

## Índice

**Ar**

Argon , Argon Alta Pureza

**Mezcla**

Argon 75% + CO<sub>2</sub> 25%

**CO<sub>2</sub>**

Dioxido de Carbono

**He**

Helio

**N**

Nitrógeno

## Argon ----- Material Safety Data Sheet

### SECTION 1 IDENTIFICATION

**Product Name:** Argon.

**Other Name:** /

**Recommended use of the chemical and restrictions on use:** For chemical, metallurgy, gas chromatography and other instruments of the carrier gas, gas, standard gas, zero calibration gas, but also can be used for manufacturing semiconductor devices.

**Supplier's details:** Empresas Carbone S.A.

**Emergency phone number:** 00507-3916309

### SECTION 2 HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

Gases under pressure: Compressed gas, Specific target organ toxicity (single exposure) category 3 (narcotic effect).

**GHS Label elements, including precautionary statements:**



**Signal word:** Warning

**Hazard statement(s):** Contains gas under pressure; may explode if heated. May cause drowsiness or dizziness.

**Precautionary statement(s):**

**Prevention:** Avoid breathing dust/fume/gas/mist/vapours /spray. Use only outdoors or in a well-ventilated area.

**Response:** Call a POISON CENTER/doctor, if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing.

**Storage:** Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Store locked up.

**Disposal:** Dispose of contents/container to in accordance with national regulations.

**Other hazards which do not result in classification:** /

### SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Argon	7440-37-1	99.99% 99.999%

## SECTION 4 FIRST AID MEASURES

### Description of necessary first aid measures

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed:** Not considered a normal route of entry.

**Most important symptoms and effects, both acute and delayed:** Central nervous system depression, Drowsiness, narcosis, anemia.

**Indication of immediate medical attention and special treatment needed:** /

## SECTION 5 FIREFIGHTING MEASURES

**Suitable extinguishing media:** SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire. LARGE FIRE: Cool cylinder.

**Special hazards arising from the chemical:** Noncombustible. Not considered a significant fire risk, however containers may burn.

**Special protective actions for fire-fighters:** /

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Avoid breathing vapour and any contact with liquid or gas. Protective equipment including respirator should be used. DO NOT enter confined spaces where gas may have accumulated. Increase ventilation. Clear area of personnel.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so.

**Methods and materials for containment and cleaning up:** Remove leaking cylinders to a safe place. Fit vent pipes. Release pressure under safe, controlled conditions. Burn issuing gas at vent pipes. DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.

## SECTION 7 HANDLING AND STORAGE

**Precautions for safe handling:** Consider use in closed pressurized systems, fitted with temperature, pressure and safety relief valves which are vented for safe dispersal. The tubing network design connecting gas cylinders to the delivery system should include appropriate pressure indicators and vacuum or suction lines. Fully-welded types of pressure gauges, where the bourdon tube sensing element is welded to the gauge body, are recommended. Before connecting gas cylinders, ensure manifold is mechanically secure and does not contain another gas. Before disconnecting gas cylinder, isolate supply line segment proximal to cylinder, remove trapped gas in supply line with aid of vacuum pump. DO NOT transfer gas from one cylinder to another.

**Conditions for safe storage, including any incompatibilities:** Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open. Such compounds should be sited and built in accordance with statutory requirements. The storage compound should be kept clear and access restricted to authorized personnel only. Cylinders stored in the open should be protected against rust and extremes of weather.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters:** /

**Appropriate engineering controls:** Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected

hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

**Personal protective equipment**

**Eye/face protection:** Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

**Skin protection:** When handling sealed and suitably insulated cylinders wear cloth or leather gloves.

**Respiratory protection:** Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

**SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	Compressed gas.
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	-189.2°C.
Initial boiling point and boiling range	-185.9°C.
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	/
Vapour density	/
Relative density	1.38 (air=1) .
Water solubility	1.40 @ -186 deg.
Partition coefficient: noctanol/water	Partly miscible.
Autoignition temperature	/
Decomposition temperature	/
Viscosity	/

