
 <p>National Petrochemical Company(NPC)</p>	<p>Material Safety Data Sheet (MSDS)</p> <p>According to the Directives 91/155/CEE-2001/58/CE-ISO 11014-1</p>	<p>Page: 1 of 8</p> <p>Revision Number: 1</p>
	<p>Product Name:</p> <p style="text-align: center;">Argon (compressed gas)</p>	 <p>Reactivity Flammability Health = 1</p>

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/ UNDERTAKING



Identification of the substance or preparation:	Argon (compressed inert gas)
Country of origin:	Iran (Islamic Republic of Iran)
CAS Number:	7440-37-1
Synonyms:	Argon , AR
Company/undertaking identification	National Petrochemical Company Iran Petrochemical Commercial Company (IPCC)
Manufacturer subcontractor:	None
Emergency phone number:	00982188881735
Contact email:	msds@petrochem-ir.net
Fax:	00982188839511
Association/Organization:	None
Use of the substance/Preparation:	Welding, special light bulb, laser, thermometer above mercury, titanium and zirconium refining and other industrial.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous substances:	Argon is non-toxic, but may cause suffocation by displacing the oxygen in air. Argon is non combustible. Containers of argon can explode in the heating of fire.
Hazardous label(s):	Not available
Toxicological characteristics:	Argon is non-toxic
Substances present at a concentration below the minimum danger:	Not available
Other component:	Not available

3. IDENTIFICATION OF HAZARDS

Risk phrases:	Argon is non toxic but is simple Simple asphyxiant. Liquid argon or cold argon gas can cause cryogenic burns and freeze tissues. Upon exposure to intense heat or flame cylinder may vent rapidly and/or rupture violently.
Skin contact:	Contact with liquid causes severe burns Cryogenic burns should be wrapped with dry sterile bulky dressing to protect area from infection and injury.
Eye contact:	No data available.

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Inhalation :

Simple asphyxiant.
 Exposure to oxygen deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness, deep coma and death.
 Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

If swallowed:

Not a likely route exposure.

Other information:

At concentrations of 33% argon in air mild symptoms occur, at 50% the symptoms become remarked, and at 75% unconscious and death become quickly.

4. FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor
NEVER induce swallowing in an unconscious person.

Skin contact :

Quickly remove contaminated clothing
 rinse with flooding amounts of tepid water (105 -115 ° F). Do not apply direct heat to affected area. Do not use hot water.

In case of exposure by inhalation:

Cryogenic burns should be wrapped with dry sterile bulky dressing to protect area from infection and injury.
 Remove exposed person to fresh air and administer 100%humidified supplemental oxygen. Emergency workers must use SCBAs to enter oxygen deficient areas. If collapse occurred get medical help for treatment, observation and support.

In case of splashes or contact with eyes:



Gently lift the eyelids and flush immediately and continuously with flooding amount of waters until transported to an emergency medical facility. Consult a physician immediately.

In case of swallowing:

Never give any thing by mouth to an unconscious or convulsing person. If ingested, keep the victim, warm and quiet and get medical attention immediately.

Note of physician:

No information available

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5. FIRE FIGHTING MEASURES

Flammable class:

Nonflammable.

Upon exposure to intense heat or flame cylinder may vent rapidly and/or rupture violently.

Most cylinders are designed to vent contents when exposed to elevated temperatures.

Pressure in a container can build up due to heat and it may rupture or if pressure relief devices should fail to function .

Suitable extinguishing media:

Not applicable.

Argon is nonflammable and does not support combustion.

Use extinguishing media appropriate for the surrounding fire.

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

Argon is a simple asphyxiant.

If possible, remove argon cylinders from fire area or cool with water.

Do not direct water spray at the container vent

Self-contained breathing apparatus may be required for rescue workers. Evacuate this area.

Special protective equipment for fire fighting :

Self-contained breathing apparatus may be required for rescue workers.

Evacuate fire area.

Other information:

none

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Notify safety personnel. Evacuate all unnecessary personnel, and provide optimum ventilation (sump ventilation).


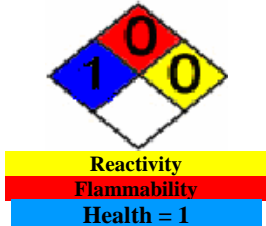
Emergency workers must wear SCBAs. where liquid argon is involved personnel from contaminated area, wear loose fitting impermeable protective clothing. Avoid skin contact with liquid and cold gas.

Use Self-contained breathing apparatus .

Environmental precautions:

Ventilate area or remove leaking containers to a well ventilated location.

If leaking from cylinder or its valve, contact

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Methods for cleaning up and disposal:

your supplier

Stop release of argon if feasible. Small leaks may be detected by bubbles formed by painting suspected area with soapy water. Released gas or vaporizing liquid must be removed by exhaust ventilation.

Vapors are heavier than air and may collect in low areas. Carefully flush liquid spill with water spray to dispense. After completing clean up, continue to ventilate enclosed area. Follow applicable OSHA regulations (29 CFR1910.120) REMOVE WASTE CONTAINERS OR LEAKING CYLINDERS TO AN EXHAUST HOOD OR OUT DOOR AREA.

