



# Argon

## Product Stewardship Summary

Argon is a gas that occurs naturally. It makes up slightly less than 1 percent of the air we breathe. Argon is used in metals production, processing and fabrication and electronics manufacturing.

### Chemical Identity

- *Chemical formula: Ar*
- *Other names: argon gas, gaseous argon (GAR), liquid argon (LAR)*

### Uses and Benefits

The metals and semiconductor manufacturing industries use argon to purge or clean out vapors and gases from the equipment they use. Metal producers and semiconductor manufacturers also use argon to “blanket,” or maintain an inert protective atmosphere over metals and silicon crystals to prevent unwanted chemical reactions from occurring. In metal fabrication processes like welding, argon shields the weld against the metal oxide impurities that would form if the molten weld bead came in contact with oxygen. Argon gas is also used in heat

treating furnaces to cool parts when other cooling gases might negatively affect the parts.

The lighting industry uses argon for filling incandescent bulbs, because it will not react with the filament. In combination with other rare gases, argon creates special color effects, which are often called “neon lights.” Argon is also used to fill the space in insulated glass windows to improve the thermal efficiency of our homes.

### Physical and Chemical Properties

Argon has no color or smell. It does not burn. It’s heavier than air and will tend to settle in low-lying areas. Argon is slightly water soluble. Argon is a member of a special group of gases known as the “noble” or “inert” gases. Other gases in this group are helium, neon and krypton. The term “inert” means that they will not readily combine chemically with other materials.

When cooled to extremely low temperatures (-303°F/-186°C), argon exists in liquid form, known as a cryogenic liquid. To put that temperature into perspective, water freezes at 32°F/0°C.

## Health Effects

Oxygen is the only element in the air we breathe that supports life. Elevated levels of argon or other gases in the air lower the amount of oxygen available to breathe. This can lead to dizziness, nausea, vomiting, loss of consciousness and death. No one should enter an area with less than 19.5 percent oxygen

without special breathing equipment to prevent suffocation.

Liquid argon is so cold that skin contact can result in severe frostbite, skin burns and other tissue damage.

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## Environmental Effects

We can recover and use argon safely without harming the environment. After it is used in an industrial process, most argon simply reenters the atmosphere.

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## Exposure Potential and Risk Management Measures

### Industrial Use

We ship argon as a gas or a cryogenic liquid. We often ship and store gases in liquid form, because they occupy much less space that way.

Depending on how much argon gas our customer uses, we store and ship it in high-pressure cylinders and tubes. Industry guidelines cover the storage and handling of compressed gas cylinders. Workers should use sturdy work gloves, safety glasses with side shields and safety shoes when handling compressed gas cylinders.

We also store and ship liquid argon in three different types of containers—dewars, cryogenic liquid cylinders and cryogenic liquid tanks. These containers are similar to heavy-duty vacuum bottles used to keep your coffee hot or your water cold. Because of its low tempera-

ture, liquid argon should not come in contact with skin. If workers handle containers of liquid argon, it is important to wear a full face-shield over safety glasses to protect the eyes and face. Workers should also wear clean, loose-fitting, thermal-insulated gloves; a long-sleeved shirt and pants without cuffs; and safety shoes.

To prevent suffocation, it is important to have good ventilation when working with argon. Confined workspaces must be tested for oxygen levels prior to entry. If the oxygen level is lower than 19.5 percent, personnel, including rescue workers, should not enter the area without special breathing equipment.

### Consumer Use

We do not sell argon directly to consumers.

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## Regulatory Information

Several regulations govern the manufacture, sale, transportation, and use of argon. These laws vary by country and geographic region. You can find general regulatory information in the [Material Safety Data Sheet](#).

## Sources for Additional Information

- [Air Products – MSDS](#)
- [Compressed Gas Association](#)
- [National Fire Protection Association](#)
- [Air Products Safetygrams](#)



### **Conclusion**

A wide variety of industries use argon because it doesn't react with most materials. They can handle it safely without harming the environment when industry and company guidelines are followed.

### **Contact Information**

#### **Emergency Response System**

- Tel 1-800-523-9374  
(Continental U.S. and Puerto Rico)
- Tel 1-610-481-7711 (other locations)
- 24 hours a day, 7 days a week
- For assistance involving Air Products and Chemicals, Inc. gases and equipment

#### **Technical Information Center**

- Tel 1-800-752-1597 (U.S.)
- Tel 1-610-481-8565 (other locations)
- Fax 1-610-481-8690
- E-mail [gasinfo@airproducts.com](mailto:gasinfo@airproducts.com)
- Monday–Friday, 8:00 a.m.–5:00 p.m. EST

We developed this Product Stewardship Summary to give you a general overview of the chemical. This Summary is not meant to provide emergency response or medical treatment information. You can find in-depth safety and health information on the [Material Safety Data Sheet](#) for the product.

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