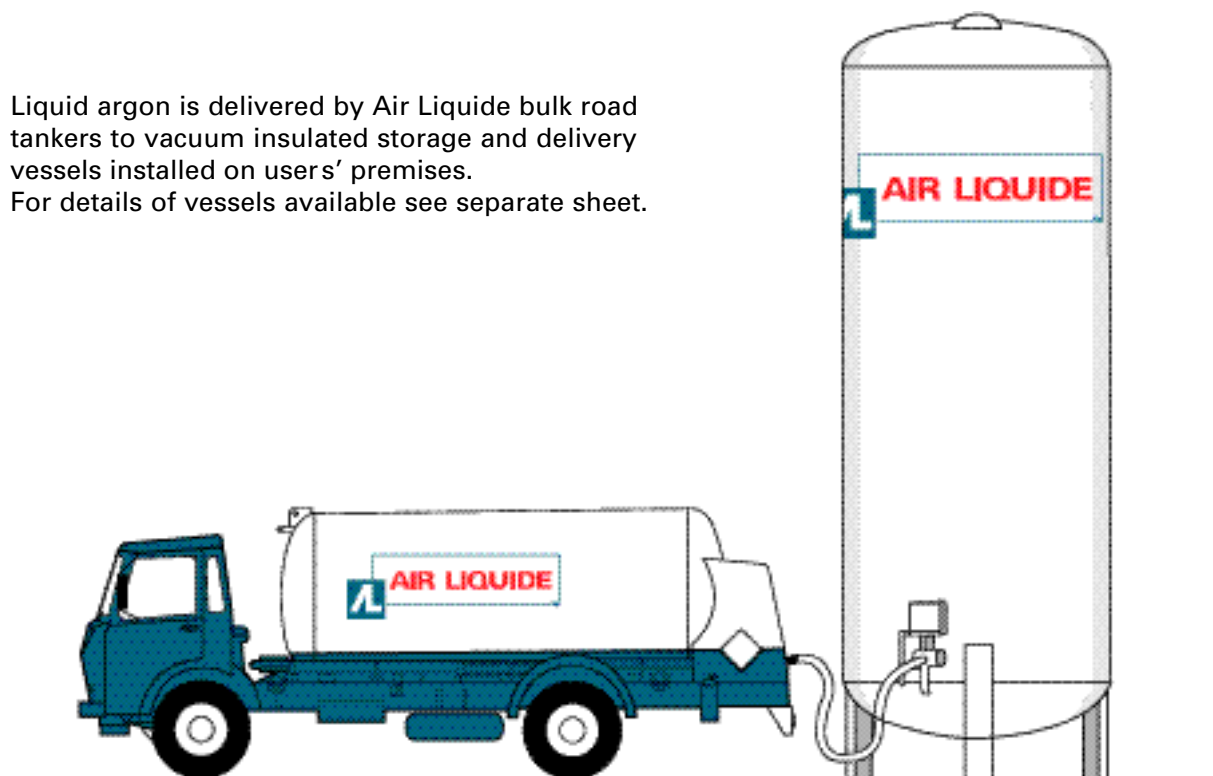


Argon, liquid

UN	1951
HAZCHEM	2RE
CLASS	2.2

T E C H S P E C S

Liquid argon is delivered by Air Liquide bulk road tankers to vacuum insulated storage and delivery vessels installed on users' premises.
For details of vessels available see separate sheet.



SPECIFICATION

Argon >99.99%

PHYSICAL DATA

Chemical Symbol	Ar
Boiling Point	-185.9°C
Relative Density (Air = 1)	1.4
Molecular Weight	39.948
Critical Temperature	-122.4°C
Flashpoint	Non-flammable
Density of Gas (@101.3 kPa & 15°C)	1.78 kg/m ³
Density of Liquid (B.Pt.)	1393 kg/m ³
Specific Volume (@101.3 kPa & 15°C)	0.591 m ³ /kg

PROPERTIES

Argon is colourless, odourless and constitutes approx. 0.9% of the atmosphere.

USES

Owing to its chemical inertness, argon is employed for welding in inert gas atmospheres. Argon, either pure or in combination with carbon dioxide, oxygen, hydrogen or helium, is the most widely used gas in welding applications.

Argon is employed in metallurgy for heat treatment in a protective atmosphere, notably for the annealing of high carbon steels, to avoid decarburization.

It serves as a carrier gas for silane in the deposition of silicon.

Argon is employed in the iron and steel industry in the following manner:

In the gaseous state, it serves in degassing and desulfuration of molten steel and iron baths.

In the area of electrical lighting, argon is used to fill:

- incandescent light bulbs.
- phosphorescent tubes, in mixtures with neon, helium and mercury vapour.
- thyratron radio tubes, in mixtures with neon.

Argon is also employed as a carrier gas in chromatography. Mixed with methane, argon is used for flushing Geiger-Muller counters employed for the detection of X- and γ -rays.

These instruments are employed in monitoring nuclear radiation and for the analysis of spectra emitted by X-ray fluorescence analytical devices.

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TECH SPECS

HANDLING & SAFETY

HAZARDS

Should argon replace oxygen in air there is a risk of asphyxia: air containing less than 16% oxygen is dangerous.

Extremely low temperature. (-185.9°C)

MATERIALS COMPATIBILITY

Argon is non-corrosive and so any common metal is acceptable, provided equipment is designed to withstand process pressure and temperature.

PRECAUTIONS IN USE

Use only in well ventilated area to prevent accumulation of high concentration of argon.

Ensure that oxygen content of air is maintained above 18%.

It is recommended that the user of liquid argon is familiar with relevant sections of the Australian Standard 1894-1997 "The storage and handling of non-flammable cryogenic and refrigerated liquids", available from Standards Australia.

PERSONAL PROTECTION

Full face mask, well fitting leather gloves and full overalls without cuffs should be worn when handling liquid argon supply systems.

FIRST AID

If victim is conscious:

- Move to uncontaminated area to breathe fresh air.
- Keep warm and quiet.
- Call doctor.

If victim is unconscious:

- Move to uncontaminated area and give assisted respiration.
- When breathing is restored, treatment as above. Continued treatment should be symptomatic and supportive.

Cold burns/Frostbite:

- Flush with luke warm water for at least 10 minutes then treat as thermal burns.

- Seek hospital attention for all but the most superficial cases. Do not apply direct heat or give alcohol or cigarettes.

- Protect frozen parts from infection.

Hospital treatment of cold burns/frostbite may differ from heat burns.

ADDITIONAL INFORMATION

The information, recommendations and data contained in this publication are intended to give basic guidance to users of Air Liquide gases for their safe handling and use.

Material Safety Data Sheets (MSDS) for gases and gas mixtures supplied by Air Liquide are also available.

It is essential for the safe use of gases that personnel are properly trained and are fully aware of the possible hazards.

Further information and advice on any matter relating to the safe handling or use of these products may be obtained from the nearest Air Liquide office.