Making our world more productive

Safety instruction.
Nitrogen N_2

Nitrogen N_2 (Industrial)

Features

Gaseous nitrogen is colourless, odourless and tasteless; it is slightly lighter than air. Liquid nitrogen is odourless, colourless and boils at -196°C. One litre of liquid nitrogen yields about 680 litres of gaseous nitrogen.
Nitrogen is non-corrosive, non-flammable and non-toxic. Its concentration in the air is 78%.

Security risks

An increase in the concentration of nitrogen in breathable air poses a risk of asphyxiation and cannot be detected without equipment.
Inhalation of pure nitrogen causes immediate unconsciousness and almost immediate death.
When liquid nitrogen evaporates, the vaporised gas is very cold and much heavier than air. It can therefore accumulate in drains and basements, for example, and cause an increase in nitrogen levels.

Frostbite

Liquid nitrogen and cold nitrogen vapours can cause skin damage similar to burns. Contact of bare skin with uninsulated parts of the device may cause the skin to stick and tear when removed. If this happens, the damaged areas should be immediately rinsed with plenty of lukewarm water and not rubbed. Contact the medical staff.

Choice of material

Certain steels, such as carbon steel and some other materials, are unsuitable for use at low temperatures because they lose their impact resistance and become very brittle.
Materials normally suitable for use at low temperatures include stainless steel, aluminium, copper and its alloys.
Where liquid nitrogen is handled, care must be taken to ensure that it does not come into contact with unsuitable materials such as cold-hardened steel or vehicle tyres.

Security measures

Rooms where nitrogen is stored or used should be well ventilated.
Do not enter a room where there may be elevated nitrogen levels. When in doubt, air should be tested with an analyser and/or respiratory equipment should be used. When handling liquid nitrogen, wear suitable gloves, eye protection, safety shoes and body protection.

First aid

Any person showing symptoms of oxygen deprivation should be moved immediately to fresh air. A person who is unconscious or not breathing must be given artificial respiration immediately - it is a matter of seconds. Medical personnel must be called immediately. The person must be kept warm and at rest.
It is very important that the personnel who carry out rescue operations minimise their own risk factors.
A rescuer should not enter an area where there is an oxygen barrier without suitable breathing equipment.

Fire prevention

Nitrogen does not burn and no special fire-fighting systems or equipment are needed. If possible, move the cylinders to a safe place. Protect gas cylinders from heating to avoid the risk of explosion.

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