

SAFETY DATA SHEET

2132

Product Name 9 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)	2132 - SDS NUMBER • PRODUCT CODE: 288-2608, -2939, -3131 • SPECIAL GAS MIXTURE
Use(s)	CALIBRATION • INDUSTRIAL APPLICATIONS
SDS Date	29 Dec 2011

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES						
R12	Extremely Flammable.					
R61	May cause harm to the u	inborn child.				
SAFETY PHRASE	S					
S9	Keep container in a well	ventilated place.				
S16	Keep away from sources	s of ignition - No sm	noking.			
S33	Take precautionary measures against static discharges.					
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	s before use.			
CLASSIFIED AS A	DANGEROUS GOOD B	Y THE CRITERIA	OF THE ADG CODE			
UN No.	1954	DG Class	2.1	Subsidiary Risk(s) None Allocated		
Packing Group	None Allocated	Hazchem Code	2SE			

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content v/v
METHANE	C-H4	74-82-8	15-30%
ETHANE	C2-H6	74-84-0	<1%
ETHYLENE	C2-H4	74-85-1	<1%
HYDROGEN	H2	1333-74-0	<1%
OXYGEN	O2	7782-44-7	0.5-1%
CARBON MONOXIDE	C-0	630-08-0	0.2-0.5%
CARBON DIOXIDE	C-O2	124-38-9	5-15%
HELIUM	Не	7440-59-7	<1%
NITROGEN	N2	7727-37-9	remainder



4. FIRST AID MEASURES

Eye No data available.

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

Special treatment Treat symptomatically.

5. FIRE FIGHTING MEASURES

Special hazards Highly flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

Advice for 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.

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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.

Precautions for safe handling Use of safe work practices are recommended to avoid 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	t Reference TWA		STEL		
Carbon dioxide	SWA (AUS)	5000 ppm	5000 ppm 9000 mg/m ³ 30000		54000 mg/m ³
Carbon dioxide in coal mines	SWA (AUS)	12500 ppm	12500 ppm 22500 mg/m3 30000 ppm 5		54000 mg/m ³
Carbon monoxide	SWA (AUS)	30 ppm 34 mg/m ³			
Ethane	SWA (AUS)	Asphyxiant			
Ethylene	SWA (AUS)	Asphyxiant			
Helium	SWA (AUS)	Asphyxiant			
Hydrogen	SWA (AUS)	Asphyxiant			
Methane	SWA (AUS)	Asphyxiant			
Nitrogen	SWA (AUS)	Asphyxiant			

Biological Limits

Ingredient Reference		Determinant	Sampling Time	BEI
CARBON MONOXIDE	ACGIH BEI	Carboxyhemoglobin in blood	End of shift	3.5% of hemoglobin



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Ingredient	t Reference D		Sampling Time	BEI
	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. Flammable/explosive vapours may accumulate in poorly ventilated areas. Maintain vapour levels below the recommended exposure standard.

PPE

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



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS	Solubility (water)	NOT AVAILABLE
Odour	ODOURLESS	Specific gravity	NOT APPLICABLE
рН	NOT APPLICABLE	% Volatiles	100 %
Vapour pressure	NOT APPLICABLE	Flammability	HIGHLY FLAMMABLE
Vapour density	0.9 to 1.0 (Air = 1)	Flash Point	NOT APPLICABLE
Boiling point	NOT AVAILABLE	Upper Explosion Limit	NOT AVAILABLE
Melting point	NOT AVAILABLE	Lower Explosion Limit	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE		
Autoignition Temperature	NOT AVAILABLE	Decomposition Temperature	NOT AVAILABLE
Partition Coefficient	NOT AVAILABLE	Viscosity	NOT AVAILABLE

10. STABILITY AND REACTIVITY

Chemical stability	Stable under recommended conditions of storage.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources.
Material to Avoid	Carbon monoxide can react with iron, nickel and other metals. Below 3,500 kPa corrosion is negligible and common materials can be used. Incompatible with acrylaldehyde, aziridine, sodium peroxide. Corrosive when moist. Carbon monoxide can cause stress corrosion cracking in steels especially if other acid gases (e.g. carbon dioxide, sulphur compounds) are present. Below 3,500 kPa corrosion is negligible and normal materials can be used. Carbon dioxide is corrosive when moist.
Hazardous Decomposition Products	May evolve toxic gases if heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health hazard	Asphyxiant gas - toxic. Carbon monoxide effects depend on the percentage of carboxyhaemoglobin: 10-20% mild
summary	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.
Eye	Non irritant.
Inhalation	Toxic. Over exposure to carbon monoxide may result in rapid breathing, nausea, lack of coordination, unconsciousness and coma. Carbon monoxide reacts with haemoglobin in the blood to prevent oxygen uptake and release.
Skin	Non irritant.



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Ingestion Ingestion is considered unlikely due to product form.

Toxicity Data METHANE (74-82-8)

LC50 (inhalation): 326 gm/m3/2h (mouse) CARBON MONOXIDE (630-08-0) LC50 (inhalation): 1807 ppm/4H (rat)

LCLo (inhalation): 5000 ppm/5M (human)

CARBON DIOXIDE (124-38-9)

LC50 (inhalation): 470000 ppm/30M (rat)

LCLo (inhalation): 9 pph/5M (human)

12. ECOLOGICAL INFORMATION

Other adverse
effectsLimited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate
measures are taken to prevent this product from entering 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

Transport

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.



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

Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S. (CONTAINS NITROGEN)					
UN No.	1954	DG Class	2.1	Subsidiary Risk(s)	None Allocated	
Packing Group	None Allocated	Hazchem Code	2SE	GTEPG	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

AdditionalThe storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gasesInformationin cylinders.

APPLICATION METHOD: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

ABBREVIATIONS:

ACGIH - American Conference of Industrial Hygienists.
ADG - Australian Dangerous Goods.
BEI - Biological Exposure Indice(s).
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EC No - European Community Number.
HSNO - Hazardous Substances and New Organisms.
IARC - International Agency for Research on Cancer.
mg/m³ - Milligrams per Cubic Metre.
NOS - Not Otherwise Specified.
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.
STEL - Short Term Exposure Limit.



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SWA - Safe Work Australia. TWA - Time Weighted Average.

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. 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. This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the **Report Status** 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

> SDS Date 29 Dec 2011 End of Report

ChemAlert.