BOC
A Member of The Linde Group

# SAFETY DATA SHEET

**# 1922**

**Product Name** **8 COMPONENT MIXTURE (COS, C2H6S, CH4S, C4H10S, H2S, C4H8S, BALANCE N2)**

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

| | |
|---|---|
| **Supplier Name** | **BOC LIMITED (AUSTRALIA)** |
| **Address** | 10 Julius Avenue, North Ryde, NSW, AUSTRALIA, 2113 |
| **Telephone** | 131 262, (02) 8874 4400 |
| **Fax** | 132 427 (24 hours) |
| **Emergency** | 1800 653 572 (24/7) (Australia only) |
| **Web Site** | http://www.boc.com.au/ |
| **Synonym(s)** | 1922 - MSDS NUMBER · PRODUCT CODE: 292 · SPECIAL GAS MIXTURE |
| **Use(s)** | CALIBRATION · INDUSTRIAL APPLICATIONS |
| **SDS Date** | 26 April 2012 |

## 2. HAZARDS IDENTIFICATION

**CLASSIFIED AS HAZARDOUS (GHS) ACCORDING TO SAFE WORK AUSTRALIA CRITERIA**

**RISK PHRASES**

None allocated

**SAFETY PHRASES**

None allocated

**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

| | | | |
|---|---|---|---|
| **UN Number** | 1956 | **DG Division** | 2.2 |
| **Packing Group** | None Allocated | **Subsidiary Risk(s)** | None Allocated |
| **Hazchem Code** | 2TE | | |

## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredient | Identification | Classification | Content |
|---|---|---|---|
| CARBONYL SULPHIDE | CAS: 463-58-1<br>EC: 207-340-0 | Not Available | 0.0001% |
| ETHYL MERCAPTAN | CAS: 75-08-1<br>EC: 200-837-3 | F;R11 Xn;R20 N;R50/53 | 0.0001% |
| HYDROGEN SULPHIDE | CAS: 7783-06-4<br>EC: 231-977-3 | F+;R12 T+;R26 N;R50 | 0.0001% |
| METHYL MERCAPTAN | CAS: 74-93-1<br>EC: 200-822-1 | F+;R12 T;R23 N;R50/53 | 0.0001% |
| TETRAHYDROTHIOPHENE | CAS: 110-01-0<br>EC: 203-728-9 | F;R11 Xn;R20/21/22 Xi;R36/38 N;R52/53 | 0.0001% |
| DIMETHYL SULPHIDE | CAS: 75-18-3<br>EC: 200-846-2 | Not Available | 0.0001% |
| TERTIARY BUTYL MERCAPTAN | CAS: 75-66-1<br>EC: 200-890-2 | Not Available | 0.0001% |
| NITROGEN | CAS: 7727-37-9<br>EC: 231-783-9 | Not Available | Remainder |

## 4. FIRST AID MEASURES

**Eye** If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

**Inhalation** If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor.

**Skin** If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

**Ingestion** Due to product form and application, ingestion is considered unlikely.

**Advice to Doctor** Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

**Flammability** Non flammable gas.

**Fire and Explosion** Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Do not approach cylinders or containers suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Ensure work area is thoroughly ventilated before re-entry.

**Extinguishing** Use water fog to cool containers from protected area.

**Hazchem Code** 2TE

- 2 Water Fog (or fine water spray if fog unavailable)
- T Self Contained Breathing apparatus and protective gloves.
- E Evacuation of people in the vicinity of the incident should be considered.

## 6. ACCIDENTAL RELEASE MEASURES

**Spillage** If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment. Carefully move material to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices.

