



SAFETY SHEET

5% -12% CARBON DIOXIDE MIXTURES IN ARGON

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

Product Identifier: 5% – 12% Carbon Dioxide Mixtures in Argon for Industrial Use

Details of the supplier of the safety data sheet:
J Gas Supplies
Unit 2B Cligga Head Ind Est
St Georges Hill
Perranporth
TR6 0EB

Email Address: enquiries@jgassupplies.co.uk

Telephone: +44(0)1872 571622

Emergency telephone number: +44(0)1872 571622

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Preparation : Preparation.

Components : This product is not hazardous.

| Substance name | Contents | CAS No | EC No | Annex No | Classification |
|----------------|--------------------|-----------|-----------|----------|----------------|
| Carbon dioxide | Between 5 and 12 % | 124-38-9 | 204-696-9 | ----- | |
| Argon | balance | 7440-37-1 | 231-147-0 | ----- | Press. Gas |

3. HAZARDS IDENTIFICATION

Hazards identification : In high concentrations may cause asphyxiation.
Compressed gas (may liquify if temperature is reduced)

4. FIRST AID MEASURES

Description of first aid measures

General advice: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor.
Apply artificial respiration if breathing stopped.

Eye contact: Not applicable.

Skin contact: Not applicable.

Ingestion: Ingestion is not considered a potential route of exposure.

Inhalation: Move to fresh air. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. In case of shortness of breath, give oxygen.

Most important symptoms and effects, both acute and delayed

Symptoms: Shivering fit. Sweating. Blurred vision. Headache. Increased pulse rate. Shortness of breath. Rapid respiration. Exposure to oxygen deficient atmosphere may cause the following symptoms: Dizziness, salivation, nausea, vomiting, loss of mobility/consciousness.

Indication of any immediate medical attention and special treatment needed

No data available

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5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: All known extinguishing media can be used.

Extinguishing media which must not be used for safety reasons: No data available.

Special hazards arising from the substance or mixture: Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Product is non-flammable and does not support combustion. Move away from container and cool with water from a protected position. Keep containers and surroundings cool with water spray.

Advice for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary.

Further information: No data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Monitor carbon dioxide level. Evacuate personnel to safe areas. Ventilate the area. Wear self-contained breathing apparatus when entering the area unless atmosphere is proved to be safe.

Environmental precautions: Should not be released into the environment. Do not discharge into any place where its accumulation could be dangerous. Prevent further leakage or spillage. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Methods and material for containment and cleaning up: Ventilate the area.

Additional advice: If possible, stop flow of product. Increase ventilation to the release area and monitor oxygen level. If leak is from cylinder or cylinder valve, call the J Gas Supplies emergency telephone number. If the leak is in the user's system, close the cylinder valve and safely vent the pressure before attempting repairs.

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7. HANDLING AND STORAGE

Precautions for safe handling

Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection guards in place. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Replace outlet caps or plugs and container caps as soon as container is disconnected from equipment. Do not subject containers to abnormal mechanical shocks which may cause damage to their valve or safety devices. Never attempt to lift large cylinders by the valve guard. Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another. Always use backflow protective device in piping. When returning cylinder install valve outlet cap or plug leak tight. Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C (122°F). Prolonged periods of cold temperature below -30°C (-20°F) should be avoided.

Conditions for safe storage, including any incompatibilities

Full containers should be stored so that oldest stock is used first. Containers should be stored in a well ventilated area, preferably in the open air. Stored containers should be periodically checked for general condition and leakage. Observe all regulations and local requirements regarding storage of containers. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place. Keep containers tightly closed in a cool, well-ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C (122°F). Return empty containers in a timely manner.

Technical measures/Precautions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations. Keep away from combustible material.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limit(s)

| | | | |
|----------------|--|------------|--------------------------|
| Carbon dioxide | Time Weighted Averager (TWA): EH40 WEL | 5,000 ppm | 9,150 mg/m ³ |
| Carbon dioxide | Short Term Exposure Limit (STEL): EH40 WEL | 15,000 ppm | 27,400 mg/m ³ |
| Carbon dioxide | Time Weighted Averager (TWA): EU ELV | 5,000 ppm | 9,000 mg/m ³ |

If applicable, refer to the extended section of the SDS for further information on CSA.

Exposure controls

Engineering measures

Provide natural or mechanical ventilation to prevent accumulation above exposure limits.

Provide natural or mechanical ventilation to prevent oxygen deficient atmospheres below 19.5% oxygen.