**SECTION 10 STABILITY AND REACTIVITY**

**Reactivity:** /

**Chemical stability:** Product is considered stable.

**Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**Conditions to avoid:** Presence of incompatible materials.

**Incompatible materials:** /

**Hazardous decomposition products:** /

**SECTION 11 TOXICOLOGICAL INFORMATION****Acute health effects**

**Inhalation:** Inhalation of vapors may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

**Ingestion:** Overexposure is unlikely in this form. Not normally a hazard due to physical form of product.

**Skin:** The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models).Nevertheless, good hygiene practice requires that

exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

**Eyes:** Direct contact with the eye may not cause irritation because of the extreme volatility of the gas; however concentrated atmospheres may produce irritation after brief exposures.

**Chronic health effects:** Long-term exposure to the product is not thought to produce chronic effects adverse to health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimized as a matter of course. Principal route of occupational exposure to the gas is by inhalation.

**Numerical measures of toxicity(such as acute toxicity estimates):** /

## SECTION 12 ECOLOGICAL INFORMATION

**Toxicity:**/

**Persistence and degradability:** /

**Bioaccumulative potential:** /

**Mobility in soil:** /

**Other adverse effects:** /

## SECTION 13 DISPOSAL CONSIDERATIONS

**Disposal methods:** Evaporate residue at an approved site. Return empty containers to supplier. If containers are marked non-returnable establish means of disposal with manufacturer prior to purchase. Ensure damaged or non-returnable cylinders are gas-free before disposal.

## SECTION 14 TRANSPORT INFORMATION

**UN number:** 1006.

**UN proper shipping name:** ARGON, COMPRESSED.

**Transport hazard class(es):** 2.2.

**Packaging group:** /

**Environmental hazards:** /

**Special precautions for user:** /

## SECTION 15 REGULATORY INFORMATION

**Regulations:**

Argon (CAS: 7440-37-1) is found on the following regulatory lists: "China (Hong Kong) Fire Service Department - List of Dangerous Goods", "China Dangerous Chemicals Names List", "China Inventory of Existing Chemical Substances", "OECD List of High Production Volume (HPV) Chemicals". This safety data sheet is in compliance with the following national standards: GB16483-2008, GB13690-2009, GB6944-2005, GB/T15098-2008, GB18218-2009, GB15258-2009, GB6944-2005, GB190-2009, GB191-2009, GB12268-2008, GA57-1993, GB/T 15098-2008, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation, United Nations Regulations on the Transport of Dangerous Goods (UN RTDG)

## SECTION 16 OTHER INFORMATION

**References**

“Model Regulations on the Transport of Dangerous Goods”

“The Globally Harmonized System of Classification and Labelling of Chemicals”

**Form Date**

02-July-2015

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information or no data available (such as boiling point does not exist for the solid) in the table with "/" logo.

**EMPRESAS CARBONE S.A.**

*Calle 5ta, Rio Abajo, Galera Empresas Carbone, Ciudad de Panama, Panama*

**Mixed Ar Analysis Certificate**

**Sample Name: MIXED ARGON**

**Packing: 40L cylinder**

**Weight: 9.2 KGS**

**Certificate No: HA20160928-QCHANAC10**

**Checked by:**

**QC12**

**Audited by:**

*Victor*

**DATE: 2016-9-28**

**Consignee: EMPRESAS CARBONE S.A.**

Calle 5ta Rio Abajo. Edif.Carbone. Panamá. República de Panamá

**Description of Goods:** MIXED- ARGON

**Report Date:** 2016.9.28

**Quantity:** 35 PCS

**Batch No.:** HA20160928A6

**Test Standard:** GB/T 4842-2006

Testing Items	Index	Inspect Result	Inspect Conclusion
Argon (Ar)		Balance	Qualified
Carbon Dioxide (CO2)	20%	20%	Qualified
<b>General Conclusion:</b>	According to GB/T 4842-2006 standard, these MIXED argon gas are qualified to export.		



## CO2 ----- Material Safety Data Sheet

### SECTION 1 IDENTIFICATION

**Product Name:** Carbon dioxide.

**Other Name:** CO2

**Recommended use of the chemical and restrictions on use:** /

**Supplier's details:** Empresas Carbone S.A.

**Emergency phone number:** 00507-3916309

### SECTION 2 HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

Gases under pressure: Compressed gas.

