

## SAFETY DATA SHEET

# 1023

**Product Name** 8 COMPONENT MIXTURE (C5H12, C5H12, C4H10, C4H10, CO2, N2, C2H6, BALANCE CH4)

### 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)** 1023 - SDS NUMBER • PRODUCT CODES: 285, 288 • SPECIAL GAS MIXTURE  
**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS  
**SDS Date** 19 Apr 2010

### 2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC CRITERIA

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

|                      |                |                     |     |                           |                |
|----------------------|----------------|---------------------|-----|---------------------------|----------------|
| <b>UN No.</b>        | 1954           | <b>DG Class</b>     | 2.1 | <b>Subsidiary Risk(s)</b> | None Allocated |
| <b>Packing Group</b> | None Allocated | <b>Hazchem Code</b> | 2SE | <b>EPG</b>                | 2A1            |

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

| Ingredient     | Formula | CAS No.   | Content |
|----------------|---------|-----------|---------|
| METHANE        | C-H4    | 74-82-8   | >65%    |
| ETHANE         | C2-H6   | 74-84-0   | <10%    |
| BUTANE         | C4-H10  | 106-97-8  | <2%     |
| ISOBUTANE      | C4-H10  | 75-28-5   | <1%     |
| ISOPENTANE     | C5-H12  | 78-78-4   | <1%     |
| PENTANE        | C5-H12  | 109-66-0  | <1%     |
| CARBON DIOXIDE | CO2     | 124-38-9  | <10%    |
| NITROGEN       | N2      | 7727-37-9 | <10%    |

**Product Name**      **8 COMPONENT MIXTURE (C5H12, C5H12, C4H10, C4H10, CO2, N2, C2H6, BALANCE CH4)**

#### 4. FIRST AID MEASURES

**Eye**                      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.

**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. Contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

**Skin**                      None required.

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

**Advice to Doctor**      Treat symptomatically

#### 5. FIRE FIGHTING MEASURES

**Flammability**              Highly flammable. Heating to decomposition produces acrid smoke and irritating fumes. Product will add fuel to a fire. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

**Fire and Explosion**      Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.

**Extinguishing**              Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve.

**Hazchem Code**          2SE

#### 6. ACCIDENTAL RELEASE MEASURES

**Spillage**                      If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Prevent spreading of vapours through drains and ventilation systems. 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 sources of ignition or 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

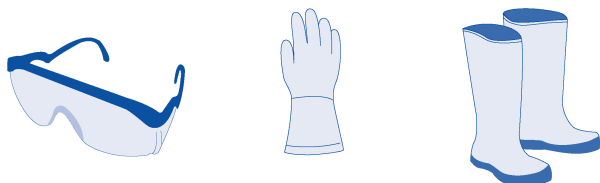
| Exposure Stds | Ingredient                   | Reference  | TWA        |       | STEL  |       |
|---------------|------------------------------|------------|------------|-------|-------|-------|
|               |                              |            | ppm        | mg/m3 | ppm   | mg/m3 |
|               | Butane                       | ASCC (AUS) | 800        | 1900  | --    | --    |
|               | Carbon dioxide               | ASCC (AUS) | 5000       | 9000  | 30000 | 54000 |
|               | Carbon dioxide in coal mines | ASCC (AUS) | 12500      | 22500 | 30000 | 54000 |
|               | Ethane                       | ASCC (AUS) | Asphyxiant |       |       |       |
|               | Isobutane                    | ASCC (AUS) | 1000       | --    | --    | --    |
|               | Methane                      | ASCC (AUS) | Asphyxiant |       |       |       |
|               | Nitrogen                     | ASCC (AUS) | Asphyxiant |       |       |       |
|               | Pentane                      | ASCC (AUS) | 600        | 1770  | 750   | 2210  |

**Biological Limits**      No biological limit allocated.

**Product Name**      **8 COMPONENT MIXTURE (C<sub>5</sub>H<sub>12</sub>, C<sub>5</sub>H<sub>12</sub>, C<sub>4</sub>H<sub>10</sub>, C<sub>4</sub>H<sub>10</sub>, CO<sub>2</sub>, N<sub>2</sub>, C<sub>2</sub>H<sub>6</sub>, BALANCE CH<sub>4</sub>)**

**Engineering Controls**      Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated areas. Maintain vapour levels below the recommended exposure standard. Maintain vapour levels below the recommended exposure standard.