Personal protective equipment

Respiratory protection: Not required, provided use is in well ventilated area and/or protected by monitoring equipment.

Hand protection: Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected glove(s) must be greater than the intended use period.

Eye protection: Safety glasses recommended when handling cylinders.

Skin and body protection: Safety shoes are recommended when handling cylinders.

Special instructions for protection and hygiene: Ensure adequate ventilation, especially in confined areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state at 20 °C : Compressed gas (note pressure of gas mixture will be reduced to ensure that it is gaseous)

Colour : Colourless.

Odour : Barely perceptible.

Relative density, gas (air=1) : Heavier than air.

Solubility in water [mg/l] : No reliable data available.

Other data : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Reactivity: Refer to possibility of hazardous reactions and/or incompatible materials sections.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: No data available.

Conditions to avoid: No data available.

Incompatible materials: No data available.

Hazardous decomposition

Products: No data available.

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11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Likely routes of exposure

| | |
|---------------------|---|
| Effects on eye: | Contact with liquid may cause cold burns/frostbite. |
| Effects on skin: | Contact with liquid may cause cold burns/frostbite. |
| Inhalation effects: | Concentrations of 10% CO ₂ or more can produce unconsciousness or death. Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. Carbon Dioxide is physiologically active, affecting circulation and breathing. At concentrations between 2 and 10%, carbon dioxide can cause nausea, dizziness, headache, mental confusion, increased blood pressure and respiratory rate. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves. |
| Ingestion effects: | Ingestion is not considered a potential route of exposure. |
| Symptoms: | Exposure to oxygen deficient atmosphere may cause the following symptoms: Dizziness, salivation, nausea, vomiting, loss of mobility/consciousness. Shivering fit. Sweating. Blurred vision. Headache. Increased pulse rate. Shortness of breath. Rapid respiration. |

Acute Toxicity

| | |
|--|---|
| Acute Oral Toxicity: | No data is available on the product itself. |
| Inhalation: | Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO ₂ has been found to act synergistically to increase the toxicity of certain other gases (CO ₂ , NO ₂). CO ₂ has been shown to enhance the production of carboxy or met-hemoglobin by these gases possibly due to carbon dioxide's stimulatory effects on the respiratory and circulatory systems. |
| Acute Dermal Toxicity: | No data is available on the product itself. |
| Skin corrosion/irritation: | No data available. |
| Serious eye damage/ eye irritation: | No data available. |
| Sensitisation: | No data available. |

Chronic toxicity or effects from long term exposures

| | |
|--|--|
| Carcinogenicity: | No data available. |
| Reproductive toxicity: | No data available on the product itself. |
| Germ cell mutagenicity: | No data available on the product itself. |
| Specific target organ systemic toxicity (single exposure): | No data available. |
| Specific target organ systemic toxicity (repeated exposure): | No data available. |
| Aspiration hazard: | No data available. |

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12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No data is available on the product itself.
Toxicity to fish - Components
Carbon Dioxide LC50 (1 h) : 240 mg/l Species: Rainbow trout (*Oncorhynchus mykiss*).
Carbon Dioxide LC50 (96 h) : 35 mg/l Species: Rainbow trout (*Oncorhynchus mykiss*).
Toxicity to other organisms: No data is available on the product itself.

Persistence and degradability

No data available.

Bioaccumulative potential

No data is available on the product itself.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

If applicable, refer to the extended section of the SDS for further information on CSA.

Other adverse effects

When discharged in large quantities may contribute to the greenhouse effect.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Return unused product in original container to supplier. Contact supplier if guidance is required.

Contaminated packaging: Return container to supplier.

14. TRANSPORT INFORMATION

UN No. : 1956

H.I. nr : 20

ADR/RID

Proper shipping name : COMPRESSED GAS, N.O.S. (Carbon dioxide, Argon)

- ADR Class : 2

- ADR/RID Classification code : 1 A

Labelling ADR : Label 2.2 : Non flammable, non toxic gas.

Other transport information : Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers :

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

Further Information

Avoid transport on vehicles where the load space is not separated from the driver's compartment by a gas tight bulk head. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact J Gas Supplies.

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15. REGULATORY INFORMATION

EC Labelling : Not classified as dangerous preparation/substance.
Symbol(s) : None.
R Phrase(s) : None.
S Phrase(s) : None.

16. OTHER INFORMATION

Training advice : Asphyxiant in high concentrations.
Keep container in a well-ventilated place.
Do not breathe the gas.
The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Receptacle under pressure.
Ensure all national/local regulations are observed.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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