## 7. STORAGE AND HANDLING

**Storage** Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

**Handling** Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement. Do not drop, roll or drag cylinders. The uncontrolled release of any gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Standards**

| Ingredient | Reference | TWA | | STEL | |
|---|---|---|---|---|---|
| | | ppm | mg/m³ | ppm | mg/m³ |
| Ethyl mercaptan | SWA (AUS) | 0.5 | 1.3 | -- | -- |
| Hydrogen sulfide | SWA (AUS) | 10 | 14 | 15 | 21 |
| Methyl mercaptan | SWA (AUS) | 0.5 | 0.98 | -- | -- |
| Nitrogen | SWA (AUS) | Asphyxiant | | | |

**Biological Limits** No biological limit allocated.

**Engineering Controls** Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

**PPE**

| | |
|---|---|
| **Eye / Face** | Wear safety glasses. |
| **Hands** | Wear leather or cotton gloves. |
| **Body** | Wear coveralls and safety boots. |
| **Respiratory** | Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | COLOURLESS GAS |
| **Odour** | ROTTEN EGG ODOUR |
| **Flammability** | NON FLAMMABLE |
| **Flash point** | NOT AVAILABLE |
| **Boiling point** | NOT AVAILABLE |
| **Melting point** | NOT AVAILABLE |
| **Evaporation rate** | NOT APPLICABLE |
| **pH** | NOT APPLICABLE |
| **Vapour density** | NOT AVAILABLE |
| **Specific gravity** | NOT APPLICABLE |
| **Solubility (water)** | 2.3 L/L (Hydrogen sulphide) |
| **Vapour pressure** | NOT AVAILABLE |
| **Upper explosion limit** | NOT RELEVANT |
| **Lower explosion limit** | NOT RELEVANT |
| **% Volatiles** | 100 % |

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| **Chemical Stability** | Stable under recommended conditions of storage. |
| **Conditions to Avoid** | Avoid contact with incompatible substances. |
| **Material to Avoid** | Incompatible with oxidising agents (eg. hypochlorites), metals, metal oxides, alkalis (eg. hydroxides), lithium, ozone, titanium and lithium tetrahydroaluminate under specific conditions. Corrosive when moist. Copper and copper alloys unsuitable for use with hydrogen sulphide. Ethyl and methyl mercaptan will react with oxidising agents, water and steam to produce toxic and flammable vapours. They decompose on heating to form toxic sulphur oxide compounds. Tetrahydrothiophene has potentially explosive reactions with hydrogen peroxide. |
| **Hazardous Decomposition Products** | This material will not decompose to form hazardous products other than that already present. |
| **Hazardous Reactions** | Polymerization will not occur. |

## 11. TOXICOLOGICAL INFORMATION

| | |
|---|---|
| **Health Hazard Summary** | Asphyxiant gas. Symptoms of exposure are directly related to displacement of oxygen. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate may accelerate and the rate and volume of breathing may increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may result in no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may result in nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. This product also contains small amounts of Hydrogen sulphide which may result in depression and damage to the central nervous system. |
| **Eye** | Hydrogen sulphide can cause inflammation and irritation at concentrations below 10 ppm. |

Symptoms disappear when exposure ceases, but in severe cases damage may be permanent. Persons with potential exposure should not wear contact lenses.

**Inhalation**

Irritant. When released into air the concentrations are diluted. Hydrogen sulphide has an unpleasant odour above 0.12 ppm but odour is not an adequate warning due to paralysis of sense of smell. At 200 to 250 ppm, hydrogen sulphide causes severe irritation as well as symptoms such as headache, nausea, vomiting and dizziness. High level exposure may result in systemic poisoning, particularly on the nervous system. Unconsciousness may follow, and this is very rapid at concentrations above 1000 ppm. High level exposure may result in paralysis of the respiratory centre.

**Skin**

Irritant. Contact may result in drying and defatting of the skin, rash and dermatitis.

**Ingestion**

Ingestion is considered unlikely due to product form.