**GHS Label elements, including precautionary statements:**



**Signal word:** Warning

**Hazard statement(s):** Contains gas under pressure; may explode if heated.

**Precautionary statement(s):**

**Prevention:** /

**Response:** /

**Storage:** Store in a well-ventilated place. Protect from sunlight.

**Disposal:** /

**Other hazards which do not result in classification:** /

### SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Carbon dioxide	124-38-9	99.995%

### SECTION 4 FIRST AID MEASURES

**Description of necessary first aid measures**

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed:** Not considered a normal route of entry.

**Most important symptoms and effects, both acute and delayed:** Nausea, Dizziness, Headache, Low to medium concentrations of carbon dioxide can: affect regulation of blood circulation, affect the acidity of body fluids, respiratory difficulties, At high concentrations: Breathing difficulties, Increased pulse rate, change in body acidity, Very high concentrations can cause: Unconsciousness, death.

**Indication of immediate medical attention and special treatment needed:** /

### SECTION 5 FIREFIGHTING MEASURES

**Suitable extinguishing media:** SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire. LARGE FIRE: Cool cylinder.

**Special hazards arising from the chemical:** Noncombustible. Not considered a significant fire risk, however containers may burn.

**Special protective actions for fire-fighters:** /

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Avoid breathing vapour and any contact with liquid or gas. Protective equipment including respirator should be used. DO NOT enter confined spaces where gas may have accumulated. Increase ventilation. Clear area of personnel.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so.

**Methods and materials for containment and cleaning up:** Remove leaking cylinders to a safe place. Fit vent pipes. Release pressure under safe, controlled conditions. Burn issuing gas at vent pipes. DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.

## SECTION 7 HANDLING AND STORAGE

**Precautions for safe handling:** Consider use in closed pressurized systems, fitted with temperature, pressure and safety relief valves which are vented for safe dispersal. The tubing network design connecting gas cylinders to the delivery system should include appropriate pressure indicators and vacuum or suction lines. Fully-welded types of pressure gauges, where the bourdon tube sensing element is welded to the gauge body, are recommended. Before connecting gas cylinders, ensure manifold is mechanically secure and does not contain another gas. Before disconnecting gas cylinder, isolate supply line segment proximal to cylinder, remove trapped gas in supply line with aid of vacuum pump. DO NOT transfer gas from one cylinder to another.

**Conditions for safe storage, including any incompatibilities:** Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open. Such compounds should be sited and built in accordance with statutory requirements. The storage compound should be kept clear and access restricted to authorized personnel only. Cylinders stored in the open should be protected against rust and extremes of weather.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters:**

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>
China (Hong Kong) Occupational Exposure Limits	Carbon dioxide	5 000	9 000	30 000	54 000

**Appropriate engineering controls:** Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

**Personal protective equipment**

**Eye/face protection:** Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

**Skin protection:** When handling sealed and suitably insulated cylinders wear cloth or leather gloves.

**Respiratory protection:** Selection of the Class and Type of respirator will depend upon the level of

breathing zone contaminant and the chemical nature of the contaminant.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Compressed gas.
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	-78.5°C.
Initial boiling point and boiling range	/
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	57,249 hPa (20°C)
Vapour density	/
Relative density	1.52 (air=1) .
Water solubility	/
Partition coefficient: noctanol/water	Partly miscible.
Autoignition temperature	/
Decomposition temperature	/
Viscosity	/

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** /

**Chemical stability:** Product is considered stable.

**Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**Conditions to avoid:** Presence of incompatible materials.

**Incompatible materials:** /

**Hazardous decomposition products:** /

## SECTION 11 TOXICOLOGICAL INFORMATION

### Acute health effects

**Inhalation:** The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of the material, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

**Ingestion:** Overexposure is unlikely in this form. Not normally a hazard due to physical form of product.

**Skin:** The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

**Eyes:** Although the material is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctive redness (as with windburn).

**Chronic health effects:** Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Numerical measures of toxicity(such as acute toxicity estimates): /

