



CODE of PRACTICE

THE USE AND STORAGE OF COMPRESSED GAS CYLINDERS

JUNE 2006.

Compressed Gas Cylinders

1. Introduction

1.1 Accidents involving gas cylinders can cause serious injury or even death. This Code of Practice provides simple practical advice to Heads of Departments on eliminating or reducing the risks associated with using gas cylinders.

1.2 The legal term that covers gas cylinders is 'pressure receptacle'. This is a generic term covering many different types of pressure receptacle including pressure drums and cryogenic receptacles etc. etc. However, for the purpose of this Code of Practice, the term 'gas cylinder' will mean all these various types of pressure vessel which may be kept in departments.

1.3. A register of all gas cylinders, including LPG, is maintained by the University Health and Safety Advisor. The Health and Safety Advisor will circulate the list to those on the register every six months to ensure the information is up to date. A copy of the register will be available on the Health and Safety Website at <http://www.canterbury.ac.uk/support/health-safety/> .;

2. Uses of Gas Cylinders

2.1 Various gases are used throughout the University for different purposes:

- Chemical processes
- Soldering, welding and flame cutting.
- Medical and laboratory use (for teaching purposes).
- Dispensing beverages.
- Extinguishing fires.
- Heating and cooking, (field trips)

2.2. The main Hazards are:

- 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.
- Fire resulting from the escape of flammable gas or fluid
- Impact from falling cylinders
- Manual handling injuries.

3. Training

3.1 Anyone who examines, fills or uses a gas cylinder should be suitably trained and have the necessary skills to carry out their job safely and they should be aware of the risks associated with the gas cylinder and its contents.

3.2 In particular, heads of department are to 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.

3.3 All personnel involved with the handling of compressed gas cylinders are to receive manual handling training. Details of Manual Handling Training can be found in the Staff Development Handbook.

4. Identification of Gases

4.1. From Autumn 2005 a new standard (BS EN 1089-3) governing the colour coding of gas cylinders is coming into force across Europe. As a result, some cylinders received from our supplier will have a new colour scheme. However, the change over period for the new scheme is five years and to avoid confusion during this change over period **the cylinder label is the key descriptor in every instance. Extra care must be taken during the change over period.**

4.2. The New Colour Scheme - Certain gases under the new standard 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 – however it is UK law for acetylene cylinders to be painted Maroon, therefore BOC (our supplier) will continue to paint acetylene cylinders 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.

It is recognised the introductory period for the new standard is likely to create a degree of confusion. For more information or clarification please contact the University Health and Safety Advisor

5. Storage of Compressed Gas Cylinders

5.1. Heads of Department or their delegated representative are to observe the following criteria for storing compressed gases:

- Gas cylinders should not be stored for excessive periods of time. A record of the 'use by' date is to be maintained within the department.
- Rotate stocks of gas cylinders to ensure 'first in' is 'first used'.
- Wear suitable safety shoes and other personal protective equipment when handling gas cylinders.
- Compressed gas cylinders are to be securely restrained to ensure they can not fall from their vertical storage position.
- Always double check the gas being used is the correct one for the intended use.
- Store gas cylinders in a dry, secure area on a flat surface in the open air. If this is not reasonably practicable, store in an adequately ventilated building or part of a building specifically reserved for this purpose.
- Gas cylinders containing flammable gas are not to be stored in part of a building used for any other purpose.
- Protect gas cylinders from external heat sources that may adversely affect their mechanical integrity.
- Gas cylinders are to be stored away from sources of ignition and other flammable materials.
- Gas cylinders are to be stored on a surface which is free draining.
- Store gas 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 University Health and Safety Advisor).
- Toxic and corrosive gases are to be stored separated from all other gases by at least 1m.

6. Signage

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

6.2. All gas storage areas are to clearly marked to identify the hazards associated with the storage facility. The hazards associated with gases will include:

- Flammable
- Toxic/Corrosive
- Inert
- Oxidising

It is the responsibility of the Head of Department to ensure the correct signage is in place. The University Health and Safety Advisor will advise on the signage to be used if requested by the Head of Department or their delegated representative.

7. Compressed Gas Monitoring

7.1. The University Health and Safety Advisor 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 Advisors six monthly departmental Health and Safety Monitoring Programme.

7.2. The University Health and Safety Advisor must be informed of any additional compressed gas or LPG bottles being located on University premises. Additions will be included in the register accordingly.

7.3. The University Fire Safety Advisor will include the location of compressed gas and LPG storage facilities on all University fire plans. As prepared and distributed by the University Fire Safety Advisor.

8. Legislation

8.1. The two principal sets of regulations covering gas cylinders are:

- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004. (the "Carriage Regulations").
- The Pressure Equipment Regulations 1999.

8.2. In addition to these regulations the HSE have published guidance - <http://www.hse.gov.uk/cdg/pdf/safusgc.pdf> - on the use and storage of compressed gas and compressed gas cylinders.

8.3. The British Compressed Gas Association (B.C.G.A.) also produces guidance on the use and storage of compressed gas and compressed gas cylinders <http://www.bcgga.co.uk/>.