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## MATERIAL SAFETY DATA SHEET

Product Name:

ARCAL™ 12

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Revision: 2

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Label 2.2 : Non  
flammable, non toxic  
gas.

### IDENTIFICATION

**Chemical Name:** Argon and Carbon Dioxide  
**Synonyms:** Blueshield™ SSM-1, Argon Based Compressed Gas Mixture  
**UN Number:** 1956  
**Poisons Schedule Number:** None allocated  
**G.T. EPG. (Group Text. Emergency Procedure Guide):** AS 1678 2C1

**Use:** Inert shielding gas for arc welding, refining of metals, lasers

### HAZARDS IDENTIFICATION

**Dangerous Goods Class and Subsidiary Risk:** 2.2  
**HSNO Classification:** Not Hazardous

**Hazard Statement:** Contains gas under pressure; may explode if heated.

**Precautionary Statements:** Read label before use.  
Read Material Safety Data Sheet before use.  
Protect from sunlight.  
Store in a well-ventilated place.

### COMPOSITION

| Ingredients     | CAS Number | Proportion |
|-----------------|------------|------------|
| Chemical Entity |            |            |
| Argon           | 7440-37-1  | 95 - 99%   |
| Carbon Dioxide  | 124-38-9   | 1 - 5%     |

### FIRST AID MEASURES

#### Health Effects

##### Acute

Swallowed: Not applicable to gases  
Eye: Not irritating to the eye  
Skin: Not irritating to the skin

Inhaled: Argon is non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly disturbed; 10-14%: emotional upset, abnormal fatigue, disturbed respiration; 6-10%: nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.

**Chronic**

Long term exposure to argon has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

**First Aid**Inhalation:

In high concentrations may cause asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin Contact:

Remove contaminated clothing and shoes immediately – Clothing frozen to the skin should be thawed before being removed – In case of frostbite, thaw with lukewarm water. Obtain immediate medical assistance.

Eye Contact:

Immediately flush eyes thoroughly with water for at least 15 minutes.

**Advice to Doctor**

Advise doctor that victim has been exposed to an oxygen deficient atmosphere.

**FIRE FIGHTING MEASURES****Flammability:**

Non Flammable.

**Fire/Explosion Hazard:**

Exposure to fire may cause container to rupture/explode. Move cylinders from fire if safe to do so. Cool cylinders with water from a protected location. If unable to keep cylinders cool, evacuate area.

**Extinguishing Media:**

Water fog or fine water spray. If possible, stop flow of product. Move away from the container and cool with water from a protected position.

**Hazchem Code:**

2 T

**Recommended Protective Clothing:**

Breathing apparatus need only be worn if the substance is involved in a fire. In confined space use self-contained breathing apparatus.

**ACCIDENTAL RELEASE MEASURES****Personal Protection:**

Personnel engaged in the movement of cylinders shall be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of argon, approved self-contained full face respiratory equipment should be readily available.

**Spills and Disposal:**

Ventilate area. Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**Reference Guide:**

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.

**HANDLING AND STORAGE****Handling****Flammability:**

Non Flammable.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.

**Approved Handlers:**

Approved handlers are not required, non hazardous gas (HSNO).

**Storage****Separation:**

Storage of compressed gas cylinders shall be in compliance with New Zealand regulations. Cylinders shall be stored in a cool, dry, well ventilated area out of direct sunlight and away from heat and ignition sources. No part of cylinders shall be exposed to temperatures above 50°C. Avoid any contact with oil or grease particularly to the cylinder valve. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empties. Cylinders should be moved by hand-truck or cart designed for that purpose.

**Spills and Disposal:**

Ventilate area. Stop leak if it can be done without risk. Allow gas to dissipate to atmosphere. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Standards:**

Argon, Helium, Hydrogen is simple asphyxiants.  
Carbon Dioxide TWA 5,000 ppm v/v STEL 30,000 ppm v/v.

**Engineering Controls:**

Provide adequate local exhaust and dilution (general) ventilation and supply sufficient replacement air to maintain oxygen concentration above 19%.

**Personal Protection:**

Personnel engaged in the movement of cylinders shall be provided with safety footwear and leather or PVC gloves. Full cover overalls and safety glasses recommended. In areas where equipment failure may cause an immediate high concentration of argon, approved self-contained full face respiratory equipment should be readily available.

**PHYSICAL AND CHEMICAL PROPERTIES****Physical Properties**

|                   |                                  |                               |                |
|-------------------|----------------------------------|-------------------------------|----------------|
| Appearance:       | Colourless, Odourless, Tasteless | Flashpoint:                   | Non Flammable  |
| Boiling Point:    | Not Applicable                   | Flammability Limits:          | Non Flammable  |
| Vapour Pressure:  | Not Applicable                   | Solubility in Water (at 0°C): | Not Applicable |
| Specific Gravity: | Not Applicable                   |                               |                |

**Other Properties**

|  |                |                                      |                               |
|--|----------------|--------------------------------------|-------------------------------|
| Relative Density (at 15°C)<br>(Air = 1): | 0.76 - 1.4     | Density of Gas<br>(101.3 kPa, 15°C): | 0.93 - 1.72 kg/m <sup>3</sup> |
| Molecular Weight:                        | Not Applicable | Critical Temperature:                | Not Applicable                |

**STABILITY AND REACTIVITY****Flammability:**

Non-Flammable

**Materials Compatibility:**

No Information

**TOXICOLOGY INFORMATION**

No known toxicological effects from this product.

**ECOLOGICAL INFORMATION**

No known ecological damage caused by this product

**DISPOSAL CONSIDERATIONS**

Do not discharge into any place where its accumulation could be dangerous. To atmosphere in a well ventilated place.

**TRANSPORT INFORMATION**

**UN Number:** 1956  
**Proper Shipping Name:** COMPRESSED GAS, N.O.S (CONTAINS ARGON AND CARBON DIOXIDE)  
**Dangerous Goods Class and Subsidiary Risk:** 2.2  
**Packing Group:** Not applicable  
**Hazchem Code:** 2 T  
**Other Information:** Avoid transport on vehicles where the load 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 there is adequate ventilation.
- Compliance with applicable regulations.

**REGULATORY INFORMATION**

**ERMA Register Approval No:** HSR002533

**HSNO Controls:** Hazardous Substances (Compressed Gases) Regulations 2004.  
Compressed Gas Mixtures (Non-hazardous) Group Standard 2006  
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.

**Approved Handlers:**

Approved handlers are not required, non hazardous gas (HSNO).

**OTHER INFORMATION**

Compressed Argon is supplied in high pressure cylinders.

**Cylinder Colour:** AS 4484-2004 Peacock Blue PMS 5473C / Green Grey PMS 415C  
**Cylinder Valve Outlet:** AS 2473 Type 10 Scandina Cap / Blue

**References:**

- L'Air Liquide Gas Encyclopaedia - Elsevier Scientific Publishing Co. Amsterdam
- Cheminfo Database
- New Zealand Code for the Transport of Dangerous Goods by Road and Rail
- NHMRC Threshold Limit Values - Commonwealth Dept Health
- SAA Safe Storage and Handling Information Cards
- SAA Emergency Procedure Cards
- Matheson Gas Data Book, 6th Edition, Matheson 1980
- Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
- AS 1894 Code of Practice for Safe Handling of Cryogenic fluids
- NZCIC Code of Practice – Preparation of Safety Data Sheets

**END MSDS**

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace in conjunction with other products.

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If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

This MSDS has been prepared in accordance with NZCIC Code of Practice – Preparation of Safety Data Sheets

**Air Liquide regional offices contact details on following page**

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