## SECTION 12 ECOLOGICAL INFORMATION

**Toxicity:** /

**Persistence and degradability:** Water/Soil: Low.

**Bioaccumulative potential:** Low.

**Mobility in soil:** High.

**Other adverse effects:** /

## SECTION 13 DISPOSAL CONSIDERATIONS

**Disposal methods:** Evaporate residue at an approved site. Return empty containers to supplier.

## SECTION 14 TRANSPORT INFORMATION

**UN number:** 1013.

**UN proper shipping name:** Carbon dioxide.

**Transport hazard class(es):** 2.2.

**Packaging group:** /

**Environmental hazards:** /

**Special precautions for user:** /

## SECTION 15 REGULATORY INFORMATION

### Regulations:

carbon dioxide (CAS: 124-38-9) is found on the following regulatory lists: "China (Hong Kong) Fire Service Department - List of Dangerous Goods", "China Dangerous Chemicals Names List", "China Inventory of Existing Chemical Substances", "OECD List of High Production Volume (HPV) Chemicals". This safety data sheet is in compliance with the following national standards: GB16483-2008, GB13690-2009, GB6944-2005, GB/T15098-2008, GB18218-2009, GB15258-2009, GB6944-2005, GB190-2009, GB191-2009, GB12268-2008, GA57-1993, GB/T 15098-2008, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation, United Nations Regulations on the Transport of Dangerous Goods (UN RTDG)

## SECTION 16 OTHER INFORMATION

<b>References</b>	“Model Regulations on the Transport of Dangerous Goods” “The Globally Harmonized System of Classification and Labelling of Chemicals”
<b>Form Date</b>	30-July-2016

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information or no data available (such as boiling point does not exist for the solid) in the table with "/" logo.

## 1. Product and Company Identification

Product name	<b>Helium, compressed</b>
Chemical formula	He
Synonyms	Helium gas; Helium compressed; Helium-4; Atomic Helium; He; UN 1046
Company	Empresas Carbone S.A.
Date	10,MAY,2016
Telephone	86-532-68698194
Emergency	86-532-68698194

## 2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Helium, compressed	7440-59-7	100%

## 3. Hazards Identification

### Emergency Overview

May cause difficulty in breathing.  
Containers may rupture or explode if exposed to heat.

### Potential Health Effects

Inhalation	: Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, fatigue, dizziness, disorientation, emotional disturbances, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma.
Eye contact	: Frostbite, blurred vision.
Skin contact	: Frostbite.
Ingestion	: Ingestion of a gas is unlikely.
Chronic Health Hazard	: None.

## 4. First Aid Measures

General advice	: None.
Eye contact	: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.
Skin contact	: Wash exposed skin with soap and water.
Ingestion	: If a large amount is swallowed, get medical attention.
Inhalation	: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

## 5. Fire-Fighting Measures

Suitable extinguishing media	: Use extinguishing agents appropriate for surrounding fire. Large fires: Use water spray to keep containers cool.
Specific hazards	: Negligible fire hazard. Containers may rupture or explode if exposed to heat.
Fire fighting	: Move container from fire area if it can be done without risk. Cool containers with water spray until well after fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tanks, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

## 6. Accidental Release Measures

Personal precautions	: None.
Environmental precautions	: None.
Methods for cleaning up	: Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
Additional advice	: None.

## 7. Handling and Storage

### Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

### Storage

Store in accordance with all current regulations and standards. Protect from sunlight. Store in a well-ventilated area. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

## 8. Exposure Controls / Personal Protection

### Exposure limits

ACGIH, OSHA and NIOSH have not developed exposure limits for any of this product's components.

### Engineering measures

Provide local exhaust or process enclosure ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

### Personal protective equipment

Respiratory protection	: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. For unknown concentrations or immediately dangerous to life or health – Any supplied-air respirator with a full face-piece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full face-piece and is operated in a pressure-demand or positive-pressure mode.
Hand protection	: Protective gloves are not required.
Eye protection	: Eye protection not required, but recommended.
Skin and body protection	: Protective clothing is not required.

