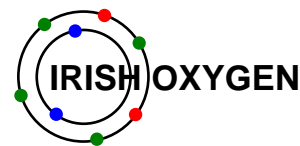


Cylinder Storage and Handling



The following general practices are recommended for the safe handling and storage of high pressure gaseous and liquefied compressed gases in transportable cylinders. Additional precautions may be necessary depending upon the category to which the gas belongs (corrosive, toxic, flammable, pyrophoric, oxidant, inert) and the individual properties of the gas and the process in which it is used.

IDENTIFICATION

All gaseous chemical cylinders are legibly and durably labelled at the valve end of the cylinder in accordance with United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS), European Union's CLP (Classification, Labelling and Packaging) regulation and the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) regulations.

Primary identification is by means of the name of the product on the label and its corresponding UN and EC numbers. Risks and hazards associated with the product are also detailed on the label.

SECONDARY AID TO IDENTIFICATION

Cylinders of many industrial gases are painted a ground colour in accordance with BS349. Products not listed in BS349 have a ground colour of pastel pink.

As a further aid to product identification of gaseous chemicals, cylinders are marked at the valve end with appropriate warning colour bands to denote potentially hazardous flammable and/or toxic properties of the cylinder contents. The warning colour bands are defined as follows: Flammable products - RED band; Toxic products - YELLOW band.

For mixtures of gaseous chemicals the secondary identification warning band(s), as relevant, are painted as prescribed above. All cylinders to which a flammable or toxic gaseous chemical has been deliberately added during the manufacture of the mixture, no matter how small the concentrations are marked in this manner.

Cylinder colour only serves as an aid to identification and the primary means of identification should always be by the product label.

GENERAL

Only trained persons should handle compressed gases.

Observe all regulations and local requirements regarding the storage of cylinders.

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

Ascertain the identity of the gas or gas mixture before using it.

Know and understand the properties and hazards associated with each gas or gas mixture before using it. These can be obtained from the Safety Data Sheet (SDS).

Establish and implement plans to cover any emergency situations that might arise.

Always consult the Safety Data Sheet (SDS) of a product before use. Where doubt exists as to the correct handling procedure for a particular gas, contact Irish Oxygen.

Safety Data Sheets (SDS) and other information are available at www.irishoxygen.com.

HANDLING AND USE

Wear stout gloves.

Inspect cylinders for evidence of damage. Damaged cylinders or cylinders with damaged valves must not be used. Report any such damage to Irish Oxygen.

Use a trolley or other suitable device or technique for transporting heavy cylinders, even for a short distance.

Do not remove valve protection guards from the cylinder.

Wear suitable eye and face protection.

For toxic gases see that self-contained positive pressure breathing apparatus or a full face air line respirator is available in the vicinity of the working area.

VALVES AND OUTLET CONNECTION

Responsibility rests with the user for understanding and ensuring correct usage of the cylinder valve. Any malfunction or defect, suspected or actual with regard to the cylinder valve must be reported immediately by the user to Irish Oxygen for action. Do not tamper with the cylinder valve in any way whatsoever. **Never oil a valve stem if it is stiff.**

Different threaded valve outlet connections are used to assist segregation of chemically different gases and gas mixtures. It must be emphasized that this means of segregation should at all times be deemed secondary to the identification of the gas or gas mixture by the cylinder label and a proper knowledge of gas or gas mixture properties.

Never permit oil, grease or other combustible substances to come into contact with valves of cylinders containing oxygen or other oxidants.

Keep cylinder valve outlets clean and free from contaminants, particularly oil and water.

Do not subject cylinders to abnormal mechanical shocks which may cause damage to their valves or safety devices.

Never attempt to repair or modify cylinder valves or safety relief devices. Damaged valves should be reported immediately to Irish Oxygen.

Close the cylinder valve whenever gas is not required, even if the cylinder is still connected to equipment.

Replace outlet caps or plugs and cylinder caps (where provided) as soon as the cylinder is disconnected from equipment.

MEANS OF PRODUCT WITHDRAWAL

Most cylinders contain compressed gases and a valve at top of the cylinder withdraws product in gaseous form. Some cylinders contain liquefiable gases and the valve may be fitted with a dip tube to enable liquid to be withdrawn from the cylinder. Cylinders fitted with product withdrawal devices of this nature are clearly identified.

STORAGE

Cylinders should be stored in a well ventilated area. Some gases and gas mixtures will require a purpose built area.

Store cylinders in a location free from fire risk and away from sources of heat and ignition. Designate as a 'No Smoking' area.

The storage area should be kept clear and access restricted to authorised personnel only. The area should be clearly marked as a store and appropriate hazard warning signs displayed (flammable, toxic, corrosive etc.).

Cylinders in storage should be properly secured to prevent toppling or rolling. Vertical storage is recommended where the cylinder is designed for this. Cylinder valve protection guard or cap should be in place and properly secured.

Store full and empty cylinders separately and arrange full cylinders so that the oldest stock is used first.

Gas and gas mixture cylinders should be segregated in the storage area according to the various categories (toxic, flammable, oxidant, etc.).

Flammable gases and gas mixtures should be stored away from other combustible materials and from oxidant gases and gas mixtures.

Cylinders held in storage should be periodically checked for general condition and leakage.

The amounts of flammable or toxic gases in storage should be kept to a minimum.

Never use regulators or control valves with gases other than those for which they are intended.

Ensure inlet and outlet pressure gauges are suitable for the pressure of the cylinder and required working pressure. If in doubt consult Irish Oxygen.

This is a guide only and a customer should obtain safety advice from a competent person following a review of the customer's handling procedures and storage facilities.