

Safety Data Sheet



1% NO₂ in Argon

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SDS reference: AL699

Warning



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

SDS no : AL699

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use
Test gas/Calibration gas
Laboratory use
Contact supplier for more information on uses

Uses advised against : Consumer use

1.3. Details of the supplier of the safety data sheet

Company identification : Air Liquide Australia Limited
Level 9 / 380 St. Kilda Road
3004 Melbourne VIC Australia
+61 3 9697 9888
ALAEquiries@AirLiquide.com

1.4. Emergency telephone number

Emergency telephone number : 1800 812 588

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to WHS Regulation

Physical hazards	Gases under pressure : Compressed gas	H280
Health hazards	Acute toxicity (inhalation:gas) Category 4	H332
	Skin corrosion/irritation, Category 2	H315
	Serious eye damage/eye irritation, Category 2	H319
	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335

2.2. Label elements

Classification according to WHS Regulation

Hazard pictograms :



GHS04

GHS07

Signal word : Warning

Hazard statements : H335 - May cause respiratory irritation.

H280 - Contains gas under pressure; may explode if heated.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.

Precautionary statements

- Prevention : P260 - Do not breathe gas, vapours
P280 - Wear protective gloves, protective clothing, eye protection, face protection
- Response : P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention
P305+P351+P338+P315 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention
P302+P352 - IF ON SKIN: Wash with plenty of water
- Storage : P403 - Store in a well-ventilated place

2.3. Other hazards

: None

SECTION 3: Composition/information on ingredients

3.1. Substance : Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to WHS Regulation
Argon	(CAS No) 7440-37-1 (EC no) 231-147-0 (EC index no) (REACH-no) *1	Balance	Press. Gas (Comp.), H280
Nitrogen dioxide	(CAS No) 10102-44-0 (EC no) 233-272-6 (EC index no) 007-002-00-0 (REACH-no) *2	<= 1	Ox. Gas 1, H270 Press. Gas (Liq.), H280 Acute Tox. 1 (Inhalation:gas), H330 Skin Corr. 1B, H314 Eye Dam. 1, H318

Full text of R- and H-statements: see section 16

Contains no other components or impurities which will influence the classification of the product.

*1: Listed in Annex IV / V REACH, exempted from registration.

*2: Registration deadline not expired.

*3: Registration not required: Substance manufactured or imported < 1t/y.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : 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. Drench affected area with water for at least 15 minutes
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes
- Ingestion : Ingestion is not considered a potential route of exposure

4.2. Most important symptoms and effects, both acute and delayed

- : May cause irritation to cornea (with temporary disturbance to vision)
May cause irritation to skin
Irritation to the respiratory tract
Refer to section 11

4.3. Indication of any immediate medical attention and special treatment needed

- : Treat with corticosteroid spray as soon as possible after inhalation
- Obtain medical assistance

SECTION 5: Firefighting measures**5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog
- Unsuitable extinguishing media : Do not use water jet to extinguish

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode
- Hazardous combustion products : None that are more toxic than the product itself

5.3. Advice for fire-fighters

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems
If possible, stop flow of product
Use water spray or fog to knock down fire fumes if possible
Move containers away from the fire area if this can be done without risk
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus
EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters
- Hazchemcode : 2TE

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- : Try to stop release
Evacuate area
Monitor concentration of released product
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe
Use chemically protective clothing
Ensure adequate air ventilation
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous
Act in accordance with local emergency plan
Stay upwind

6.2. Environmental precautions

- : Reduce vapour with fog or fine water spray
Try to stop release

6.3. Methods and material for containment and cleaning up

- : Hose down area with water
Ventilate area
Wash contaminated equipment or sites of leaks with copious quantities of water

