

01

POCKET GUIDE
SAFETY

The content of gas cylinders

MESSER 
Gases for Life



Dear user of Messer gases,

Messer produces and supplies a broad portfolio of gases. Gases are safe to handle – as long as you respect their particular properties.

Each gas has its own properties, which provides advantages, but also gives rise to significant risks. Note also that the gas inside the gas cylinder is under high pressure.

It is therefore essential that you familiarise yourself with the properties of the gas in your pressurised gas cylinder. The same applies to the hazards associated with it.

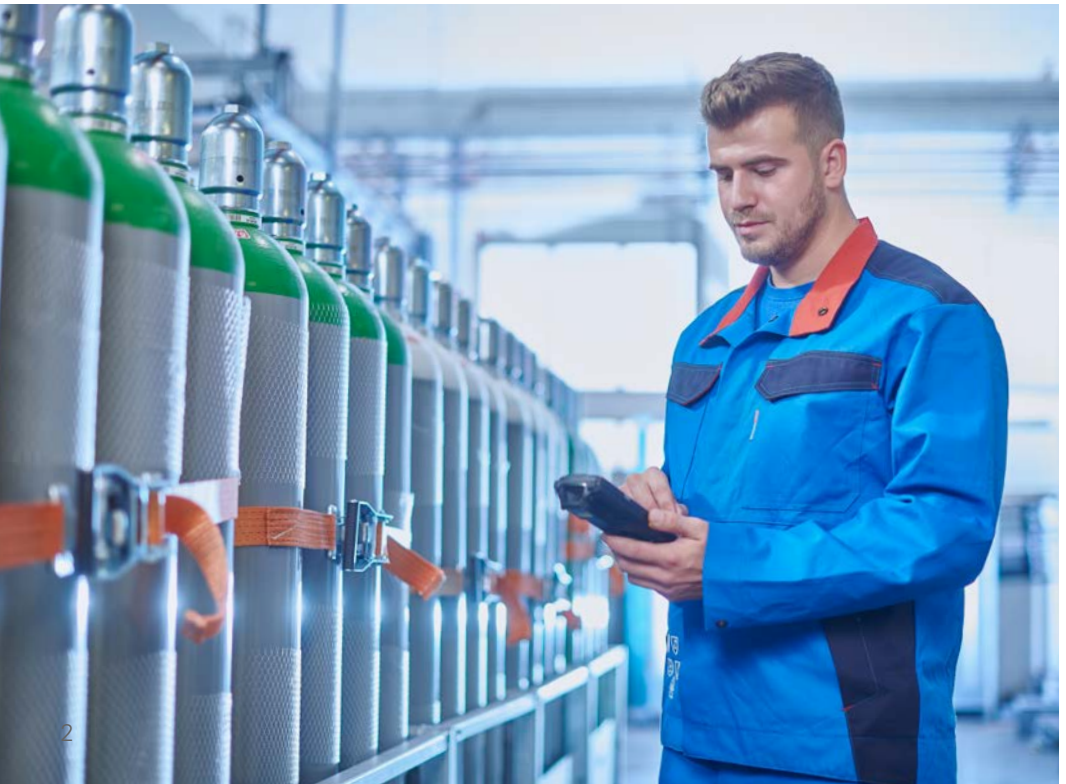
This pocket guide provides you with information on how to quickly identify hazards and risks associated with the gases that you are using and is meant to supplement regulatory provisions.

Please keep this safety sheet within easy reach at all times.

Important

With each product, Messer provides you with a safety data sheet containing important safety instructions on gases. Please familiarise yourself with this information.

Your Messer Team



Ordering of gas cylinders

We need the following information to supply the right product

- Name of the gas and the desired purity
- Size of the gas cylinder in litres
- Desired pressure (e.g. 150, 200 or 300 bar)
- Valve connector

Messer staff will be pleased to help you choose the correct product.

