

SAFETY DATA SHEET

1381

Product Name **PORTA-SPEC 20PPM H2S, 100PPM CO, 2.5% CH4, 14% O2, 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) **1381 - SDS NUMBER • PRODUCT CODE: 276**

Use(s) **CALIBRATION • INDUSTRIAL APPLICATIONS**
SDS Date **29 Mar 2010**

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC 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 | EPG | 2C1 |

3. COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredient | Formula | CAS No. | Content |
|-------------------|---------|-----------|---------------|
| OXYGEN | O2 | 7782-44-7 | 14% |
| METHANE | C-H4 | 74-82-8 | 2.5% |
| CARBON MONOXIDE | C-O | 630-08-0 | 1.0E-4% |
| HYDROGEN SULPHIDE | H2S | 7783-06-4 | Not Available |
| NITROGEN | N2 | 7727-37-9 | 83.5% |

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.

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 Poisons 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

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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. 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. |
| 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. |

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

| Exposure Stds | Ingredient | Reference | TWA | | STEL | |
|----------------------|-------------------|------------------|------------|--------------|-------------|--------------|
| | | | ppm | mg/m3 | ppm | mg/m3 |
| | Carbon monoxide | ASCC (AUS) | 30 | 34 | -- | -- |
| | Hydrogen sulfide | ASCC (AUS) | 10 | 14 | 15 | 21 |
| | Methane | ASCC (AUS) | | | Asphyxiant | |
| | Nitrogen | ASCC (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. Maintain vapour levels below the recommended exposure standard.

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



9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|-------------------|------------------|---------------------------|----------------|
| Appearance | COLOURLESS GAS | Solubility (Water) | NOT AVAILABLE |
| Odour | ROTTEN EGG ODOUR | Specific Gravity | NOT APPLICABLE |
| pH | NOT APPLICABLE | % Volatiles | 100 % |

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| | | | |
|-------------------|------------------|-----------------------|---------------|
| 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. |
| Material to Avoid | Carbon monoxide can react with iron, nickel and other metals. Corrosive when moist. Copper and copper alloys unsuitable. |
| Decomposition | May evolve toxic gases if heated to decomposition. |
| Hazardous Reactions | Polymerization will not occur. |

11. TOXICOLOGICAL INFORMATION

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|-----------------------|--|
| 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 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 foetuses 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. |
| Eye | Irritant. |
| Inhalation | Irritant. 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. |
| Skin | Irritant. Contact may result in irritation. |
| Ingestion | Ingestion is considered unlikely due to product form. |
| Toxicity Data | CARBON MONOXIDE (630-08-0) LC50 (Inhalation): 1807 ppm/4H (rat) LC50 (Inhalation): 5000 ppm/5M (human) HYDROGEN SULPHIDE (7783-06-4) LC50 (Inhalation): 444 ppm (rat) |

12. ECOLOGICAL INFORMATION

| | |
|-------------|--|
| Environment | 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

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| 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

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|-----------|--|
| Transport | Ensure cylinder is separated from driver and foodstuffs. |
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**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

| | | | |
|---------------|------------------------|--------------|-----|
| Shipping Name | COMPRESSED GAS, N.O.S. | | |
| UN No. | 1956 | DG Class | 2.2 |
| Packing Group | None Allocated | Hazchem Code | 2TE |

Subsidiary Risk(s) None Allocated
EPG 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. |
|------------------------|--|

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.

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

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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