6.4. Reference to other sections

: See also sections 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Safe use of the product : The substance must be handled in accordance with good industrial hygiene and safety procedures
 Only experienced and properly instructed persons should handle gases under pressure
 Consider pressure relief device(s) in gas installations
 Ensure the complete gas system was (or is regularly) checked for leaks before use
 Do not smoke while handling product
 Avoid exposure, obtain special instructions before use
 Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt
 Do not breathe gas
 Avoid release of product into atmosphere.
- Safe handling of the gas receptacle : Refer to supplier's container handling instructions
 Do not allow backfeed into the container
 Protect cylinders from physical damage; do not drag, roll, slide or drop
 When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders
 Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use
 If user experiences any difficulty operating cylinder valve discontinue use and contact supplier
 Never attempt to repair or modify container valves or safety relief devices
 Damaged valves should be reported immediately to the supplier
 Keep container valve outlets clean and free from contaminants particularly oil and water
 Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment
 Close container valve after each use and when empty, even if still connected to equipment
 Never attempt to transfer gases from one cylinder/container to another
 Never use direct flame or electrical heating devices to raise the pressure of a container
 Do not remove or deface labels provided by the supplier for the identification of the cylinder contents
 Containers should be stored in the vertical position and properly secured to prevent them from falling over.

7.2. Conditions for safe storage, including any incompatibilities

- : Observe all regulations and local requirements regarding storage of containers
 Containers should not be stored in conditions likely to encourage corrosion
 Container valve guards or caps should be in place
 Containers should be stored in the vertical position and properly secured to prevent them from falling over
 Stored containers should be periodically checked for general condition and leakage
 Keep container below 50°C in a well ventilated place
 Store containers in location free from fire risk and away from sources of heat and ignition
 Keep away from combustible materials.

7.3. Specific end use(s)

: None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1% NO ₂ in Argon		
OEL : Occupational Exposure Limits		
Australia	TWA (mg/m ³)	5.6 mg/m ³ Nitrogen dioxide
	TWA (ppm)	3 ppm Nitrogen dioxide
	STEL (mg/m ³)	9.4 mg/m ³ Nitrogen dioxide

STEL (ppm)	5 ppm Nitrogen dioxide
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DNEL (Derived-No Effect Level) : No data available.

PNEC (Predicted No-Effect Concentration) : No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation
- Product to be handled in a closed system
- Systems under pressure should be regularly checked for leakages
- Ensure exposure is below occupational exposure limits (where available)
- Gas detectors should be used when toxic gases may be released
- Consider work permit system e.g. for maintenance activities

8.2.2. Individual protection measures, e.g. personal protective equipment

- : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards should be selected

• Eye/face protection

- : Wear safety glasses with side shields
- Standard EN 166 - Personal eye-protection
- Provide readily accessible eye wash stations and safety showers

• Skin protection

- Hand protection

- : Wear working gloves when handling gas containers
- Standard EN 388 - Protective gloves against mechanical risk
- Wear chemically resistant protective gloves
- Standard EN 374 - Protective gloves against chemicals
- Consult glove manufacturer's product information on material suitability and material thickness
- The breakthrough time of the selected gloves must be greater than the intended use period

- Other

- : Keep suitable chemically resistant protective clothing readily available for emergency use
- Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals
- Wear safety shoes while handling containers
- Standard EN ISO 20345 - Personal protective equipment - Safety footwear

• Respiratory protection

- : Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known
- Use gas filters and full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers
- Consult respiratory device supplier's product information for the selection of the appropriate device
- Gas filters do not protect against oxygen deficiency
- Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136
- Keep self contained breathing apparatus readily available for emergency use
- Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask
- Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems

• Thermal hazards

- : None necessary

8.2.3. Environmental exposure controls

- : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- Physical state at 20°C / 101.3kPa : Gas.

• Colour	: Mixture contains one or more component(s) which have the following colour(s): Brownish gas. Colourless.
Odour	: There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): Pungent.
Odour threshold	: Odour threshold is subjective and inadequate to warn of overexposure.
pH value	: Not applicable for gas-mixtures.
Molar mass	: Not applicable for gas-mixtures.
Melting point	: Not applicable for gas-mixtures.
Boiling point	: Not applicable for gas-mixtures.
Flash point	: Not applicable for gas-mixtures.
Evaporation rate (ether=1)	: Not applicable for gas-mixtures.
Flammability range	: Non flammable.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Relative density, gas (air=1)	: Heavier than air.
Solubility in water	: No data available
Partition coefficient n-octanol/water [log Kow]	: Not applicable for gas-mixtures.
Auto-ignition temperature	: Non flammable.
Viscosity [20°C]	: Not applicable.
Explosive Properties	: Not applicable
Oxidising Properties	: Not applicable

