

## SAFETY DATA SHEET

# 2250

**Product Name** DETECTAGAS 5PPM HYDROGEN SULPHIDE, 300PPM CARBON MONOXIDE, 58% LEL PENTANE EQUIVALENT (1.45% METHANE), 15% OXYGEN IN NITROGEN

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Supplier name** BOC LIMITED (AUSTRALIA)  
**Address** 10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA  
**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)** 2250 - MSDS NUMBER • 294904NR - PART NUMBER  
**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS  
**SDS date** 01 February 2013

### 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

<b>UN number</b>	1956	<b>DG division</b>	2.2
<b>Packing group</b>	None Allocated	<b>Subsidiary risk(s)</b>	None Allocated
<b>Hazchem code</b>	2TE		

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
OXYGEN	CAS: 7782-44-7 EC: 231-956-9	O;R8	15%
METHANE	CAS: 74-82-8 EC: 200-812-7	F+;R12	1.45%
CARBON MONOXIDE	CAS: 630-08-0 EC: 211-128-3	T;R23 Repr.;R61 T;R48/23 F+;R12	0.03%
HYDROGEN SULPHIDE	CAS: 7783-06-4 EC: 231-977-3	T+;R26 N;R50 F+;R12	0.0005%
NITROGEN	CAS: 7727-37-9 EC: 231-783-9	Not Available	Remainder

### 4. FIRST AID MEASURES

**Eye** Keep patient calm. Irrigate with gentle flow of water for 15-20 minutes bathing entire eyeball (hold eyelids apart). Seek medical attention.

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**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** Remove affected clothing and wash skin with water. Seek medical advice.

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

**Advice to doctor** Hyperbaric oxygen treatment at 2 to 2.5 atmospheres reduces the biological half life of carboxyhaemoglobin to 24 minutes. Avoid stimulant drugs including carbon dioxide. Do not inject methylene blue. Absolute bed rest for at least 48 hours should be ensured. After recovery observe for late neurological and or cardiac complaints. Carboxyhaemoglobin levels in blood used as biological monitoring index. Observe for premonitory signs of pulmonary oedema.

## 5. FIRE FIGHTING MEASURES

**Flammability** Non flammable.

**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.

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

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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

**Personal precautions** If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment as detailed in Section 8 of this SDS.

**Environmental precautions** Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**Methods of cleaning up** Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

**References** See Sections 8 and 13 for exposure controls and disposal.

## 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.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure standards

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

Provide suitable ventilation to minimise or eliminate exposure. Confined areas (eg. tanks) should be adequately ventilated or gas tested.

**PPE****Eye / Face**

Wear safety glasses.

**Hands**

Wear leather or cotton gloves.

**Body**

Wear safety boots.

**Respiratory**

Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	COLOURLESS LIQUID
<b>Odour</b>	SLIGHT ODOUR
<b>Flammability</b>	NON FLAMMABLE
<b>Flash point</b>	NOT RELEVANT
<b>Boiling point</b>	NOT AVAILABLE
<b>Melting point</b>	NOT AVAILABLE
<b>Evaporation rate</b>	NOT APPLICABLE
<b>pH</b>	NOT APPLICABLE
<b>Vapour density</b>	NOT AVAILABLE
<b>Specific gravity</b>	NOT APPLICABLE
<b>Solubility (water)</b>	NOT AVAILABLE
<b>Vapour pressure</b>	NOT AVAILABLE
<b>Upper explosion limit</b>	NOT RELEVANT
<b>Lower explosion limit</b>	NOT RELEVANT
<b>% Volatiles</b>	100 %

**10. STABILITY AND REACTIVITY**

<b>Chemical stability</b>	Stable under recommended conditions of storage.
<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources.
<b>Material to avoid</b>	Carbon monoxide can react with iron, nickel and other metals. Corrosive when moist. Copper and copper alloys unsuitable.
<b>Hazardous Decomposition Products</b>	May evolve toxic gases if heated to decomposition.
<b>Hazardous Reactions</b>	Polymerization will not occur.

**11. TOXICOLOGICAL INFORMATION****Health Hazard Summary**

Asphyxiant gas - toxic. Carbon monoxide effects depend on the percentage of carboxyhaemoglobin: 10-20% mild headache and breathlessness on mild exertion; 20-30% headache, irritability, rapid fatigue and impaired memory; 30-40% severe headache, weakness, nausea, vomiting, dizziness, visual impairment and confusion; 40-50% increasing confusion, ataxia and collapse; 50-60% coma; >80% rapid death. Chronic exposure to carbon monoxide may result in an increase in

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cardiovascular problems. Can aggravate some diseases of the cardiovascular system such as coronary artery disease. The effect is enhanced by cigarette smoking. Adverse behavioural effects have been noted including impairment of vigilance, co-ordination, timing, behaviour, visual perception and certain cognitive functions. Some adaptation occurs in individuals repeatedly exposed to moderate concentrations. Developmental defects on fetuses can occur without maternal symptoms. Hydrogen sulphide has an unpleasant odour above 0.12 ppm but odour is not an adequate warning due to paralysis of sense of smell. 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. Hydrogen sulphide is irritating to the skin.

<b>Eye</b>	Irritant.
<b>Inhalation</b>	Harmful. Over exposure to carbon monoxide may result in rapid breathing, nausea, lack of coordination, unconsciousness and coma. Reacts with blood haemoglobin to prevent oxygen uptake.
<b>Skin</b>	Irritant. Contact may result in irritation.
<b>Ingestion</b>	Ingestion is considered unlikely due to product form.
<b>Toxicity data</b>	<p>METHANE (74-82-8)</p> <p>LC50 (inhalation) 326 gm/m3/2h (mouse)</p> <p>CARBON MONOXIDE (630-08-0)</p> <p>LC50 (inhalation) 1807 ppm/4H (rat)</p> <p>LCLo (inhalation) 5000 ppm/5M (human)</p> <p>HYDROGEN SULPHIDE (7783-06-4)</p> <p>LC50 (inhalation) 444 ppm (rat)</p>

**12. ECOLOGICAL INFORMATION**

<b>Toxicity</b>	No information provided.
<b>Persistence and degradability</b>	No information provided.
<b>Bioaccumulative potential</b>	No information provided.
<b>Mobility in soil</b>	No information provided.
<b>Other adverse effects</b>	Natural sources of carbon monoxide (CO) such as atmospheric oxidation of methane, forest fires and product from living organisms account for about 90 % of the atmosphere's carbon monoxide content. Human activity produces about 10%. Motor vehicles account for about 55 to 65 % of global man made emissions of carbon monoxide.

**13. DISPOSAL CONSIDERATIONS**

<b>Waste disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents.
<b>Legislation</b>	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)
<b>UN number</b>	1956	-	-
<b>Proper shipping name</b>	COMPRESSED GAS, N.O.S.	-	-
<b>DG class/ Division</b>	2.2	-	-

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<b>Subsidiary risk(s)</b>	None Allocated	-	-
<b>Packing group</b>	None Allocated	-	-
<b>GTEPG</b>	2C1		
<b>Hazchem code</b>	2TE		
<b>Other information</b>	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.		

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## 15. REGULATORY INFORMATION

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**Poison schedule**      A poison schedule number has not been allocated to this product using the criteria in the 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.

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## 16. OTHER INFORMATION

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**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.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this 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
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m <sup>3</sup>	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

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Revision	Description
2.0	Standard SDS Review.
1.0	Initial SDS creation

**Report status**

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

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier 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, importer or supplier.

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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**Revision: 2****SDS Date: 01 February 2013****End of SDS**