Vent gas slowly to an outside location .tag cylinder to indicate defect ,close valve, and return to supplier .Contact your supplier or a licensed contractor

Other information:

If leaking from cylinder or its valve, contact your supplier. Keep away cylinders of argon from fire and heat. Cool cylinders and containers exposure to fire with water. Not listed as tixic and extremely hazardous, and contaminated air by SARA and OSHA

7. HANDLING AND STORAGE



The regulations relating to storage premises apply to workshop where the product is handled:

Handling:

Use a suitable hand truck for cylinder movement.
 Do not lift a cylinder by its valve protection cap.
 Keep cylinders and their valves free from oil and grease.
 Open valve slowly.
 If user operating problem with valve of cylinder contact supplier.
 Never insert an object into valve cap openings, doing so may damage valve, causing a leak to occur.
 Follow general safety procedures for handling and storing compressed gas cylinders.

Storage:

Store and use with adequate ventilation.

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Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Full and empty cylinders should be segregated. Avoid use of carbon steel

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values:	Simple asphyxiant.
Exposure controls:	Mechanical ventilation is satisfactory. Ensure oxygen concentration remains above 19.5 % and Local exhaust at points of emission preferred.
Personal protective equipment:	As below
Eye protection:	Eye protection not required, but recommended as per local regulations.
Respiratory protection:	Under heavy exposure or frequent use, respiratory protection may be needed. For unknown and emergency conditions use any self contained–breathing apparatus with a full facepiece and any supplied – air respirator with full spacepiece. NIOSH/OSHA approved respirator.
Hand protection:	Wear appropriate chemical resistance gloves. As per local regulations.
Skin and body protection:	Protective clothing is not required. As per local regulations.
Health measures:	Not available
Environmental exposure controls:	Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

General information:	Inert Gas
Appearance (at 20°C):	Colorless, odorless gas
Colour:	Colorless gas
Odour:	odorless gas
PH (at 20°C):	Not available
Boiling point/range (°C):	-185.8 °C (- 302.4 ° F)
Melting point/range (°C):	- 198.2 °C (-324.8 ° F)
Critical temperature (°C):	- 122 °C (-187.6 ° F)
Critical pressure :	48 atm (705 Pisa)

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Flash point (°C):	Not applicable
Flammability:	Not flammable
Auto-ignition temperature:	Not applicable
Vapour pressure (at -190°C):	500 mmHg (-190 °C)
Specific gravity:	1.38 (Air = 1)
Solubility (at 20°C):	Water solubility: Slightly (3.36%), Soluble in organic solvent.
Other information:	Mw = 39,948 Expansion ratio , liquid to gas (at 21 °C)- 1:841

10. STABILITY AND REACTIVITY

Stability:	Argon is stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to avoid:	Hazardous polymerization can not occur. The presence of argon in apparatus cooled by liquid nitrogen can lead to an explosive situation .Use solid CO ₂ – solvent baths with Argon. Protect container from physical damage and heat. Containers may rupture or explode if exposed to heat.
Material to avoid:	Argon is characterized by its extreme lack of chemical reactivity. However the hazards of liquid argon containment must be considered. 1-dewars must be suitably vented to prevent excessive pressure build up as evaporation occurs 2-many materials in contact with liquid Argon become brittle from the low temperature and can be easily broken or shattered by impact.
Hazardous decomposition products:	None.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	- LD ₅₀ , oral, rat (mg.kg ⁻¹): Not available - LD ₅₀ , oral, mouse (mg.kg ⁻¹): Not available - LD ₅₀ , dermal (mg.kg ⁻¹): Not available
Sub chronic – chronic toxicity:	No information found
Sensibilization:	No information found

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Carcinogenicity: The NTP, IARC and OSHA do not list argon as a carcinogen.

Reproductive effects: No information found

Human experience: No information found

Other information: No information found

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Bioaccumulative potential: Not available.

Mobility: Not available.

Persistence and degradability: Not available.

Other adverse effects: Not available.

13. DISPOSAL CONSIDERATIONS

Disposal of product: Gas will dissipate in air.
Dispose in accordance with all applicable regulations.

Disposal of packaging: Return cylinder to supplier.

14. TRANSPORT INFORMATION



Land transport: Proper shipping name :Argon, compressed
ADR/RID: Class : 2.2
Maritime transport: (Non-flammable gas)
UN/ID No. : UN 1006
Air transport: Labeling : Non-flammable Gas
Other information: Cylinders should be transported in a secure upright position in a well ventilated truck.
UN No : 1951 for liquid argon

15. REGULATORY INFORMATION

Hazardous label(s): Not classified as a hazardous material.

Safety phrases: No information available.

Risk phrases: No information available.

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16. OTHER INFORMATION

Simple asphyxiant. Argon is non-toxic, but may cause suffocation by displacing the oxygen in air. Exposure to oxygen deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC

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