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## MATERIAL SAFETY DATA SHEET

Product Name:

**SULPHUR DIOXIDE,  
Liquefied (SO<sub>2</sub>)**

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Revision: 8

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Label 2.3 : Toxic gas.



Label 8 : Corrosive substance.

### IDENTIFICATION

<b>Chemical Name:</b>	Sulphur Dioxide
<b>Synonyms:</b>	Sulphurous Acid Anhydride
<b>UN Number:</b>	1079
<b>Poisons Schedule Number:</b>	None allocated
<b>G.T. EPG. (Group Text. Emergency Procedure Guide):</b>	AS 1678 2B1

**Use:** In paper industry for pulp bleaching, wine industry

### HAZARDS IDENTIFICATION

<b>Dangerous Goods Class and Subsidiary Risk:</b>	2.3
<b>HSNO Classification:</b>	6.1C, 6.3B, 6.4A, 6.5A, 6.8B, 6.9A, 8.1A, 9.1A

<b>Hazard Statement:</b>	Toxic if inhaled. Cause mild skin irritation. Cause eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of damaging fertility or the unborn child. Causes damage to organs long term and short. May be corrosive to metals. Very toxic to aquatic life with long lasting effects.
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**Precautionary Statements:** Keep out of reach of children.  
Read label and Material Safety Data Sheets before use.  
Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Avoid breathing gas.  
Use only outdoors or in well ventilated area.  
In case of inadequate ventilation wear respiratory protection.  
Wash hands thoroughly after handling.  
Wear protective gloves, clothing and eye protection.  
Do not eat, drink or smoke when using this product.  
Keep only in original container.  
Avoid release to environment.  
Collect spillage.  
If medical advice is needed, have product container or label at hand.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
If experiencing respiratory symptoms: Immediately call a POISON CENTRE or Doctor.  
Do NOT induce vomiting.  
IF ON SKIN: Wash with plenty soap and water.  
Remove/Take off immediately all contaminated clothing. Wash before reuse.  
If skin irritation occurs: Get medical advice / attention.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Call a POISON CENTRE or doctor and get medical advice / attention.  
IF exposed or concerned: Get medical advice / attention.  
Absorb spillage to prevent material damage. Collect spillage.  
Store locked up in a well ventilated place in a corrosive resistant container with a resistant inner liner. Keep cool.

## COMPOSITION

### Ingredients

Chemical Entity	CAS Number	Proportion
Sulphur Dioxide	7446-09-5	100%

## FIRST AID MEASURES

### Health Effects

#### Acute

- Swallowed: Not considered a potential route of exposure.
- Eye: May cause chemical burns to cornea (with temporary disturbance to vision). Immediately flush eyes thoroughly with water for at least 15 minutes.
- Skin: May cause chemical burns to skin. Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
- Inhaled: Toxic by inhalation. Remove victim in uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

#### Chronic

Ulceration and perforation of the nasal septum have been reported with chronic exposure to Sulphur Dioxide. Prolong or repeated exposure to SO<sub>2</sub> may develop reactive airway disease (RADs), restrictive and obstructive lung disease or chronic bronchitis.

**First Aid**Swallowed:

Seek immediate medical assistance. Give water to drink. **DO NOT** induce vomiting.

Eye Contact:

Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical assistance.

Skin Contact:

Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If swelling, redness, blistering or irritation occurs, seek medical advice.

Inhaled:

Remove victim from exposure - avoid becoming a casualty. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airways are clear and have qualified person give oxygen through a face mask. If breathing has stopped, apply artificial respiration at once. In the event of cardiac arrest, apply external cardiac massage. Seek medical attention.

**Advice to Doctor**

Treat symptomatically and advise exposure to Sulphur Dioxide has occurred. If vomiting occurs place the victim's face downwards, head lower than hips to prevent vomit entering lungs. Contact Poisons Centre for Further Advice.

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

Non flammable. Reacts with water to form corrosive acids. May react violently with alkalis. Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas. With water causes rapid corrosion of some metals.

**Fire/Explosion Hazard:**

Decomposes on heating emitting toxic fumes, container may rupture when heated. Remove cylinders from fire if safe to do so. Cool cylinders with water from a protected location. If unable to keep cylinders cool, evacuate the area.

**Extinguishing Media:**

Water fog or fine water spray.

**Hazchem Code:**

2RE

**Recommended Protective Clothing:**

Full chemical protection suit and breathing apparatus should be worn.

