BOC
A Member of The Linde Group

SAFETY DATA SHEET

2469

Product Name 5 COMPONENT MIXTURE (CH4S, CS2, COS, H2S, REMAINDER 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) SDS NUMBER: 2469

Use(s) CALIBRATION • INDUSTRIAL APPLICATIONS
SDS Date 27 Sep 2011

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

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

UN No. 1956 **DG Class** 2.2 **Subsidiary Risk(s)** None Allocated
Packing Group None Allocated **Hazchem Code** 2TE

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content v/v
CARBONYL SULPHIDE	C-O-S	463-58-1	<1%
METHYL MERCAPTAN	C-H4-S	74-93-1	<0.5%
CARBON DISULPHIDE	C-S2	75-15-0	<0.2%
HYDROGEN SULPHIDE	H2S	7783-06-4	<0.02%
NITROGEN	N2	7727-37-9	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.

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 Not considered a potential route of exposure.

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. 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

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 Stds

Ingredient	Reference	TWA		STEL	
Carbon disulphide	SWA (AUS)	10 ppm	31 mg/m³	--	--
Hydrogen sulfide	SWA (AUS)	10 ppm	14 mg/m³	15 ppm	21 mg/m³
Methyl mercaptan	SWA (AUS)	0.5 ppm	0.98 mg/m³	--	--
Nitrogen	SWA (AUS)	Asphyxiant			

Biological Limits

Ingredient	Reference	Determinant	Sampling Time	BEI
CARBON DISULPHIDE	ACGIH BEI	2-Thiothiazolidine-4-carboxylicacid (TTCA) in urine	End of shift	5 mg/g creatinine

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 Wear safety boots, cotton or leather gloves, coveralls and safety glasses. Where an inhalation risk exists, wear: self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	**Solubility (water)**	NOT AVAILABLE
Odour	HYDROGEN SULPHIDE ODOUR	**Specific Gravity**	NOT AVAILABLE
pH	NOT AVAILABLE	**% Volatiles**	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	**Flammability**	NON FLAMMABLE
Vapour Density	NOT AVAILABLE	**Flash Point**	NOT APPLICABLE
Boiling Point	NOT APPLICABLE	**Upper Explosion Limit**	NOT APPLICABLE

Melting Point	NOT APPLICABLE	**Lower Explosion Limit**	NOT APPLICABLE
Evaporation Rate	NOT AVAILABLE		
Autoignition Temperature	NOT APPLICABLE	**Decomposition Temperature**	NOT AVAILABLE
Partition Coefficient	NOT AVAILABLE	**Viscosity**	NOT AVAILABLE

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.

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)

METHYL MERCAPTAN (74-93-1)
- LC50 (Inhalation): 675 ppm (rat)
- TCLo (Inhalation): 17 ppm/7 hours/13 weeks intermittently (rat)

CARBON DISULPHIDE (75-15-0)
- LC50 (Inhalation): 10 g/m³/2 hours (mouse)
- LCLo (Inhalation): 2000 ppm/5 minutes (human)
- LD50 (Ingestion): 2125 mg/kg (guinea pig)
- LDLo (Ingestion): 14 mg/kg (human)
- TCLo (Inhalation): 40 mg/m³ (man)
- TDLo (Ingestion): 350 mg/kg (rabbit)

HYDROGEN SULPHIDE (7783-06-4)
- LC50 (Inhalation): 444 ppm (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. The manufacturer reports that release of this gas mixture can be harmful or fatal to plant and animal life and is harmful in an aquatic environment.

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

Transport Ensure cylinder is separated from driver and foodstuffs.

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

Shipping Name	COMPRESSED GAS, N.O.S. (contains Nitrogen)				
UN No.	1956	**DG Class**	2.2	**Subsidiary Risk(s)**	None Allocated
Packing Group	None Allocated	**Hazchem Code**	2TE	**GTEPG**	2C1

15. REGULATORY INFORMATION

Poison Schedule Classified as a Schedule 7 (S7) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information

ABBREVIATIONS:
ACGIH - American Conference of Industrial Hygienists.
ADG - Australian Dangerous Goods.
BEI - Biological Exposure Indice(s).
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EC No - European Community Number.
HSNO - Hazardous Substances and New Organisms.
IARC - International Agency for Research on Cancer.
mg/m³ - Milligrams per Cubic Metre.
NOS - Not Otherwise Specified.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
STEL - Short Term Exposure Limit.
SWA - Safe Work Australia.
TWA - Time Weighted Average.

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.

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.

Product Name **5 COMPONENT MIXTURE (CH4S, CS2, COS, H2S, REMAINDER N2)**

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.

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End of Report