

## SAFETY DATA SHEET

# 1657

Product Name **2 TO 5% HYDROGEN SULPHIDE, BALANCE HELIUM**

### 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)** 1657 - MSDS NUMBER • 2 - 5% H<sub>2</sub>S, BALANCE HE • PRODUCT CODE: 292 • SPECIAL GAS MIXTURE  
**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS  
**SDS Date** 26 Mar 2010

### 2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

#### RISK PHRASES

R26 Very toxic by inhalation.

#### SAFETY PHRASES

S16 Keep away from sources of ignition - No smoking.  
S36 Wear suitable protective clothing.  
S38 In case of insufficient ventilation, wear suitable respiratory equipment.  
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).  
S61 Avoid release to the environment. Refer to special instructions / safety data sheets.  
S9 Keep container in a well ventilated place.

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

|                      |                |                     |     |                           |                |
|----------------------|----------------|---------------------|-----|---------------------------|----------------|
| <b>UN No.</b>        | 1955           | <b>DG Class</b>     | 2.3 | <b>Subsidiary Risk(s)</b> | None Allocated |
| <b>Packing Group</b> | None Allocated | <b>Hazchem Code</b> | 2RE | <b>EPG</b>                | 2B1            |

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredient        | Formula          | CAS No.   | Content   |
|-------------------|------------------|-----------|-----------|
| HYDROGEN SULPHIDE | H <sub>2</sub> S | 7783-06-4 | 2-5%      |
| HELIUM            | He               | 7440-59-7 | remainder |

#### 4. FIRST AID MEASURES

|                         |  |
|-------------------------|--|
| <b>Eye</b>              | If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor, or for at least 15 minutes.  |
| <b>Inhalation</b>       | 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 breathing is difficult. Seek immediate medical attention. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. |
| <b>Skin</b>             | If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.   |
| <b>Ingestion</b>        | Due to product form and application, ingestion is considered unlikely.   |
| <b>Advice to Doctor</b> | If inhalation has occurred observe for premonitory signs of pulmonary oedema. Otherwise, treatment is symptomatic and supportive. Treat for cold burns if severe liquid contact.   |

#### 5. FIRE FIGHTING MEASURES

|                           |  |
|---------------------------|--|
| <b>Flammability</b>       | Non flammable gas. May evolve toxic gases (sulphur oxides) when heated to decomposition. Do not expose to heat and ignition sources.   |
| <b>Fire and Explosion</b> | 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. |
| <b>Extinguishing</b>      | Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve.   |
| <b>Hazchem Code</b>       | 2RE  |

#### 6. ACCIDENTAL RELEASE MEASURES

|                 |  |
|-----------------|--|
| <b>Spillage</b> | 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

|                 |   |
|-----------------|---|
| <b>Storage</b>  | 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. |
| <b>Handling</b> | 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.  |

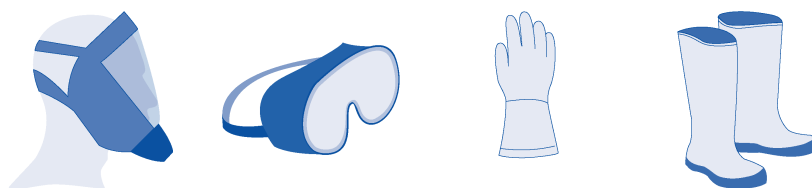
#### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

| Exposure Stds | Ingredient       | Reference  | TWA        |       | STEL |       |
|---------------|------------------|------------|------------|-------|------|-------|
|               |                  |            | ppm        | mg/m3 | ppm  | mg/m3 |
|               | Helium           | ASCC (AUS) | Asphyxiant |       |      |       |
|               | Hydrogen sulfide | ASCC (AUS) | 10         | 14    | 15   | 21    |

**Biological Limits** No biological limit allocated.

**Engineering Controls** Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable or explosive vapours may accumulate in confined or poorly ventilated areas. Vapours may travel some distance to an ignition source and flash back. Maintain atmospheric levels below the recommended exposure standard.

**PPE** Wear splash-proof goggles, safety boots, rubber gloves and an Air-line respirator or self Contained Breathing Apparatus (SCBA). Only experienced and trained person should use this product.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                   |                  |                       |                             |
|-------------------|------------------|-----------------------|-----------------------------|
| Appearance        | COLOURLESS GAS   | Solubility (Water)    | 2.3 L/L (Hydrogen sulphide) |
| Odour             | OFFENSIVE ODOUR  | Specific Gravity      | NOT APPLICABLE              |
| pH                | NOT APPLICABLE   | % Volatiles           | 100 %                       |
| Vapour Pressure   | NOT AVAILABLE    | Flammability          | NON FLAMMABLE               |
| Vapour Density    | NOT AVAILABLE    | Flash Point           | NOT RELEVANT                |
| Boiling Point     | NOT AVAILABLE    | Upper Explosion Limit | NOT RELEVANT                |
| Melting Point     | NOT AVAILABLE    | Lower Explosion Limit | NOT RELEVANT                |
| Evaporation Rate  | NOT APPLICABLE   |                       |                             |
| Cylinder Pressure | 13000 kPa @ 15°C |                       |                             |

