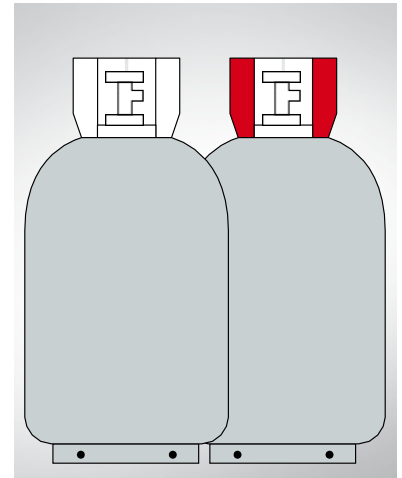




# Safety instruction.

## Propane



Propane C<sub>3</sub>H<sub>8</sub>

Engine gas C<sub>3</sub>H<sub>8</sub>

### Features

Propane is a flammable, colourless, highly odorous gas that is about 1.5 times heavier than air. In a gas cylinder, it is in liquid form. Propane is not toxic, but in high concentrations, it is suffocating.

### Risk of fire and explosion

Propane has a high energy content. When ignited, a mixture of propane and air or oxygen releases a lot of heat energy. The ignition limits in air, at atmospheric pressure are 2-10% vol. The ignition energy required is low and a spark from an electrical appliance, for example, can ignite a propane-air mixture. Sparking must be eliminated by grounding propane equipment and buildings properly, and by selecting suitable propane Ex-proof electrical equipment.

### Storage

Propane cylinders must be stored in a well-ventilated area, with the valve in the upright position. They must not be stored in basements, near passageways or under stairs. The maximum storage temperature is +40°C. No more than 25 kg of propane may be stored in the living quarters.

**Open fires and smoking in the warehouse are strictly prohibited.**

### Propane cylinders

Depending on the application, the propane cylinders are supplied with four different valves:

#### 1. Pressure valve (PV valve)

Mainly used in the household.

#### 2. Side or screw valve (KV valve)

Used mainly in households, caravans and motor homes, and boats. The valve is identified by the **O-ring seal** on the end face of the outlet connection.

#### 3. Engine gas valve (MK valve)

**Use permitted only as an internal combustion engine propellant**, e.g. in forklift trucks. Propane flows from a cylinder in liquid form.

The valve can be identified by the flat end face of the outlet connection, which does not have a seal.

In addition, the aluminium cylinders supplied by Linde carry the following text: engine gas, authorised only for internal combustion engine as a working gas.

#### 4. Industrial threaded valve (TK valve)

Use only with high pressure regulators for professional applications.

The valve can be identified by the flat end face of the outlet connection, which **does not have a seal**.

**Safety measures in use  
in connection with**

The cylinder must always be used in the upright position (not motor gas) so that the propane comes out of the cylinder in a gaseous state.

As propane consumes large amounts of oxygen when it burns in the air, adequate ventilation must be provided and vents must not be blocked.

**What to do in an  
emergency****1. Leaking cylinder**

- avoid contact with escaping gas
- do not smoke
- do not use electrical switches
- close the cylinder valve, if possible

**If the cylinder valve cannot be closed**

- preferably move the cylinder outdoors away from all sources of ignition
- let the pressure escape from the cylinder, isolate the environment and deny access to unauthorised persons
- alert the fire department

Because propane is much heavier than air, a large leak can cause it to accumulate in low-lying areas such as drains or basements and create an explosion hazard.

**2. Propane cylinder with valve fire**

- remove all undamaged cylinders from the danger area
- cool all heated cylinders from a safe place to reduce the pressure
- close cylinder valves, if possible

If the valve cannot be closed, allow the gas to burn and cool the cylinder and surroundings with water, as the gas released from the cylinder can cause an explosion in the room when it mixes with the air and ignites.

A burning flame in a cylinder valve should therefore only be extinguished if it poses a particular danger when burning and if

- Valve can be closed quickly
- The leak is very small and the cylinder can be quickly moved away from the danger zone

When cooling propane cylinders with a water jet, be careful not to spill the cylinders. If possible, lift up any fallen cylinders, as the liquid gas escaping from the safety valve will come in liquid form and the safety valve will not have enough capacity to prevent the cylinder from exploding.