

SAFETY DATA SHEET

1970

Product Name 5 COMPONENT MIXTURE (H₂S, CO, C₃H₈, O₂, BALANCE N₂) (# 1970)

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) 1970 - SDS NUMBER • PRODUCT CODE: 292 • SPECIAL GAS MIXTURE
Use(s) CALIBRATION • INDUSTRIAL APPLICATIONS
SDS Date 15 Dec 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
OXYGEN	O ₂	7782-44-7	<23%
PROPANE	C ₃ -H ₈	74-98-6	1.1%
CARBON MONOXIDE	C-O	630-08-0	0.005%
HYDROGEN SULPHIDE	H ₂ S	7783-06-4	0.0025%
NITROGEN	N ₂	7727-37-9	remainder

4. FIRST AID MEASURES

Eye Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. 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 Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Special treatment Treat symptomatically.

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5. FIRE FIGHTING MEASURES

Special hazards	Non flammable.
Advice for firefighters	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.
Extinguishing media	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.
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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.
Precautions for safe 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.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds

Ingredient	Reference	TWA		STEL	
Carbon monoxide	SWA (AUS)	30 ppm	34 mg/m ³	--	--
Hydrogen sulfide	SWA (AUS)	10 ppm	14 mg/m ³	15 ppm	21 mg/m ³
Nitrogen	SWA (AUS)	Asphyxiant			
Propane	SWA (AUS)	Asphyxiant			

Biological Limits

Ingredient	Reference	Determinant	Sampling Time	BEI
CARBON MONOXIDE	ACGIH BEI	Carboxyhemoglobin in blood	End of shift	3.5% of hemoglobin
	ACGIH BEI	Carbon monoxide in end-exhaled air	End of shift	20 ppm

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 leather gloves, safety boots, 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)	INSOLUBLE
Odour	ROTTEN EGG ODOUR	Specific Gravity	NOT APPLICABLE
pH	NOT APPLICABLE	% Volatiles	100 %
Vapour Pressure	NOT AVAILABLE	Flammability	NON FLAMMABLE

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Vapour Density	NOT AVAILABLE	Flash Point	NOT AVAILABLE
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT RELEVANT
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT RELEVANT
Evaporation Rate	NOT APPLICABLE		
Autoignition Temperature	NOT AVAILABLE	Cylinder Pressure	13000 kPa @ 15°C
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 heat, sparks, open flames and other ignition sources.
Material to Avoid	Incompatible with oxidising agents (eg. hypochlorites), metals, metal oxides, alkalis (eg. hydroxides), lithium, ozone, titanium and lithium tetrahydroaluminate under specific conditions.
Hazardous Decomposition Products	May evolve toxic gases if heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health hazard summary	Asphyxiant gas - moderately toxic. This product has poor warning properties. Symptoms of asphyxiation may not be detected by exposed individuals, which can prove fatal. Carbon monoxide may result in heart damage with high level/chronic exposure. Hydrogen sulphide is highly toxic and may result in cardiac arrhythmias, neurotoxicity and eye irritation with chronic exposure. The low levels of hydrogen sulphide and carbon monoxide reduce the inhalation risk.
Eye	Irritant. Contact may result in irritation, lacrimation, pain and redness. Contact with liquid or vapour may result in corneal burns and frost-bite.
Inhalation	Moderately toxic - Asphyxiant. Over exposure may result in rapid breathing, nausea, lack of coordination, unconsciousness and coma. Carbon monoxide reacts with haemoglobin in the blood to prevent oxygen uptake and release. High concentrations may be rapidly fatal without producing significant warning properties.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Ingestion	Ingestion is considered unlikely due to product form.
Toxicity Data	PROPANE (74-98-6) LC50 (Inhalation): > 800000 ppm/15M (rat) CARBON MONOXIDE (630-08-0) LC50 (Inhalation): 1807 ppm/4H (rat) LCLo (Inhalation): 5000 ppm/5M (human) HYDROGEN SULPHIDE (7783-06-4) LC50 (Inhalation): 444 ppm (rat)

12. ECOLOGICAL INFORMATION

Other adverse effects	Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.
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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 that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.
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**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	The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.
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ASPHYXIAN GASES: Asphyxiant gases may displace oxygen, leading to oxygen deficiency. Where oxygen content is low, effects may include: 12-16% oxygen: increased breathing/ pulse rate, lack of coordination; 10-14%: mental disturbance, fatigue, breathing stress; 6-10%: vomiting, collapse and possible unconsciousness; 0-6%: convulsions, respiratory collapse and death.

ASPHYXIANTS (1): When present in the atmospheres in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide adequate sensory warning of danger and most simple asphyxiants are odourless. Therefore it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (eg. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.

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

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	availability of engineering controls should be considered before final selection of personal protective equipment is made.
Report Status	<p>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').</p> <p>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.</p> <p>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.</p>
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SDS Date 15 Dec 2011

End of Report