

## SAFETY DATA SHEET

# 2421

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

#### 1.1 Product identifier

**Product name** 2 COMPONENT MIXTURE (NO<sub>2</sub>, BALANCE N<sub>2</sub>)  
**Synonym(s)** 2421 - SDS NUMBER • BOC COMPONENT MIXTURE

#### 1.2 Uses and uses advised against

**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS

#### 1.3 Details of the supplier of the product

**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)  
**Website** <http://www.boc.com.au>

#### 1.4 Emergency telephone number(s)

**Emergency** 1800 653 572 (24/7) (Australia only)

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

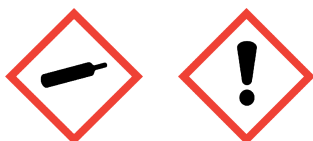
CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

**GHS classification(s)** Gases Under Pressure: Compressed gas  
Acute Toxicity: Inhalation: Category 4

#### 2.2 Label elements

**Signal word** WARNING

**Pictogram(s)**



#### Hazard statement(s)

H280 Contains gas under pressure; may explode if heated.  
H332 Harmful if inhaled.

#### Prevention statement(s)

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.

#### Response statement(s)

P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.

#### Storage statement(s)

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

#### Disposal statement(s)

None allocated.

**2.3 Other hazards**

Asphyxiant. Effects are proportional to oxygen displacement.

---

**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

---

**3.1 Substances / Mixtures**

| Ingredient       | CAS Number | EC Number | Content (v/v) |
|------------------|------------|-----------|---------------|
| NITROGEN DIOXIDE | 10102-44-0 | 233-272-6 | 0.1 to 0.5%   |
| NITROGEN         | 7727-37-9  | 231-783-9 | Remainder     |

---

**4. FIRST AID MEASURES**

---

**4.1 Description of first aid measures**

|                             |                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye</b>                  | If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, 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). 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. |
| <b>Skin</b>                 | If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.                                                                                                                                               |
| <b>Ingestion</b>            | Due to product form and application, ingestion is considered unlikely.                                                                                                                                                                                                                                                                                 |
| <b>First aid facilities</b> | No information provided.                                                                                                                                                                                                                                                                                                                               |

**4.2 Most important symptoms and effects, both acute and delayed**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility / consciousness. Victim may not be aware of asphyxiation. May cause irritation of the eyes, skin, nose and throat. Headache, dizziness, lassitude, nausea and vomiting may occur in some cases.

**4.3 Immediate medical attention and special treatment needed**

Treat symptomatically.

---

**5. FIRE FIGHTING MEASURES**

---

**5.1 Extinguishing media**

Use water fog to cool containers from protected area.

**5.2 Special hazards arising from the substance or mixture**

Non flammable. May evolve nitrogen oxides when heated to decomposition.

**5.3 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. 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.

**5.4 Hazchem code**

2TE

2 Fine Water Spray.

T Wear full fire kit and breathing apparatus. Dilute spill and run-off.

E Evacuation of people in and around the immediate vicinity of the incident should be considered.

---

**6. ACCIDENTAL RELEASE MEASURES**

---

**6.1 Personal precautions, protective equipment and emergency procedures**

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS.

**6.2 Environmental precautions**

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

## PRODUCT NAME 2 COMPONENT MIXTURE (NO2, BALANCE N2)

### 6.3 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.

### 6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

## 7. HANDLING AND STORAGE

### 7.1 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.

### 7.2 Conditions for safe storage, including any incompatibilities

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.

### 7.3 Specific end use(s)

No information provided.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

#### Exposure standards

| Ingredient       | Reference | TWA        |                   | STEL |                   |
|------------------|-----------|------------|-------------------|------|-------------------|
|                  |           | ppm        | mg/m <sup>3</sup> | ppm  | mg/m <sup>3</sup> |
| Nitrogen         | SWA (AUS) | Asphyxiant |                   |      |                   |
| Nitrogen dioxide | SWA (AUS) | 3          | 5.6               | 5    | 9.4               |

#### Biological limits

No biological limit values have been entered for this product.