**Toxicity Data**

CARBONYL SULPHIDE (463-58-1)

| | |
|---|---|
| LC50 (inhalation) | 1070 ppm/4 hours (rat) |
| LD50 (intraperitoneal) | 23 mg/kg (rat) |
| TCLo (inhalation) | 162 ppm/6 hours/14 weeks intermittently (rat) |

ETHYL MERCAPTAN (75-08-1)

| | |
|---|---|
| LC50 (inhalation) | 2770 ppm/4 hours (mouse) |
| LD50 (ingestion) | 682 mg/kg (rat) |
| LD50 (intraperitoneal) | 226 mg/kg (rat) |

HYDROGEN SULPHIDE (7783-06-4)

| | |
|---|---|
| LC50 (inhalation) | 444 ppm (rat) |

METHYL MERCAPTAN (74-93-1)

| | |
|---|---|
| LC50 (inhalation) | 675 ppm (rat) |
| TCLo (inhalation) | 17 ppm/7 hours/13 weeks intermittently (rat) |

TETRAHYDROTHIOPHENE (110-01-0)

| | |
|---|---|
| LC50 (inhalation) | 27 gm/m³/2 hours (mouse) |

DIMETHYL SULPHIDE (75-18-3)

| | |
|---|---|
| LC50 (inhalation) | 31.62 mg/m³ (mouse) |
| LD50 (ingestion) | 3300 mg/kg (rat) |
| LD50 (intraperitoneal) | 8000 mg/kg (mouse) |
| LD50 (skin) | 5000 mg/kg (rabbit) |
| TDLo (ingestion) | 3412 mg/kg/33 weeks intermittently (rabbit) |

TERTIARY BUTYL MERCAPTAN (75-66-1)

| | |
|---|---|
| LC50 (inhalation) | 16500 ppm/4 hours (mouse) |
| LD50 (ingestion) | 4729 mg/kg (rat) |
| LD50 (intraperitoneal) | 590 mg/kg (rat) |
| TCLo (inhalation) | 201 ppm/6 hours/2 weeks - intermittently (rat) |

## 12. ECOLOGICAL INFORMATION

**Environment**

Microorganisms in soil and water are involved in oxidation-reduction reactions which oxidise hydrogen sulphide to elemental sulphur. Not anticipated to bioaccumulate or concentrate in the food chain.

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal**

Cylinders should be returned to the manufacturer or supplier for disposal of contents.

**Legislation**

Dispose of in accordance with relevant local legislation.

## 14. TRANSPORT INFORMATION

**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

| | LAND TRANSPORT (ADG) | SEA TRANSPORT (IMDG / IMO) | AIR TRANSPORT (IATA / ICAO) |
|---|---|---|---|
| **UN Number** | 1956 | - | - |
| **Proper Shipping Name** | COMPRESSED GAS, N.O.S. | - | - |
| **DG Class/ Division** | 2.2 | - | - |
| **Subsidiary Risk(s)** | None Allocated | - | - |
| **Packing Group** | None Allocated | - | - |
| **GTEPG** | 2C1 | | |
| **Hazchem Code** | 2TE | | |

**Other Information** Ensure cylinder is separated from driver and foodstuffs. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.

## 15. REGULATORY INFORMATION

**Poison Schedule** Classified as a Schedule 7 (S7) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

**Inventory Listing(s)** **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

## 16. OTHER INFORMATION

**Additional Information** The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.

Application Method: Gas regulator of suitable pressure and flow rating fitted to cylinder valve or manifold with low pressure gas distribution to equipment.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this ChemAlert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

**Abbreviations**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| CAS # | Chemical Abstract Service number - used to uniquely identify chemical compounds |
| CNS | Central Nervous System |
| EC No. | EC No - European Community Number |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| mg/m³ | Milligrams per Cubic Metre |
| PEL | Permissible Exposure Limit |
| pH | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
| ppm | Parts Per Million |
| REACH | Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals |
| STOT-RE | Specific target organ toxicity (repeated exposure) |
| STOT-SE | Specific target organ toxicity (single exposure) |
| SUSMP | Standard for the Uniform Scheduling of Medicines and Poisons |
| TLV | Threshold Limit Value |
| TWA/OEL | Time Weighted Average or Occupational Exposure Limit |

**Product Name** **8 COMPONENT MIXTURE (COS, C2H6S, CH4S, C4H10S, H2S, C4H8S, BALANCE N2)**

**Revision History**

| Revision | Description |
|---|---|
| 1.0 | Standard SDS Review. |

**Report Status**

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

**Prepared By**

Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

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## End of SDS