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safer working environments

Gas Cylinders - An Overview

What are Gas Cylinders?
As defined by Wikipedia, a gas cylinder is a pressure vessel for the storage and containment of gasses at above atmospheric pressure. High pressure gas cylinders are also often called gas bottles.

Under the GHS classification, all hazardous gases have hazard classifications, e.g. Class 2 (flammable), Class 5 (oxidising), and Class 6 (toxic). Examples of these substances include LPG, propane, butane, CNG, hydrogen (flammables), Oxygen, chlorine, nitrous oxide (oxidisers), and phosgene, sulphur dioxide, and anhrdrous ammonia (toxics).

For an overview of hazardous substances read our editorial **here**.

Where are Gas Cylinders most likely to be found?
Gas cylinders are used across a wide range of industries, including science and education, medical, manufacturing, civil construction, engineering, and hospitality.

What are the risks to people and the environment?
The contents of a gas cylinder store the energy that is compressed within and if the cylinder is weakened, this mechanical energy may be released violently, causing significant harm to people and property nearby.

It is also worth noting, some gases store a considerable amount of chemical energy, and may react chemically with the environment.

How should I store Gas Cylinders?
According to **WorkSafe**, irrespective of the type of gas or the quantity stored, gas cylinders should be stored in a location that:

a. Is suitable for the type and quantity stored
b. Is secure and well ventilated
c. In the case of flammable gases, is of fire resisting construction

d. In the case of flammable gases, is suitably separated from potential sources of ignition
e. In the case of flammable or toxic gases, is not a person's work area and the quantities stored meet the required separation distances from areas of high and low intensity land use
f. In the case of flammable or oxidising gases, has portable fire extinguishers available
g. Where required by quantity, an emergency response and hazardous substance warning signage is in place

In addition to this, it is good practice for the cylinders to be adequately protected from the weather. It is important that cylinders are stored, handled, and used in an upright position wherever possible.

At Hazero we have a range of Gas Cylinder Stores:
- **Hazero Gas Cylinder Store - Extra Small**
- **Hazero Gas Cylinder Store - Small**
- **Hazero Gas Cylinder Store - Medium**
- **Hazero Gas Cylinder Store - Large**
- **Hazero Gas Cylinder Store - Extra Large**

If you're unsure of what sized gas cylinder you have on site, our helpful resource sheet on common gas cylinder sizes can help, click **here** to find out more.

What are the cabinet design requirements for Gas Cylinder Stores?
The guiding document for the gas cylinders is the AS 4332-2004 Standard: Storage and handling of gases in cylinders.

What are the ventilation requirements for Gas Cylinders?
The Standard requires ventilating the area where cylinders are stored so that safe exposure levels are maintained, and the gases remain within explosion limits.

What are the storage quantity limits for Gas Cylinders?
The majority of New Zealand worksites using gas cylinders would store less than 2,000 litres of gas and are therefore classified as 'minor storage'. The 2,000 litres is an aggregate quantity of all gases, and if any of the gases exceed the quantities listed below, the site is no longer considered as 'minor storage' and the full Standard above applies:

1. Class 2.1 Flammable Gases - 500 litres
2. Class 2.2 Non-Toxic Gases - 2,000 litres
3. Class 2.1 (5.1) Non-Toxic, Oxidising Gases - 1,000 litres
4. Class 2.3 Toxic Gases - 50 litres

Where can I put a Gas Cylinder Store?
Ideally the cylinders should be located outdoors, in a dedicated gas store on a flat, concrete surface. Note that gas cylinders should not be stored in a basement.

Keep the cylinders away from industrial sources of heat such as radiators, furnaces, machinery, and hazardous piping.

What are the segregation requirements for Gas Cylinders?
Keep Class 2.1, Class 2.2 (5.1) and Class 2.3 gases segregated from each other (as well as other DG's) by at least 3 metres. If the gases are stored indoors, this must be 5 metres.

What are the signage requirements for Gas Cylinders?
Hazard decals should be clearly displayed on the outside of any gas cylinder store or storage area, pertaining to the hazard class or classes of the gases stored within.

Incompatible substances
Please consult the **Hazero Dangerous Goods Segregation Chart** for specific details.

The Hazero Shield of Honour

The Hazero Shield of Honour is more powerful than a "lifetime guarantee".

It means our reputation is on the line not only when a product is sold, but every single time it is used. If the product doesn't meet your expectations over the next 99 years, we or our descendants (we're a multi-generational company), will refund, replace, or repair it. Free of charge.

You don't need a receipt. Or even a reason. No questions asked. Naturally, that's so long as you use your Hazero product as intended and in accordance with existing legislation.

Shield your people. Shield your business.
Find out more **here**.

Creating safer working environments
At Hazero our mission is **zero hazards.** Our extensive range of quality products will help you store, contain and control and clean-up dangerous goods and hazardous substances.

View our full range of Hazero Gas Cylinder Stores **here**.

Need help creating a **safer working environment**? Contact our team today on **0800 688 844** or email us at **info@hazero.co.nz**. Our team are also available for on-site assessments across New Zealand, click **here** to request a site visit.

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