

# Safety Data Sheet



0-500 ppm SO<sub>2</sub>, 0-500 ppm NO, 0-500 ppm CO, 0-20% CO<sub>2</sub> in Nitrogen

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SDS reference: AL719

**Warning**



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

### 1.1. Product identifier

SDS no : AL719

### 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

### 2.2. Label elements

#### Classification according to WHS Regulation

Hazard pictograms :



GHS04

Signal word :

Warning

Hazard statements :

H280 - Contains gas under pressure; may explode if heated.

Precautionary statements

- Storage : P410+P403 - Protect from sunlight. Store in a well-ventilated place



0-500 ppm SO<sub>2</sub>, 0-500 ppm  
NO, 0-500 ppm CO, 0-20%  
CO<sub>2</sub> in Nitrogen

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### 2.3. Other hazards

: Asphyxiant in high concentrations

## SECTION 3: Composition/information on ingredients

3.1. **Substance** : Not applicable

### 3.2. Mixture

Name	Product identifier	%	Classification according to WHS Regulation
Nitrogen	(CAS No) 7727-37-9 (EC no) 231-783-9 (EC index no) (REACH-no) *1	Bal	Press. Gas (Comp.), H280
Carbon dioxide	(CAS No) 124-38-9 (EC no) 204-696-9 (EC index no) (REACH-no) *1	0 - 20	Press. Gas (Liq.), H280
Sulphur dioxide	(CAS No) 7446-09-5 (EC no) 231-195-2 (EC index no) 016-011-00-9 (REACH-no) 01-2119485028-34	0 - 0.05	Press. Gas (Liq.), H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318
Nitric oxide	(CAS No) 10102-43-9 (EC no) 233-271-0 (EC index no) (REACH-no) *2	0 - 0.05	Ox. Gas 1, H270 Press. Gas (Comp.), H280 Acute Tox. 1 (Inhalation:gas), H330 Skin Corr. 1B, H314 Eye Dam. 1, H318
Carbon monoxide	(CAS No) 630-08-0 (EC no) 211-128-3 (EC index no) 006-001-00-2 (REACH-no) 01-2119480165-39	0 - 0.05	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Acute Tox. 3 (Inhalation:gas), H331 Repr. 1A, H360D STOT RE 1, H372

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 person to fresh air and keep comfortable for breathing  
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 : Adverse effects not expected from this product  
Wash skin with plenty of water
- Eye contact : Adverse effects not expected from this product  
Rinse eyes with water as a precaution
- Ingestion : Ingestion is not considered a potential route of exposure  
Call a poison center or a doctor if you feel unwell

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

: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation  
Refer to section 11

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

: None

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

- Suitable extinguishing media : Water spray or fog  
Water spray  
Dry powder  
Foam
- 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 : Use self-contained breathing apparatus  
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  
Ensure adequate air ventilation  
Act in accordance with local emergency plan  
Stay upwind

**6.2. Environmental precautions**

- : Avoid release to the environment  
Try to stop release

**6.3. Methods and material for containment and cleaning up**

- : Ventilate area

**6.4. Reference to other sections**

- : See also sections 8 and 13  
For further information refer to section 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
  - 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**

<b>Sulphur dioxide (7446-09-5)</b>		
OEL : Occupational Exposure Limits		
Australia	TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
	TWA (ppm)	2 ppm
	STEL (mg/m <sup>3</sup> )	13 mg/m <sup>3</sup>
	STEL (ppm)	5 ppm
<b>Carbon monoxide (630-08-0)</b>		
OEL : Occupational Exposure Limits		
United Kingdom	WEL - LTEL - UK [mg/m <sup>3</sup> ]	35 mg/m <sup>3</sup>
	WEL - LTEL - UK [ppm]	30 ppm
	WEL - STEL - UK [mg/m <sup>3</sup> ]	232 mg/m <sup>3</sup>
	WEL - STEL - UK [ppm]	200 ppm

<b>Carbon dioxide (124-38-9)</b>		
OEL : Occupational Exposure Limits		
United Kingdom	WEL - LTEL - UK [mg/m <sup>3</sup> ]	9150 mg/m <sup>3</sup>
	WEL - LTEL - UK [ppm]	5000 ppm
	WEL - STEL - UK [mg/m <sup>3</sup> ]	27400 mg/m <sup>3</sup>
	WEL - STEL - UK [ppm]	15000 ppm