Receipt of gas cylinders

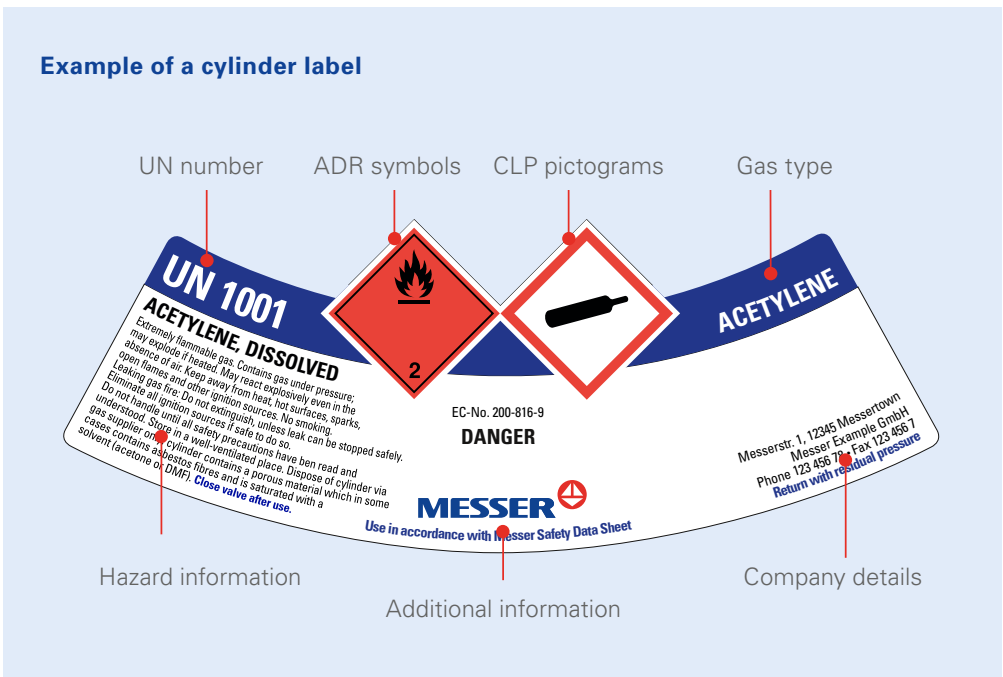
Make sure that the cylinder label is present and easily legible. If the label is illegible or missing, do not use this gas cylinder.

Exchange the gas cylinder for a cylinder with a label that is in good condition.

Make sure that the name of the gas on the cylinder label matches your order.

As a new user, you must be issued with the relevant **safety data sheet** containing further safety instructions for the gas that you have received.

Check the UN number (material number) to see if it matches with the UN number on the SDS and on the delivery note.



Inform yourself about:

- the properties of the gases and their associated hazards
- the safety data sheet
- the safe transport, loading and unloading of gas cylinders
- the safe storage of gas cylinders
- the safe handling of gas cylinders and associated equipment
- emergency measures



Non-flammable, non-toxic gases

May cause suffocation.



Flammable gases

May result in fire or explosions.
May cause suffocation.



Oxidising substances (gases)

May result in powerful reactions or explosions in combination with combustible materials.
May facilitate ignition of materials and will greatly intensify fires.



Toxic gases

Risk of poisoning. May result in a toxic atmosphere and is hazardous to health through inhalation and skin contact.



Corrosive substances (gases)

Risk of corrosive burns. May react powerfully with water or other substances. Spilled substances may give off corrosive vapours.

May cause permanent changes to human skin tissue at the area of contact and destroy metals.
May damage the eyes, skin and respiratory tract.



Gases under pressure

Compressed, liquefied, cryogenic or dissolved gas.

NOTE: The conventional hazard symbols are listed here. If the shoulder of your gas cylinder is marked with other symbols, **please contact Messer staff.**

How do you identify the properties and hazards of gases in cylinders?

The **cylinder label** serves to identify the gas in the cylinder. **Read** the cylinder label carefully. It contains hazard symbols and pictograms. It describes major hazards and precautions to be taken.

Pay attention to the **colour coding of the cylinder shoulder**. The colour is the second means of identifying the cylinder contents and the property of the gas in the cylinder.

