BOC
A Member of The Linde Group

SAFETY DATA SHEET

 # 1207

Product Name **2 COMPONENT MIXTURE (1-5% NO2, BALANCE 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)	1207 - SDS NUMBER • PRODUCT CODE: 292 • SPECIAL GAS MIXTURE
Use(s)	CALIBRATION • INDUSTRIAL APPLICATIONS
SDS date	22 May 2014

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Risk Phrases

R23	Toxic by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.

Safety Phrases

S7/9	Keep container tightly closed and in a well ventilated place.
S9	Keep container in a well ventilated place.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S28	After contact with skin, wash immediately with plenty of water.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

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

UN Number	1955	**Transport Hazard Class**	2.3
Packing Group	None Allocated	**Hazchem Code**	2RE

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
NITROGEN DIOXIDE	CAS: 10102-44-0 EC: 233-272-6	T+;R26 C;R34 O;R8	1 to 5%
NITROGEN	CAS: 7727-37-9 EC: 231-783-9	Not Available	Remainder

4. FIRST AID MEASURES

Eye 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.

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 If skin or hair contact occurs, flush affected area with copious quantities of water. Use an emergency shower for large areas. Remove affected clothing as quickly as possible. Irrigate with tap or tepid water for 15 to 30 minutes. Seek medical attention. Apply sterile dressing and treat as thermal burn. Immerse large areas or limbs in tap water or tepid water for 15 to 30 minutes. Obtain medical attention immediately.

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

Advice to doctor Management of pulmonary oedema. Treat eye and skin burns as corrosive. Methaemoglobin may be used as a biological monitor.

First aid facilities Eye wash facilities and safety shower are recommended.

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.

Extinguishing Use water fog to cool containers from protected area.

Hazchem code 2RE

2 Water Fog (or fine water spray if fog unavailable)
R Full protective equipment including Self Contained Breathing apparatus.
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/m³	ppm	mg/m³
Nitrogen	SWA (AUS)	Asphyxiant			
Nitrogen dioxide	SWA (AUS)	3	5.6	5	9.4

Biological limits No biological limit allocated.

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

Eye / Face	Wear safety glasses.
Hands	Wear leather or insulated gloves.
Body	Wear coveralls and safety boots.
Respiratory	Wear a Type NO (Nitrogen Oxides) respirator. At high vapour levels, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	BROWN GAS
Odour	PUNGENT CHOKING ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT APPLICABLE
Solubility (water)	0.0149 L/L (Nitrogen)
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
% Volatiles	100 %
Cylinder pressure (when full)	2400 kPa @ 15°C

10. STABILITY AND REACTIVITY

Material to avoid	Nitric oxide reacts in air to form nitrogen dioxide which is highly oxidising. Reacts violently with fluorine and chlorine in the presence of moisture.
Hazardous Decomposition Products	May evolve toxic gases if heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Toxic - asphyxiant. When mixed with air the concentration of nitrogen dioxide is diluted. Nitrogen dioxide concentrations above 3 ppm may have an immediate effect of irritating the nose and throat followed by delayed onset of respiratory difficulties. Over exposure to concentrations of nitrogen dioxide above 100 ppm may result in sudden onset pulmonary oedema which can be rapidly fatal. Over exposure may result in fibrotic changes in the lungs. Possible production of methaemaglobinaemia may lead to drowsiness, dizziness and vomiting.
Eye	Irritant. Prolonged contact may result in corneal burns.
Inhalation	Toxic - asphyxiant. A toxic and asphyxiant mixture if directly inhaled.
Skin	Irritant. Contact may result in irritation.
Ingestion	Ingestion is considered unlikely due to product form. However, ingestion of liquid may result in burns to the mouth and throat.

Toxicity data

NITROGEN DIOXIDE (10102-44-0)

LC50 (inhalation)	88 ppm/4 hours (rat)
LCLo (inhalation)	200 ppm/1 minute (human)
TCLo (inhalation)	6200 ppb/10 minutes (man)

12. ECOLOGICAL INFORMATION

Toxicity No information provided.

Persistence and degradability No information provided.

Bioaccumulative potential No information provided.

Mobility in soil No information provided.

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

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 (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN Number	1955	-	-
Proper Shipping Name	COMPRESSED GAS, TOXIC, N.O.S.	-	-
Transport Hazard Class	2.3	-	-
Packing Group	None Allocated	-	-

Environmental hazards No information provided

Special precautions for user

Hazchem code 2RE

GTEPG 2B1

Other information Ensure cylinder is separated from driver and foodstuffs.

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 Medicines and Poisons (SUSMP).

Inventory Listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
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.

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
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m^3	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
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
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

Revision history

Revision	Description
1.1	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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End of SDS