9.2. Other information

Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level
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SECTION 10: Stability and reactivity

10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below

10.2. Chemical stability

: Stable under normal conditions

10.3. Possibility of hazardous reactions

: None

10.4. Conditions to avoid

: None

10.5. Incompatible materials

: None

10.6. Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Harmful by inhalation
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Nitrogen dioxide (10102-44-0)	
LC50 inhalation rat (ppm)	57.5 ppm/4h
Skin corrosion/irritation	: Irritation to skin
Serious eye damage/irritation	: Irritation to eyes
Respiratory or skin sensitisation	: No known effects from this product
Germ cell mutagenicity	: No known effects from this product
Carcinogenicity	: No known effects from this product
Toxic for reproduction : Fertility	: No known effects from this product
Toxic for reproduction : unborn child	: No known effects from this product
STOT-single exposure	: Irritation to the respiratory tract
STOT-repeated exposure	: No known effects from this product
Aspiration hazard	: Not applicable for gases and gas mixtures

SECTION 12: Ecological information

12.1. Toxicity

Assessment : Classification criteria are not met.

12.2. Persistence and degradability

Assessment : No data available.

12.3. Bioaccumulative potential

Assessment : No data available.

12.4. Mobility in soil

Assessment : No data available.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB

12.6. Other adverse effects

: May cause pH changes in aqueous ecological systems.
 Effect on ozone layer : None
 Effect on the global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required
 Avoid discharge to atmosphere
 Do not discharge into any place where its accumulation could be dangerous
 Ensure that the emission levels from local regulations or operating permits are not exceeded
 Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods

List of hazardous waste codes (from Commission Decision 2001/118/EC) : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances

13.2. Additional information

: None

SECTION 14: Transport information**14.1. UN number**

UN-No. : 1956

14.2. UN proper shipping name**Transport by road/rail (ADR/RID)** : COMPRESSED GAS, N.O.S. (Argon, Nitrogen dioxide)**Transport by air (ICAO-TI / IATA-DGR)** : Compressed gas, n.o.s. (Argon, Nitrogen dioxide)**Transport by sea (IMDG)** : COMPRESSED GAS, N.O.S. (Argon, Nitrogen dioxide)**14.3. Transport hazard class(es)****Labelling** :

2.2 : Non-flammable, non-toxic gases

Transport by road/rail (ADG)Class : 2
Hazchemcode : 2TE
Hazard identification number : 20
Tunnel Restriction : E - Passage forbidden through tunnels of category E**Transport by air (ICAO-TI / IATA-DGR)**

Class / Div. (Sub. risk(s)) : 2.2

Transport by sea (IMDG)Class / Div. (Sub. risk(s)) : 2.2
Emergency Schedule (EmS) - Fire : F-C
Emergency Schedule (EmS) - Spillage : S-V**14.4. Packing group**

Transport by road/rail (ADR/RID) : Not applicable

Transport by air (ICAO-TI / IATA-DGR) : Not applicable

Transport by sea (IMDG) : Not applicable

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

14.6. Special precautions for user**Packing Instruction(s)**

Transport by road/rail (ADR/RID) : P200

Transport by air (ICAO-TI / IATA-DGR)
Passenger and Cargo Aircraft : 200

Cargo Aircraft only : 200
 Transport by sea (IMDG) : P200

Special transport precautions : 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 there is adequate ventilation
 - 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.

HAZCHEMCODE : 2TE

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

: A CSA does not need to be carried out for this product

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.

Training advice : Users of breathing apparatus must be trained. Receptacle under pressure.

Full text of H-statements

Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation

H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
R23	Toxic by inhalation
R26	Very toxic by inhalation
R34	Causes burns
R36/37/38	Irritating to eyes, respiratory system and skin
R8	Contact with combustible material may cause fire
C	Corrosive
O	Oxidising
T	Toxic
T+	Very toxic
Xi	Irritant

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: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out
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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