## 9. Physical and Chemical Properties

Form	: Gas.
Color	: Colorless.
Odor	: Odorless.
Molecular weight	: 4.0026
Vapor pressure	: 1719 mmHg @ -268°C
Vapor density	: 0.138 (air = 1)
Specific gravity	: Not applicable.
Boiling point	: -452°F (-269°C)
Freezing point	: -456.5°F (-271.3°C)
Water solubility	: 0.94% @ 0°C
Evaporation rate	: Not applicable.

## 10. Stability and Reactivity

Stability	: Stable at normal temperature and pressure.
Conditions to avoid	: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid inhalation of material or combustion by-products.
Materials to avoid	: No data available.
Hazardous decomposition products	: None.

## 11. Toxicological Information

### Acute Health Hazard

Ingestion	: Not available.
Inhalation	: Not available.
Skin	: Not available.

## 12. Ecological Information

Not available.

## 13. Disposal Considerations

Waste from residues / unused products	: Dispose in accordance with all applicable regulations.
Contaminated packaging	: Return cylinder to supplier.

## 14. Transport Information

### DOT (US only)

Proper shipping name	: Helium, compressed
Class	: 2.2
UN/ID No.	: UN1046
Labeling	: Non-flammable Gas

### Further information

Cylinders should be transported in a secure upright position in a well ventilated truck.

## 15. Regulatory Information

### U.S. Federal Regulations

None of these product components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

### SARA 311/312

Acute: Yes  
Chronic: No  
Fire: No  
Reactive: No  
Pressure: Yes

### U.S. State Regulations

None of this product's components are listed on the state lists from CA, MA, MN, NJ, PA or RI.  
Not regulated under California Proposition 65.

## 16. Other Information

Prepared by EMPRESAS CARBONE S.A.



## Nitrogen ----- Material Safety Data Sheet

### SECTION 1 IDENTIFICATION

**Product Name:** Nitrogen.

**Other Name:** N2

**Recommended use of the chemical and restrictions on use:**

**Supplier's details:** Empresas Carbone S.A.

**Emergency phone number:** (+507) 391-6309

### SECTION 2 HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

Gases under pressure: Compressed gases,

STOT - SE (Narcosis) Category 3.

**GHS Label elements, including precautionary statements**



**Signal word:** Warning

**Hazard statement(s):** Contains gas under pressure; may explode if heated. May cause drowsiness or dizziness.

**Precautionary statement(s):**

**Prevention:** Keep away from heat/sparks/open flames/hot surfaces. No smoking.

**Response:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

**Storage:** Store in well-ventilated place. Protect from sunlight.

**Disposal:** Dispose of contents/container to relevant regulations.

**Other hazards which do not result in classification:** /

### SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
Nitrogen	7727-37-9	99.999%

### SECTION 4 FIRST AID MEASURES

**Description of necessary first aid measures**

**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Open the eyelid(s) wide to allow the material to evaporate. Gently rinse the affected eye(s) with clean, cool water for at least 15 minutes.

**If swallowed:** Not considered a normal route of entry.

**Most important symptoms and effects, both acute and delayed:** /

**Indication of immediate medical attention and special treatment needed:** /

## SECTION 5 FIREFIGHTING MEASURES

**Suitable extinguishing media:** SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire. LARGE FIRE: Cool cylinder. DO NOT direct water at source of leak or venting safety devices as icing may occur.

**Special hazards arising from the chemical:** Containers may explode when heated - Ruptured cylinders may rocket Fire exposed containers may vent contents through pressure relief devices. High concentrations of gas may cause asphyxiation without warning. May decompose explosively when heated or involved in fire. Contact with gas may cause burns, severe injury and/ or frostbite.

**Special protective actions for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Avoid breathing vapour and any contact with liquid or gas. Protective equipment including respirator should be used. DO NOT enter confined spaces where gas may have accumulated. Increase ventilation.

**Environmental precautions:** Remove leaking cylinders to safe place. Release pressure under safe controlled conditions by opening valve.

**Methods and materials for containment and cleaning up:** Water spray or fog may be used to disperse vapour. DO NOT enter confined space where gas may have collected. Keep area clear until gas has dispersed. Remove leaking cylinders to a safe place.