<b>Sulphur dioxide (7446-09-5)</b>		
DNEL: Derived no effect level (Workers)		
Acute - local effects, inhalation		2.7 mg/m <sup>3</sup>
Long-term - local effects, inhalation		1.3 mg/m <sup>3</sup>

<b>Carbon monoxide (630-08-0)</b>		
DNEL: Derived no effect level (Workers)		
Acute - local effects, inhalation		100 ppm
Acute - systemic effects, inhalation		100 ppm
Long-term - local effects, inhalation		20 ppm
Long-term - systemic effects, inhalation		20 ppm

<b>Sulphur dioxide (7446-09-5)</b>		
<b>Carbon monoxide (630-08-0)</b>		

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

- : Ensure good ventilation of the work station
- Provide adequate general and local exhaust ventilation
- Systems under pressure should be regularly checked for leakages
- Ensure exposure is below occupational exposure limits (where available)
- Oxygen detectors should be used when asphyxiating 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

- : Safety glasses
- Wear safety glasses with side shields
- Standard EN 166 - Personal eye-protection

#### • Skin protection

##### - Hand protection

- : Wear working gloves when handling gas containers
- Standard EN 388 - Protective gloves against mechanical risk

##### - Other

- : Wear safety shoes while handling containers
- Standard EN ISO 20345 - Personal protective equipment - Safety footwear

#### • Respiratory protection

- : Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres
- Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask

#### • 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
- Avoid release to the environment.

## 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): Colourless. Brownish gas.

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) : Lighter or similar to 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 : None

**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**

: Avoid moisture in installation systems

**10.5. Incompatible materials**

: Reacts with water to form corrosive acids

**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** : Classification criteria are not met  
Toxicological effects not expected from this product if occupational exposure limit values are not exceeded

<b>Sulphur dioxide (7446-09-5)</b>	
LC50 inhalation rat (ppm)	1260 ppm/4h
<b>Nitric oxide (10102-43-9)</b>	
LC50 inhalation rat (ppm)	57.5 ppm/4h
<b>Carbon monoxide (630-08-0)</b>	
LC50 inhalation rat (ppm)	3760 ppm/1h (P200) 1300 ppm/4h

**Skin corrosion/irritation** : No known effects from this product  
**Serious eye damage/irritation** : No known effects from this product  
**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** : No known effects from this product  
**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

Effect on ozone layer : None

Effect on the global warming : Contains greenhouse gas(es) not covered by Regulation (EC) 842/2006.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods



Dispose of contents/container in accordance with licensed collector's sorting instructions  
 Contact supplier if guidance is required  
 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 05: Gases in pressure containers other than those mentioned in 16 05 04

**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. (Nitrogen, Nitric oxide)

**Transport by air (ICAO-TI / IATA-DGR)** : Compressed gas, n.o.s. (Nitrogen, Nitric oxide)

**Transport by sea (IMDG)** : COMPRESSED GAS, N.O.S. (Nitrogen, Nitric oxide)

**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.





0-500 ppm SO<sub>2</sub>, 0-500 ppm  
NO, 0-500 ppm CO, 0-20%  
CO<sub>2</sub> in Nitrogen

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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  
No chemical safety assessment has been carried out

### **SECTION 16: Other information**

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

Training advice : Receptacle under pressure.

Full text of H-statements

Acute Tox. 1 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 1
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Gas 1	Flammable gases, Category 1
Ox. Gas 1	Oxidising Gases, Category 1



Press. Gas (Comp.)	Gases under pressure : Compressed gas
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
Repr. 1A	Reproductive toxicity, Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
H220	Extremely flammable gas
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H331	Toxic if inhaled
H360D	May damage the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
R12	Extremely flammable
R23	Toxic by inhalation
R26	Very toxic by inhalation
R34	Causes burns
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R61	May cause harm to the unborn child
R8	Contact with combustible material may cause fire
C	Corrosive
F+	Extremely flammable
O	Oxidising
T	Toxic
T+	Very toxic

**DISCLAIMER OF LIABILITY**

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