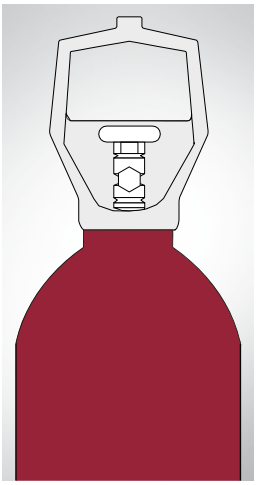
Making our world more productive

Safety instruction.
Acetylene C_2H_2



Acetylene C_2H_2

Features

Acetylene is a colourless gas with a smell similar to garlic. It is slightly lighter than air. Acetylene has a soporific effect and in high concentrations, it is suffocating.
Acetylene also contains small amounts of hydrogen sulphide, arsine and phosphine, so inhalation in high concentrations should be avoided.
Acetylene is a highly flammable and combustible gas. At pressures as low as 0.6 bar, acetylene can decompose into its elements carbon and hydrogen. Dispersal can occur explosively.
Acetylene is widely used as a fuel gas because of its high energy content.

Risk of fire and explosion

When ignited, mixtures of acetylene and air or oxygen release large amounts of energy as heat or explosive force. The ignition limits in air, at atmospheric pressure, are between 2.3% and 82% vol. The ignition energy required is very low, e.g. a static spark can ignite an acetylene mixture. Sparking must be eliminated by earthing the acetylene equipment and buildings properly, and by selecting suitable acetylene-compatible Ex-proof electrical equipment.

Storage and use

When using and storing acetylene, adequate ventilation must be provided and the space classification regulations for electrical equipment must be taken into account. Open fires and smoking are strictly prohibited.

Material selection

All materials used, including non-metallic parts, such as valve plugs, gaskets, and membranes, must be resistant to acetylene and its solvents. Acetylene pipelines should be made of steel. Parts made of silver, copper or an alloy containing more than 65% copper must not be used due to risk of explosive acetylides.

Acetylene cylinders

The cylinders contain acetylene gas dissolved in acetone and for safety reasons the cylinder is also filled with a porous mass. Depending on the type of mass, the maximum pressure of the cylinder is 15-18 bar at +15°C.

Action in the event of an incident

1. Leaking cylinder

→ Avoid contact with escaping gas
→ If possible and safe, close the cylinder valve

If it is not possible
→ Preferably move the cylinder outdoors away from all sources of ignition
→ Allow the pressure to escape from the cylinder, isolate the environment and
→ deny access to unauthorised persons inform the gas supplier

2. Acetylene cylinder with valve light
→ If possible and safe, close the cylinder valve

If it is not possible
→ the flame must not be extinguished, as the escaping gas may cause an explosion
→ alert the fire brigade
→ evacuate the area and deny access to unauthorised persons
→ keep cylinders and surrounding equipment cold by spraying them with water from a protected place
→ a powder or carbon dioxide extinguisher can be used to extinguish smaller fires. Make sure that the leaking gas does not re-ignite. Move the cylinder to an isolated area
→ cool the cylinder with a water jet without extinguishing the flame from a protected place
→ contact your gas supplier for further advice

3. Hot cylinder
If the acetylene cylinder has been heated accidentally or becomes hot as a result of a backfire, proceed as follows:
→ close the cylinder valve
→ Cool the heated cylinder for at least 1/2 hour with a water spray until the surface of the cylinder remains moist. Then move the cylinder to a safe place where it can be refrigerated further for at least 24 hours or immersed in water. The hot cylinder must not be moved
→ always alert the fire brigade and evacuate the area
→ ask your gas supplier for further advice

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