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

Personnel shall be provided with safety footwear and rubber gloves. Full cover overalls and safety glasses or face shield to be worn. Full face positive pressure breathing equipment should be readily available.

**Spills and Disposal:**

Ventilate area. Try to stop release. Reduce vapour with fog or fine water spray. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Evacuate area. Wear self-contained breathing apparatus. Clean up by hosing down area with water. Wash contaminated equipment or site of leaks with copious quantities of water.

**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. Reacts with water to form corrosive acids. May react violently with alkalis. Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas. With water causes rapid corrosion of some metals.

**General:****Approved Handlers:**

Approved handlers required for any quantity stored on site.

**Storage****Separation:**

Storage of compressed gas cylinders shall be in compliance with New Zealand regulations. Cylinders shall be stored locked up in a well ventilated place in a corrosive resistant container with a resistant inner liner. Keep cool and dry area out of direct sunlight and away from heat and ignition sources (including static discharges). No part of cylinders shall be exposed to temperatures above 50°C. Do not allow backfeed into the container. Suck back of water into the container must be prevented. Avoid any contact with oil or grease particularly to cylinder valve. 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. Avoid any contact with oil or grease particularly to the cylinder valve.

**Spills and Disposal:**

Ventilate area. Try to stop release. Reduce vapour with fog or fine water spray. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Evacuate area. Wear self-contained breathing apparatus. Clean up by hosing down area with water. Wash contaminated equipment or site of leaks with copious quantities of water.

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

TWA 2 ppm v/v ( 5 mg/m<sup>3</sup>), STEL 5 ppm v/v ( 10 mg/m<sup>3</sup>)

**Engineering Controls:**

Use only materials compatible with sulphur dioxide. Recommended materials are lead, carbon, aluminium and stainless steel. Equipment must be approved for the pressures to be encountered.

**Personal Protection:**

Personnel shall be provided with safety footwear and rubber gloves. Full cover overalls and safety glasses or face shield to be worn. Full face positive pressure breathing equipment should be readily available.

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

Appearance:	Colourless, Suffocating Odour	Flashpoint:	Non Flammable
Boiling Point:	-10.01°C	Flammability Limits:	Non Flammable
Vapour Pressure:	Not Applicable	Gas Solubility in Water (at 0°C):	79.79 m <sup>3</sup> /m <sup>3</sup>

**Other Properties**

Relative Density (at 15°C) (Air = 1):	2.26	Density of Liquid (B.P.):	1458 kg/m <sup>3</sup>
Molecular Weight:	64.06	Critical Temperature:	157.65°C

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

Non flammable.

**Materials Compatibility:**

Reacts with water to form corrosive acids. May react violently with alkalis. Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas. With water causes rapid corrosion of some metals.

**TOXICOLOGY INFORMATION**

Severe corrosion to skin, eyes and respiratory tract at high concentrations. Delayed fatal pulmonary oedema possible. LC50 (ppm/1h): 2520

**ECOLOGICAL INFORMATION**

May cause pH changes in aqueous ecological systems.

**DISPOSAL CONSIDERATIONS**

Avoid discharge to atmosphere. Do not discharge into any place where its accumulation could be dangerous. Do not discharge into areas where there is risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.

Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction. Toxic and corrosive gases formed during combustion should be scrubbed before discharged to atmosphere.

**TRANSPORT INFORMATION**

<b>UN Number:</b>	1079
<b>Proper Shipping Name:</b>	SULPHUR DIOXIDE
<b>Dangerous Goods Class and Subsidiary Risk:</b>	2.3
<b>Packing Group:</b>	Not applicable
<b>Hazchem Code:</b>	2RE

**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:** HSR001068

**HSNO Controls:** Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001.  
Hazardous Substances (Disposal) Regulations 2001.  
Hazardous Substances (Personnel Qualifications) Regulations 2001.  
Hazardous Substances (Emergency Management) Regulations 2001.  
Hazardous Substances (Tracking) Regulations 2001.  
Hazardous Substances (Identification) Regulations 2001.  
Hazardous Substances (Compressed Gases) Regulations 2004.  
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.  
Schedule 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

**Approved Handlers:**

Approved handlers required for any quantity stored on site.

**OTHER INFORMATION**

Sulphur Dioxide is supplied as liquefied gas in cylinders.

Cylinder Colour: As 2700 Golden Yellow

Cylinder Valve Outlet: Industrial: AS 2473 Type 32

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.

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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