There are countries in which the colour codings of cylinders may differ from those listed in the following table.

Common gases

Nitrogen - N₂

UN 1066

Suffocating gas

Colourless, odourless, non-toxic inert gas.
Lighter than air.
Non-combustible gas.



Black

Risk of suffocation.
Breathable air is displaced in enclosed spaces (risk of suffocation); no warning symptoms before onset of unconsciousness.
Use only in well ventilated areas.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No..

-N2-089A

Argon - Ar

UN 1006

Suffocating gas

Colourless, odourless, non-toxic inert gas.
Heavier than air.
Non-combustible gas.



Dark green

Risk of suffocation.
Breathable air is displaced in enclosed spaces (risk of suffocation); no warning symptoms before onset of unconsciousness.
Collects in pits, channels, drains and low-lying areas such as basements. Use only in well ventilated areas.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-AR-003A

Helium - He

UN 1046

Suffocating gas

Colourless, odourless, non-toxic inert gas.
Much lighter than air.
Non-combustible gas.



Brown

Risk of suffocation.
Breathable air is displaced in enclosed spaces (risk of suffocation); no warning symptoms before onset of unconsciousness.
Use only in well ventilated areas.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-HE-061A

Carbon dioxide - CO₂

UN 1013

Suffocating gas

Colourless, odourless, non-toxic gas with a slightly acidic smell/taste. Much heavier than air. Non-combustible.



Grey

Collects in pits, channels, drains and low-lying areas such as basements. Inert gases can displace oxygen or air and thus cause suffocation.

The hazards and physiological effects of carbon dioxide are much more complex than for other suffocating gases. This is because increased concentrations in the ambient air interfere with the natural metabolic processes of human respiration and blood chemistry. Inhalation of carbon dioxide can have different outcomes, ranging from a slight narcotic effect to unconsciousness and death if the proportion of carbon dioxide in the air is greater than 10%.

Use only in well ventilated areas.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-CO2-018A

Oxygen - O₂

UN 1072

Oxidising gas

Colourless, odourless, non-toxic gas. Heavier than air.



White

Oxidising and fire-accelerating. Contact may result in ignition at room temperature of organic substances such as greases and oils.

Do not enter any area with a raised oxygen concentration.

Use only clean equipment (free of oil and grease) that is intended for use with oxygen.

Do not smoke.

Further information:

See Messer Safety Data Sheet No.

-O2-097A

Acetylene - C₂H₂

UN 1001

Combustible gas

Colourless gas. Lighter than air.



Maroon

Forms an explosive mixture with air. For reasons of stability, acetylene is dissolved under pressure in the solvent DMF (dimethylformamide) or acetone in the gas cylinder. The input of a small amount of energy will cause ignition in air or oxygen.

Do not smoke and **do not** use an open flame. Handle the gas cylinder carefully so as to prevent decomposition of the acetylene in the cylinder. This could cause the cylinder to rupture due to the effects of excessive heat or pressure.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-C2H2-001

Hydrogen - H₂

UN 1049

Combustible gas

Colourless, odourless, non-toxic gas. Lighter than air.



Red

Accumulates at the highest point in enclosed spaces that are not actively ventilated.

Burns with a barely visible flame.

Do not smoke and **do not** use an open flame.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-H2-067A

Propane/butane

UN 1965

Combustible gas

Non-toxic, liquefied gas. Heavier than air.



Has a suffocating effect in large quantities.

Like many gases, propane/butane is odourless. A powerful odorant is therefore added to it before delivery so as to be able to detect gas leaks. Keep gas cylinders away from heaters or any other sources of heat.

Do not smoke and **do not** use an open flame.

DO NOT INHALE.

Further information:

See Messer Safety Data Sheet No.

-C3H8-C4H10-01





You can request additional **pocket safety guides** on our Internet page or obtain them directly from our experts.

Important

This pocket guide contains general information only. It is not a substitute for training and is not intended as such. Messer is not liable for the information contained in this brochure.



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