### 8.2 Exposure controls

**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

|                    |                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------|
| <b>Eye / Face</b>  | Wear safety glasses.                                                                                    |
| <b>Hands</b>       | Wear leather gloves.                                                                                    |
| <b>Body</b>        | Wear safety boots.                                                                                      |
| <b>Respiratory</b> | Where an inhalation risk exists, wear an Air-line respirator or a Type NO (Nitrogen Oxides) respirator. |



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

|                         |                        |
|-------------------------|------------------------|
| <b>Appearance</b>       | RED/BROWN COLOURED GAS |
| <b>Odour</b>            | PUNGENT 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         |

**9.1 Information on basic physical and chemical properties**

|                           |                |
|---------------------------|----------------|
| Vapour density            | NOT AVAILABLE  |
| Specific gravity          | NOT APPLICABLE |
| Solubility (water)        | NOT AVAILABLE  |
| Vapour pressure           | NOT AVAILABLE  |
| Upper explosion limit     | NOT RELEVANT   |
| Lower explosion limit     | NOT RELEVANT   |
| Partition coefficient     | NOT AVAILABLE  |
| Autoignition temperature  | NOT AVAILABLE  |
| Decomposition temperature | NOT AVAILABLE  |
| Viscosity                 | NOT AVAILABLE  |
| Explosive properties      | NOT AVAILABLE  |
| Oxidising properties      | NOT AVAILABLE  |
| Odour threshold           | NOT AVAILABLE  |

**9.2 Other information**

|             |       |
|-------------|-------|
| % Volatiles | 100 % |
|-------------|-------|

---

**10. STABILITY AND REACTIVITY**

---

**10.1 Reactivity**

Carefully review all information provided in sections 10.2 to 10.6.

**10.2 Chemical stability**

Stable under recommended conditions of storage.

**10.3 Possibility of hazardous reactions**

Polymerization will not occur.

**10.4 Conditions to avoid**

Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.

**10.5 Incompatible materials**

Nitrogen dioxide is highly oxidising and reacts violently with fluorine and chlorine in the presence of moisture.

**10.6 Hazardous decomposition products**

May evolve nitrogen oxides when heated to decomposition.

---

**11. TOXICOLOGICAL INFORMATION**

---

**11.1 Information on toxicological effects**

|                          |                                                                                                                                                                                                                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity           | Harmful if inhaled. Low concentrations may have an immediate effect of irritating the nose and throat followed by delayed onset of respiratory difficulties. Over exposure may result in sudden onset pulmonary oedema which can be rapidly fatal. Possible production of methaemaglobinaemia may lead to drowsiness, dizziness and vomiting. |
|                          | NITROGEN DIOXIDE<br>LC50 (Inhalation): 88 ppm / 4 hours (rat)                                                                                                                                                                                                                                                                                 |
| Skin                     | Not classified as a skin irritant. Contact may result in mild irritation, redness and rash.                                                                                                                                                                                                                                                   |
| Eye                      | Not classified as an eye irritant. Contact may cause slight discomfort, lacrimation and redness.                                                                                                                                                                                                                                              |
| Sensitization            | Not classified as causing skin or respiratory sensitisation.                                                                                                                                                                                                                                                                                  |
| Mutagenicity             | Not classified as a mutagen.                                                                                                                                                                                                                                                                                                                  |
| Carcinogenicity          | Not classified as a carcinogen.                                                                                                                                                                                                                                                                                                               |
| Reproductive             | Not classified as a reproductive toxin.                                                                                                                                                                                                                                                                                                       |
| STOT – single exposure   | Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.                                                                                                                                                                |
| STOT – repeated exposure | Not classified as causing organ effects from repeated exposure.                                                                                                                                                                                                                                                                               |
| Aspiration               | Not classified as causing aspiration.                                                                                                                                                                                                                                                                                                         |

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No information provided.

