



Argon

Product Stewardship Summary

Chemical Information

Argon was discovered in 1894 by Lord Rayleigh and Sir William Ramsay. The name argon comes from Greek and means Lazy or Idle. They found that nitrogen created by chemical reaction was 0.5% lighter than nitrogen from the atmosphere. They concluded there must another heavier gas mixed with atmospheric nitrogen. Argon is an inert gas with many industrial applications. It is liquefied by cooling at -302.6°F (-185.85°C / 87.3 K). It is mainly found in the atmosphere, where it accounts for 0.934% by volume of air. But argon is also found in the Earth's crust at the low concentration of 0.00015%. Argon, like oxygen and nitrogen, is produced by the fractional distillation of air. In gaseous form, argon is a colorless, odorless and tasteless gas and is classified as nontoxic. Argon is called a Noble gas due to its unreactive nature. It was the first noble gas discovered.

Chemical Formula: Ar

Other Names: LAR, GAR

Applications, Benefits, & Use

Chemicals: Argon is used as a relatively inexpensive noble gas in high temperature industrial applications. For example, it used in graphite furnaces to prevent the graphite from burning.

Electronics: Argon provides an inert atmosphere for growing silicon and germanium crystals.

Lighting: Argon is used in light bulbs to maintain an unreactive atmosphere around the filament.

Other: The low thermal conductivity of argon makes it ideal for use as an insulator in double and triple layer glass windows. In scientific research it is the plasma gas for ICP spectroscopy. Liquid argon is also used in neutrino and dark matter research.

Metal Fab & Automotive: Argon is used to maintain an inert atmosphere during metal and tungsten arc welding.

Food: Moisture and oxygen carrying atmospheres can be removed to increase the shelf life of food by argon replacement. Argon provides an oxygen barrier for a variety of winemaking applications. Argon is sometimes used to asphyxiate and preserve birds in the poultry industry.

Health Care: Argon is used in medical ophthalmic lasers to correct eye defects like retinal detachment, glaucoma, or macular degeneration. Liquid argon is also used in cryosurgery procedures like cryoablation to freeze and destroy cancer tissues.

Regulatory Information

There are regulations that govern the manufacture, sales, transportation, use and/or disposal of materials. These regulations vary by city, state, country or geographic region. Additional regulatory information may be found on the Safety Data Sheet as well as local and federal agency websites.



Human Health and Environmental Effects

Human Health:

- Air is composed of 0.93% argon.
- High argon levels in air that displace the oxygen can lead to dizziness, nausea, vomiting, loss of consciousness and death.
- People should not enter an area with less than 19.5% oxygen without special breathing equipment to prevent suffocation.
- Liquid argon can result in severe frostbite, skin burns, and other tissue damage when in contact with skin or other tissues.

Environment:

- Manufactured argon is not a toxic substance and is a naturally occurring chemical in the environment.
- Animals inhale argon and exhale it to the environment without using it.

Exposure Potential and Risk Mitigation Measures

Industrial Use:

- Argon is shipped as a high pressure gas or supercooled liquid. Precautions should be taken based on shipment type. (pipeline, bulk transport trucks, gas and liquid cylinders, etc.).
- It is important to have good ventilation when working with argon. Use atmospheric monitors to ensure oxygen levels do not decrease below 19.5% that create an oxygen deficient atmosphere.
- Personnel should be trained on the hazards and risks of argon.

Consumer Use:

- Argon is transported in gas cylinders, liquid cylinders, and tanker trucks so direct consumer exposure is not anticipated.

Additional Sources of Information

- Air Liquide Gas Encyclopedia
- Air Liquide Safety Data Sheets
- American Chemistry Council
- Compressed Gas Association

Contact Information

For matters related to health, safety, security, environment or Responsible Care® commitments, contact us by phone at 713-438-6721 or by [email](#).