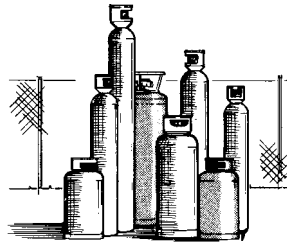


## Safe Cylinder Storage

Cylinders can be many different shapes and sizes and all cylinders have the potential to cause injury and damage if stored incorrectly.

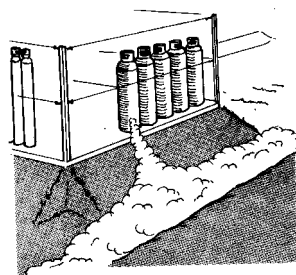
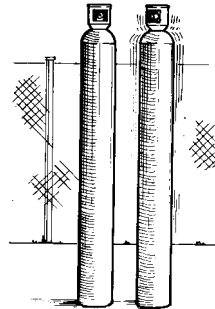
This leaflet gives the guidelines for storing cylinders safely. For further advice and information, **ask your supervisor or contact Air Products.**



The whole range of gases produced by Air Products in a variety of cylinder sizes and shapes requires that many factors must be considered when storing cylinders, even for short periods of time. The

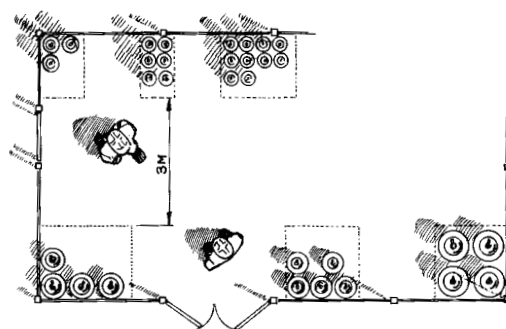
following principles should be applied in Air Products depots and Sales Centres, at Agents sites and at customers premises.

Most cylinders are tall and thin. This makes them inherently unstable, therefore the storage area must have a level flooring with a slight fall to prevent water from collecting around the base of the cylinders and the associated hazards of ice in cold weather. Good housekeeping is essential to prevent debris collecting in the area and affecting the stability of the cylinder.

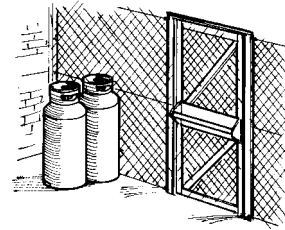


Since many cylinder gases are heavier than air, care must be taken to ensure any leaks cannot accumulate in ditches, drains or low lying areas.

The size and layout of the area must leave sufficient room for access, especially if any handling equipment is being used.

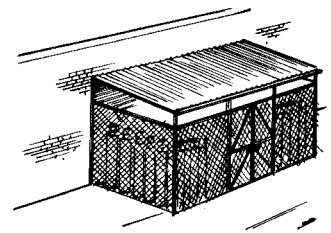


### Compound design

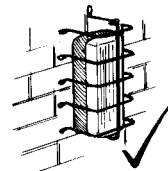


There must always be an emergency exit from all areas of the compound and where required escape gates must open outwards. They must not be obstructed either inside or outside of the compound.

All compounds must be well ventilated. Where a covered area is essential at least two sides should be open to allow sufficient air-flow to prevent any build-up of gas.

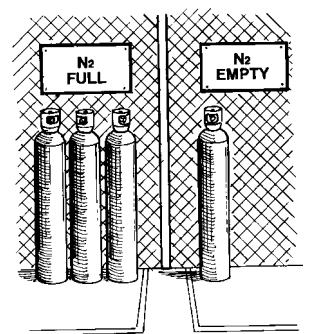


Additionally where artificial lighting is required, emergency lighting must also be provided in case of failure of the main system.



Obviously, where flammable gases are stored, all lighting and any other electrical equipment including tools used in that area must be flameproof and suitable for a hazardous area.

The site or compound should be clearly marked to show the areas for the different gases. Full and empty cylinders should be stored separately and each area clearly identified.



Pyrophoric gases must be stored away from all other gases.

### Separation distances

Boundary fence	3 metres
Other cylinders	3 metres
Drains/Electrical equipment	2 metres
Cryogenic Storage	7.5 metres

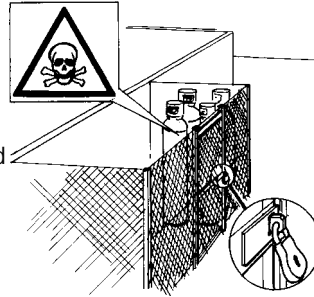
Separation distances are dependant on many factors. For definitive guidance refer to LPGA Code of Practice No. 7. Additionally, to allow ease of access, a walkway of at least half a metre between every six rows of cylinders should be made.

## Security

Where the perimeter of the whole site is not secure, security must be provided for a cylinder compound to prevent access by the public to the cylinder area.

When toxic cylinders are involved, the site or compound should be kept locked and secure when not being supervised.

Highly toxic products such as Arsine ( $AsH_3$ ) and Boron Trifluoride ( $BF_3$ ) must be stored in a locked compound at all times.



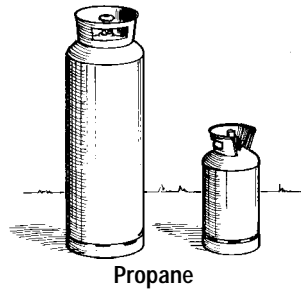
## Stock control

It is essential to know what cylinders are on site so that in an emergency, all the potential hazards in each area are known and the correct action can be taken.

Continuous cylinder rotation is important to prevent deterioration of the cylinder, its paintwork and labelling and also, particularly for p.p.m. mixtures of speciality gases, of the product itself.

## Liquefied gases

All liquefied gas cylinders with relief devices fitted **must always** be stored upright to prevent large liquid escapes, should the relief device operate.

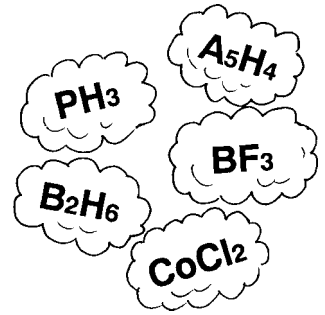


**N.B.:** LPG must not be stored in rows of more than six cylinders.

Special rules apply to liquefied petroleum gases, because of their wide use both industrially and domestically, for cooling and heating.

## Highly toxic gases

Highly toxic gases, due to their special properties, which could cause a major incident if a leak occurred, must be stored especially carefully.



## Special rules

1. Approved sites only. **Not** Agents or Sales Centres.
2. Minimum quantity stored. No batch kept for more than 12 months.
3. Storage compound locked at all times and cylinders strapped or palletised.
4. Stored at least 3 metres from site boundary, other property and gas cylinders.

## Further information

- British Compressed Gases Association,  
[www.bcgga.co.uk](http://www.bcgga.co.uk)  
Tel 02380 641488
- LP Gas Association  
[www.lpga.co.uk](http://www.lpga.co.uk)  
Tel 01425 461612

**tell me more**  
[www.airproducts.com](http://www.airproducts.com)