.G.A.) also produces guidance on the use and storage of compressed gas and compressed gas cylinders and Carriage of gas cylinders by road in cars, vans and other vehicles.

The colour scheme standard (BS EN 1089-3) governs the colour coding of gas cylinders.