**PPE**      Wear safety boots, 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

|                                 |                 |                                      |                  |
|---------------------------------|-----------------|--------------------------------------|------------------|
| <b>Appearance</b>               | COLOURLESS GAS  | <b>Solubility (Water)</b>            | INSOLUBLE        |
| <b>Odour</b>                    | ODOURLESS       | <b>Specific Gravity</b>              | NOT APPLICABLE   |
| <b>pH</b>                       | NOT APPLICABLE  | <b>% Volatiles</b>                   | 100 %            |
| <b>Vapour Pressure</b>          | NOT AVAILABLE   | <b>Flammability</b>                  | HIGHLY FLAMMABLE |
| <b>Vapour Density</b>           | NOT AVAILABLE   | <b>Flash Point</b>                   | NOT AVAILABLE    |
| <b>Boiling Point</b>            | NOT AVAILABLE   | <b>Upper Explosion Limit</b>         | 15 % (Methane)   |
| <b>Melting Point</b>            | NOT AVAILABLE   | <b>Lower Explosion Limit</b>         | 5.3 % (Methane)  |
| <b>Evaporation Rate</b>         | NOT APPLICABLE  |                                      |                  |
| <b>Autoignition Temperature</b> | 537°C (Methane) | <b>Cylinder pressure (when full)</b> | 13000 kPa @ 15°C |

## 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>   | Moist carbon dioxide is corrosive, hence acid resistant materials are required (stainless steel). Certain properties of some plastics and rubbers may be affected by carbon dioxide, ie. embrittlement, leaching of plasticisers, etc. Corrosive when moist. Dust of aluminium, chrome, manganese may ignite then explode when heated in carbon dioxide. Incompatible with acrylaldehyde, aziridine, metal acetylides, sodium peroxide. |
| <b>Decomposition</b>       | This material will not decompose to form hazardous products.                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Hazardous Reactions</b> | Polymerization will not occur.                                                                                                                                                                                                                                                                                                                                                                                                          |

## 11. TOXICOLOGICAL INFORMATION

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Health Hazard Summary</b> | Asphyxiant gas. Carbon dioxide concentrations of 3-5 % in air cause increased respiration and headache. Concentrations of 8-15% cause headache, nausea and vomiting which may lead to unconsciousness if not moved to open air and given oxygen. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. Adverse health affects to long term exposure to carbon dioxide have not been reported. |
| <b>Eye</b>                   | Non irritant.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Inhalation</b>            | Asphyxiant. Effects are proportional to oxygen displacement.                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Skin</b>                  | Non irritant.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Ingestion</b>             | Ingestion is considered unlikely due to product form.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Toxicity Data</b>         | PENTANE (109-66-0)<br>LC50 (Inhalation): 364 g/m <sup>3</sup> /4 hours (rat)<br>LCLo (Inhalation): 325 g/m <sup>3</sup> /2 hours (mouse)<br>LD50 (Intravenous): 446 mg/kg (mouse)<br>CARBON DIOXIDE (124-38-9)<br>LC50 (Inhalation): 470000 ppm/30M (rat)<br>LCLo (Inhalation): 9 pph/5M (human)                                                                                                                                                                          |

**Product Name**      **8 COMPONENT MIXTURE (C5H12, C5H12, C4H10, C4H10, CO2, N2, C2H6, BALANCE CH4)**

## 12. ECOLOGICAL INFORMATION

**Environment**      When discharged to the atmosphere, carbon dioxide may contribute to the greenhouse effect.

## 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.



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

|                      |                                   |                     |     |                           |                |
|----------------------|-----------------------------------|---------------------|-----|---------------------------|----------------|
| <b>Shipping Name</b> | COMPRESSED GAS, FLAMMABLE, N.O.S. |                     |     |                           |                |
| <b>UN No.</b>        | 1954                              | <b>DG Class</b>     | 2.1 | <b>Subsidiary Risk(s)</b> | None Allocated |
| <b>Packing Group</b> | None Allocated                    | <b>Hazchem Code</b> | 2SE | <b>EPG</b>                | 2A1            |

## 15. REGULATORY INFORMATION

**Poison Schedule**      A poison schedule number has not been allocated to this product 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.

### 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.

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>  | <b>8 COMPONENT MIXTURE (C5H12, C5H12, C4H10, C4H10, CO2, N2, C2H6, BALANCE CH4)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Report Status</b> | <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> |
| <b>Prepared By</b>   | <p>Risk Management Technologies<br/> 5 Ventnor Ave, West Perth<br/> Western Australia 6005<br/> Phone: +61 8 9322 1711<br/> Fax: +61 8 9322 1794<br/> Email: <a href="mailto:info@rmt.com.au">info@rmt.com.au</a><br/> Web: <a href="http://www.rmt.com.au">www.rmt.com.au</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**SDS Date:** 19 Apr 2010

**End of Report**