### 12.2 Persistence and degradability

No information provided.

### 12.3 Bioaccumulative potential

No information provided.

### 12.4 Mobility in soil

No information provided.

### 12.5 Other adverse effects

Nitrogen oxides react with volatile organic compounds to produce ozone, a principal factor in photochemical smog. Will form nitric acid in contact with water. Nitrates can persist for prolonged periods in water. Not expected to concentrate in the food chain.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

**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

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



|                             | LAND TRANSPORT<br>(ADG)                       | SEA TRANSPORT<br>(IMDG / IMO)                 | AIR TRANSPORT<br>(IATA / ICAO)                |
|-----------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 14.1 UN Number              | 1956                                          | 1956                                          | 1956                                          |
| 14.2 Proper Shipping Name   | COMPRESSED GAS, N.O.S.<br>(Contains nitrogen) | COMPRESSED GAS, N.O.S.<br>(Contains nitrogen) | COMPRESSED GAS, N.O.S.<br>(Contains nitrogen) |
| 14.3 Transport hazard class | 2.2                                           | 2.2                                           | 2.2                                           |
| 14.4 Packing Group          | None Allocated                                | None Allocated                                | None Allocated                                |

**14.5 Environmental hazards** No information provided

### 14.6 Special precautions for user

Hazchem code 2TE

GTEPG 2C1

EMS F-C, S-V

**Other information** Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.

## 15. REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**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).

**Classifications** Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

**PRODUCT NAME 2 COMPONENT MIXTURE (NO2, BALANCE N2)**

|                             |                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hazard codes</b>         | Xn                                                                                                                        | Harmful                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Risk phrases</b>         | R20                                                                                                                       | Harmful by inhalation.                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Safety phrases</b>       | S9<br>S26<br>S28<br>S36/37/39<br>S45                                                                                      | Keep container in a well ventilated place.<br>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>After contact with skin, wash immediately with plenty of water.<br>Wear suitable protective clothing, gloves and eye/face protection.<br>In case of accident or if you feel unwell seek medical advice immediately (show the label where possible). |
| <b>Inventory listing(s)</b> | <b>AUSTRALIA: AICS (Australian Inventory of Chemical Substances)</b><br>All components are listed on AICS, or are exempt. |                                                                                                                                                                                                                                                                                                                                                                                                    |

---

**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 or manifold with low pressure gas distribution to equipment.

**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.

|                      |                   |                                                                                                 |
|----------------------|-------------------|-------------------------------------------------------------------------------------------------|
| <b>Abbreviations</b> | 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                                                               |
|                      | EMS               | Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)                   |
|                      | GHS               | Globally Harmonized System                                                                      |
|                      | GTEPG             | Group Text Emergency Procedure Guide                                                            |
|                      | IARC              | International Agency for Research on Cancer                                                     |
|                      | LC50              | Lethal Concentration, 50% / Median Lethal Concentration                                         |
|                      | LD50              | Lethal Dose, 50% / Median Lethal Dose                                                           |
|                      | mg/m <sup>3</sup> | Milligrams per Cubic Metre                                                                      |
|                      | OEL               | Occupational Exposure Limit                                                                     |
|                      | pH                | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
|                      | ppm               | Parts Per Million                                                                               |
|                      | STEL              | Short-Term Exposure Limit                                                                       |
|                      | 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                                    |
|                      | SWA               | Safe Work Australia                                                                             |
|                      | TLV               | Threshold Limit Value                                                                           |
|                      | TWA               | Time Weighted Average                                                                           |

**PRODUCT NAME    2 COMPONENT MIXTURE (NO2, BALANCE N2)**

**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.

**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](mailto:info@rmt.com.au)  
Web: [www.rmt.com.au](http://www.rmt.com.au).

**[ End of SDS ]**