

# GUIDELINES FOR GAS CYLINDER SAFETY

## Transporting gas cylinders

### Hazards

Compressed and liquefied gases are potentially hazardous for the following reasons:

- The gas pressure is high and a ruptured cylinder or valve can cause serious injury or damage.
- Heat may cause any safety device fitted to operate and release contents.
- When a liquefied gas is released it vaporises and creates large amounts of gas.
- Some gases are very flammable and a leakage can create an explosive atmosphere in a vehicle.
- Oxygen enrichment causes material to ignite easily and will increase the intensity of the fire. Nitrous oxide has similar properties.
- Inert gases can cause oxygen deficiency and asphyxiation.
- Toxic or corrosive gases are hazardous to health.

Information on the hazards can be found on the cylinder label, and in the material safety data sheet that is freely available from your gas supplier.

### Risks

- Dangerous Goods Division (Class) 2.1 Flammables (e.g. Acetylene, Ethylene, Hydrogen, LPG) – may cause flammable or explosive atmospheres in the vehicle compartment.
- Dangerous Goods Division (Class) 2.2 Inerts (Nitrogen, Argon, Shielding Gases) – may cause an asphyxiating atmosphere leading to drowsiness, unconsciousness and death.
- Dangerous Goods Division (Class) 2.2 refrigerated liquids (Liquid Nitrogen, Argon) – evaporate to large volumes of inert gas (see above), extremely cold temperatures.
- Unsecured Cylinders may cause damage to people, vehicles and can lead to violent cylinder rupture in transport. When transporting cylinders always ensure they are secured in place.

Note: The Dangerous Goods Division (Class) is identified by a hazard diamond which is normally clearly marked on the product label.'

## Carrying a load safely

Choosing a vehicle wisely

The vehicle must be suitable for the size and type of load. The vehicle must

be roadworthy, including:

- Tyres with sufficient tread
- Undamaged body
- Lights
- Load securing points

The vehicle must be equipped to conform to the requirements of the transport of dangerous goods regulations. The maximum payload of the vehicle must not be exceeded.

Positioning the load correctly

The load must be correctly positioned on the vehicle to maintain its stability.

Using suitable restraint equipment

The load restraint equipment and the vehicle body and attachments must be strong enough for each type of load carried, and must be in good working condition.

## Securing gas cylinders for transport in commercial or passenger vehicles under 2.5 tonne

### General guidelines

#### Precautions

The safest and recommended method to transport gas cylinders is by a professional gas transport company. Occasionally, there might be a need to use other transport systems and it is then essential to follow safety instructions for full and empty cylinders:

- Secure all cylinders against moving during transport.

Also consider the forces in a traffic accident.

- Limit the number of cylinders to be transported (2 Cylinders)
- Use open vehicles or trailers in preference to any enclosed vehicles or trailers. Do not cover with a tarpaulin.
- Ensure that the contents label on the cylinder can be clearly read.
- Never drop cylinders or submit them to shock. This is an extremely hazardous practice which may result in serious injury.
- Where possible, use mechanical lifting devices and trolleys to move cylinders.
- Wear safety shoes or boots, safety glasses or goggles, and leather protective gloves when handling cylinders.
- When handling oxidising or flammable gases, do not smoke or use a mobile phone.
- Cylinders should not be left in an enclosed vehicle on a hot day.

Temperatures may be hot enough to activate the burst disk, and if the cylinder is also unrestrained, the release of gas can cause the cylinder to move/ and or spin and cause significant damage to the inside of the vehicle.

#### For non-flammable, non-toxic gas loads:

- An open vehicle with sides is preferable.
- Box vans may be used provided the driver's cab is separate from the load carrying area. This means that the driver's cab is separately ventilated from the load carrying area.