## SECTION 7 HANDLING AND STORAGE

**Precautions for safe handling:** Check regularly for spills or leaks. Keep valves tightly closed but do not apply extra leverage to hand wheels or cylinder keys. Open valve slowly. If valve is resistant to opening then contact your supervisor

**Conditions for safe storage, including any incompatibilities:** Cylinders should be stored in a purpose-built compound with good ventilation, preferably in the open. Cylinders in storage should be properly secured to prevent toppling or rolling. Cylinder valves should be closed when not in use. Where cylinders are fitted with valve protection this should be in place and properly secured.

## SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters:** /

**Appropriate engineering controls:** Areas where cylinders are stored require good ventilation and, if enclosed, need discrete/controlled exhaust ventilation. Secondary containment and exhaust gas treatment may be required by certain jurisdictions. Local exhaust ventilation may be required in work areas.

### Personal protective equipment

**Eye/face protection:** Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

**Skin protection:** Wear chemical protective gloves, eg. PVC. Wear safety footwear or safety gumboots, eg. Rubber. Impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection:** Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	gas
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	-209.9°C.
Initial boiling point and boiling range	-195.8°C.
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	/
Vapour density	0.967 (air=1).
Relative density	/
Water solubility	Immiscible
Partition coefficient: noctanol/water	/
Autoignition temperature	/
Decomposition temperature	/
Viscosity	/

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:** /

**Chemical stability:** Product is considered stable.

**Possibility of hazardous reactions:** Hazardous polymerisation will not occur.

**Conditions to avoid:** Presence of incompatible materials.

**Incompatible materials:**

**Hazardous decomposition products:** /

## SECTION 11 TOXICOLOGICAL INFORMATION

### Acute health effects

**Inhalation:** Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.

**Ingestion:** Not normally a hazard due to physical form of product.

**Skin:** The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

**Eyes:** Not considered to be a risk because of the extreme volatility of the gas.

**Chronic health effects:** Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course. Principal route of occupational exposure to the gas is by inhalation.

**Numerical measures of toxicity(such as acute toxicity estimates):**/

## SECTION 12 ECOLOGICAL INFORMATION

**Toxicity:** /

**Persistence and degradability:** /

**Bioaccumulative potential:** /

**Mobility in soil:** High.

**Other adverse effects:** /

### SECTION 13 DISPOSAL CONSIDERATIONS

**Disposal methods:** Evaporate or incinerate residue at an approved site. Return empty containers to supplier. Ensure damaged or non-returnable cylinders are gas-free before disposal.

### SECTION 14 TRANSPORT INFORMATION

**UN number:** 1066.

**UN proper shipping name:** NITROGEN, COMPRESSED.

**Transport hazard class(es):** 2.1.

**Packaging group:** /

**Environmental hazards:** /

**Special precautions for user:** /

### SECTION 15 REGULATORY INFORMATION

**Regulations:**

Nitrogen (CAS: 7727-37-9) is found on the following regulatory lists: "China (Hong Kong) Fire Service Department - List of Dangerous Goods", "China Classification and Labelling of Dangerous Chemical Substances", "China Dangerous Chemicals Names List", "China Hygienic Standards for Uses of Food Additives (GB 2760-1996) - List of Processing Assistants Recommended for Use in Food Industry", "China Inventory of Existing Chemical Substances". This safety data sheet is in compliance with the following national standards: GB16483-2008, GB13690-2009, GB6944-2005, GB/T15098-2008, GB18218-2009, GB15258-2009, GB6944-2005, GB190-2009, GB191-2009, GB12268-2008, GA57-1993, GB/T 15098-2008, GBZ 2-2007 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation, United Nations Regulations on the Transport of Dangerous Goods (UN RTDG)

### SECTION 16 OTHER INFORMATION

**References**

“Model Regulations on the Transport of Dangerous Goods”

“The Globally Harmonized System of Classification and Labelling of Chemicals”

**Form Date**

01-August-2016

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information or no data available (such as boiling point does not exist for the solid) in the table with "/" logo.