

SAFETY DATA SHEET

1586

Product Name **20 COMPONENT MIXTURE (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) 1586 - MSDS NUMBER · PRODUCT CODE: 288-2447, -3661 · SPECIAL GAS MIXTURE
Use(s) CALIBRATION · INDUSTRIAL APPLICATIONS
SDS Date 07 February 2012

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

R12 Extremely Flammable.
R45 May cause cancer.
R46 May cause heritable genetic damage.

SAFETY PHRASES

S9 Keep container in a well ventilated place.
S16 Keep away from sources of ignition - No smoking.
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
S53 Avoid exposure - obtain special instructions before use.

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

UN Number	1954	DG Division	2.1
Packing Group	None Allocated	Subsidiary Risk(s)	None Allocated
Hazchem Code	2SE		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	Cas No.	Content
ETHYLENE	C2-H4	74-85-1	<10%
PROPANE	C3-H8	74-98-6	<10%
PROPYLENE	C3-H6	115-07-1	<10%
1,3-BUTADIENE	C4-H6	106-99-0	0.2%
1-BUTENE	C4-H8	106-98-9	0.2%
ACETYLENE	C2-H2	74-86-2	0.2%
BENZENE	C6-H6	71-43-2	0.2%
BUTANE	C4-H10	106-97-8	0.2%
ETHANE	C2-H6	74-84-0	0.2%
ISOBUTANE	C4-H10	75-28-5	0.2%

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ISOBUTENE	C4-H8	115-11-7	0.2%
ISOPENTANE	C5-H12	78-78-4	0.2%
METHANE	C-H4	74-82-8	0.2%
PENTANE	C5-H12	109-66-0	0.2%
TRANS-2-BUTENE	C4-H8	624-64-6	0.2%
CIS-2-BUTENE	C4-H8	590-18-1	0.2%
CYCLOPROPANE	C3-H6	75-19-4	0.2%
METHYL ACETYLENE	C3-H4	74-99-7	0.2%
PROPADIENE	C3-H4	463-49-0	0.2%
NITROGEN	N2	7727-37-9	Remainder

4. FIRST AID MEASURES

Eye	Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
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.
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 2 Water Fog (or fine water spray if fog unavailable) S Self Contained Breathing apparatus and protective gloves. E Evacuation of people in the vicinity of the incident should be considered.

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.
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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. Do not drop, roll or drag cylinders. The uncontrolled release of any 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/m ³	ppm	mg/m ³
1,3-Butadiene	SWA (AUS)	10	22	--	--
Acetylene	SWA (AUS)	Asphyxiant			
Benzene	SWA (AUS)	1	3.2	--	--
Butane	SWA (AUS)	800	1900	--	--
Ethane	SWA (AUS)	Asphyxiant			
Ethylene	SWA (AUS)	Asphyxiant			
Isobutane	SWA (AUS)	1000	--	--	--
Methane	SWA (AUS)	Asphyxiant			
Methyl acetylene	SWA (AUS)	1000	1640	--	--
Nitrogen	SWA (AUS)	Asphyxiant			
Pentane	SWA (AUS)	600	1770	750	2210
Propane	SWA (AUS)	Asphyxiant			
Propylene	SWA (AUS)	Asphyxiant			

Biological Limits

Ingredient	Reference	Determinant	Sampling Time	BEI
1,3-BUTADIENE	ACGIH BEI	1,2-Dihydroxy-4-(N-acetylcy steinyl)-butane in urine	End of shift	25 mg/g creatinine
	ACGIH BEI	Mixture of N-1 and N-2-(hydroxybutenyl)valine hemoglobin (Hb) adducts in blood	Not critical	2.5 pmol/g Hb
BENZENE	ACGIH BEI	S-Phenylmercapturic acid in urine	End of shift	25 mg/g creatinine

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**Eye / Face**

Wear safety glasses.

Hands

Wear leather or insulated gloves.

Body

Wear safety boots.

Respiratory

Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	COLOURLESS GAS
Odour	SLIGHT ODOUR
Flammability	HIGHLY FLAMMABLE
Flash point	< 0°C
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	1.1 (Air = 1)
Specific gravity	NOT APPLICABLE
Solubility (water)	0.0149 L/L (Nitrogen)

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Vapour pressure	NOT APPLICABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
% Volatiles	100 %
Cylinder pressure (when full)	3000 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), acids (eg. nitric acid), heat and ignition sources. Do not use natural rubber flexible hoses. Also incompatible (potentially violently) with oxygen, halogens and metal halides.
Hazardous Decomposition Products	Heating to decomposition produces acrid smoke and irritating fumes.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

**Health Hazard
Summary**

Inhalation	Irritant - asphyxiant. Effects are proportional to oxygen displacement with symptoms of air hunger, rapid breathing, elevated heart rate, drowsiness and loss of mental alertness. High level exposure may result in incoordination, vomiting, mental instability, lung damage, convulsions, coma and death.	
Skin	Irritating vapour. Direct contact with the liquefied material or escaping compressed gas may cause frost-bite injury.	
Ingestion	Ingestion is considered unlikely due to product form.	
Toxicity Data	PROPANE (74-98-6) LC50 (inhalation) > 800000 ppm/15M (rat) 1,3-BUTADIENE (106-99-0) LC50 (inhalation) 270 g/m³/2 hours (mouse) ACETYLENE (74-86-2) LCLo (inhalation) 50pph/5M (human) TCLo (inhalation) 20 pph (human) BENZENE (71-43-2) LC50 (inhalation) 9980 ppm (mouse) LCLo (inhalation) 2 ppm/5 minutes (human) LD50 (ingestion) 930 mg/kg (rat) LD50 (intraperitoneal) 2890 ug/kg (rat) LD50 (skin) 48 mg/kg (mouse) LDLo (ingestion) 50 mg/kg (man) LDLo (subcutaneous) 1400 mg/kg (frog) TCLo (inhalation) 100 ppm (human) TDLo (ingestion) 52000 mg/kg/52 weeks (rat) BUTANE (106-97-8) LC50 (inhalation) 658000 mg/m³/4H (rat) METHANE (74-82-8) LC50 (inhalation) 326 gm/m³/2h (mouse) PENTANE (109-66-0) LC50 (inhalation) 364 g/m³/4 hours (rat) LCLo (inhalation) 325 g/m³/2 hours (mouse) LD50 (intravenous) 446 mg/kg (mouse) CYCLOPROPANE (75-19-4)	

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CYCLOPROPANE (75-19-4)	
LCLo (inhalation)	282 g/m ³ /2 hours (mouse)
TCLo (inhalation)	4 pph (human)

12. ECOLOGICAL INFORMATION

Environment Avoid release of this material to the environment.

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

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	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN Number	1954	-	-
Proper Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S.	-	-
DG Class/ Division	2.1	-	-
Subsidiary Risk(s)	None Allocated	-	-
Packing Group	None Allocated	-	-
GTEPG	2A1		
Hazchem Code	2SE		
Other Information	Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.		

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.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this ChemAlert 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
mg/m ³	Milligrams per Cubic Metre
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
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
TLV	Threshold Limit Value
TWA/OEL	Time Weighted Average or Occupational Exposure Limit

Revision History

Revision	Description
1.0	Standard SDS Review

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.

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

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End of SDS