## 10. STABILITY AND REACTIVITY

|                     |   |
|---------------------|---|
| Chemical Stability  | Stable under recommended conditions of storage.   |
| Conditions to Avoid | Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.  |
| Material to Avoid   | Incompatible with oxidising agents (eg. hypochlorites), metals, metal oxides, nitrogen trichloride, alkalis (eg. soda lime), heat and ignition sources. Corrodes most materials when moist. |
| Decomposition       | May evolve toxic gases (sulphur oxides) when heated to decomposition.   |
| Hazardous Reactions | Polymerization will not occur.  |

## 11. TOXICOLOGICAL INFORMATION

|                       |   |
|-----------------------|---|
| Health Hazard Summary | Very toxic by inhalation - severe irritant. Over exposure to hydrogen sulphide may result in headache, nausea, vomiting, diarrhea, vertigo, amnesia, dizziness, apnea, palpitations, tachycardia, hypotension, muscle cramps, weakness, disorientation, and coma. Higher concentrations may also result in result in respiratory paralysis, asphyxial seizures, and death. Cold burns may be caused by evaporating liquid. Persons with potential exposure should not wear contact lenses.  |
| Eye                   | Severe irritant. Inflammation and irritation can occur at concentrations below 10 vppm. Above 50 vppm, there is intense tearing, blurring of vision and photophobia. Most symptoms disappear when exposure ceases, however in serious cases permanent eye damage can occur. Cold burns may be caused by evaporating liquid. Persons with potential exposure should not wear contact lenses.   |
| Inhalation            | Very toxic by inhalation - severe irritant. Exposure to concentrations approaching 250 ppm causes irritation of mucus membranes, conjunctivitis, photophobia, lacrimation, corneal opacity, rhinitis, bronchitis, cyanosis, and acute lung injury. At concentrations of 250 ppm to 500 ppm, signs and symptoms include headache, nausea, vomiting, diarrhea, vertigo, amnesia, dizziness, apnea, palpitations, tachycardia, hypotension, muscle cramps, weakness, disorientation, and coma. At concentrations of 750 ppm to 1000 ppm, victims may experience abrupt physical collapse or "knock down". Higher concentrations may also result in result in respiratory paralysis, asphyxial seizures, and death. |
| Skin                  | Severe irritant. Over exposure to hydrogen sulphide may result in severe pain, and erythema, especially in moist areas. Cyanosis may be noted following severe exposure.  |
| Ingestion             | Ingestion is considered unlikely due to product form. However, ingestion of liquid may result in burns to the mouth and throat.   |
| Toxicity Data         | HYDROGEN SULPHIDE (7783-06-4)<br>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. |
|-------------|---|

## 13. DISPOSAL CONSIDERATIONS

|                |   |
|----------------|---|
| Waste Disposal | Return to manufacturer for recycling/ reuse. Contact Waste Disposal Authorities in your state for further details and required approvals. |
| Legislation    | Dispose of in accordance with relevant local legislation.   |

## 14. TRANSPORT INFORMATION

|           |  |
|-----------|--|
| Transport | 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. |
|-----------|--|

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

|                      |                               |                     |     |                           |                |
|----------------------|-------------------------------|---------------------|-----|---------------------------|----------------|
| <b>Shipping Name</b> | COMPRESSED GAS, TOXIC, N.O.S. |                     |     |                           |                |
| <b>UN No.</b>        | 1955                          | <b>DG Class</b>     | 2.3 | <b>Subsidiary Risk(s)</b> | None Allocated |
| <b>Packing Group</b> | None Allocated                | <b>Hazchem Code</b> | 2RE | <b>EPG</b>                | 2B1            |

**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.

APPLICATION METHOD: Gas withdrawal: regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

**ABBREVIATIONS:**

ADB - Air-Dry Basis.

BEI - Biological Exposure Indice(s)

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

CNS - Central Nervous System.

EINECS - European INventory of Existing Commercial chemical Substances.

IARC - International Agency for Research on Cancer.

M - moles per litre, a unit of concentration.

mg/m3 - Milligrams per cubic metre.

NOS - Not Otherwise Specified.

NTP - National Toxicology Program.

OSHA - Occupational Safety and Health Administration.

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.

TWA/ES - Time Weighted Average or Exposure Standard.

**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 Chem Alert 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 Chem Alert 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.

**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.

**Product Name**      **2 TO 5% HYDROGEN SULPHIDE, BALANCE HELIUM**

**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

**SDS Date:** 26 Mar 2010

**End of Report**