

## SAFETY DATA SHEET

# 2414

Product Name **10 COMPONENT MIXTURE (BALANCE METHANE) (# 2414)**

### 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)** 2414 - SDS NUMBER • SPECIAL GAS MIXTURE  
**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS  
**SDS date** 10 September 2014

### 2. HAZARDS IDENTIFICATION

**CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA**

**Risk Phrases**

R12 Extremely Flammable.

**Safety Phrases**

S2 Keep out of reach of children.  
S9 Keep container in a well ventilated place.  
S16 Keep away from sources of ignition - No smoking.  
S33 Take precautionary measures against static discharges.

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

**UN Number** 1954 **Transport Hazard Class** 2.1  
**Packing Group** None Allocated **Hazchem Code** 2SE

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content (v/v)
ETHANE	CAS: 74-84-0 EC: 200-814-8	F+;R12	9%
PROPANE	CAS: 74-98-6 EC: 200-827-9	F+;R12	3%
ISOBUTANE	CAS: 75-28-5 EC: 200-857-2	F+;R12	0.45%
ISOPENTANE	CAS: 78-78-4 EC: 201-142-8	F+;R12, N;R51/53, Xn;R65, Xi;R66, Xn;R67	0.1%
N-HEXANE	CAS: 110-54-3 EC: 203-777-6	F;R11, Xi;R38, Xn;R48/20, N;R51/53, Repr.;R62, Xn;R65, Xn;R67	0.05%
METHANE	CAS: 74-82-8 EC: 200-812-7	F+;R12	Remainder

**Product Name 10 COMPONENT MIXTURE (BALANCE METHANE) (# 2414)**

CARBON DIOXIDE	CAS: 124-38-9 EC: 204-696-9	Not Available	6%
NITROGEN	CAS: 7727-37-9 EC: 231-783-9	Not Available	0.5%
N-BUTANE	Not Available	Not Available	0.4%
N-PENTANE	Not Available	Not Available	0.08%

---

**4. FIRST AID MEASURES**

---

<b>Eye</b>	None required.
<b>Inhalation</b>	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.
<b>Skin</b>	None required.
<b>Ingestion</b>	Due to product form and application, ingestion is considered unlikely.
<b>Advice to doctor</b>	Treat symptomatically.

---

**5. FIRE FIGHTING MEASURES**

---

<b>Flammability</b>	Highly flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.
<b>Fire and explosion</b>	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 with air.
<b>Extinguishing</b>	Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders.
<b>Hazchem code</b>	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**

---

<b>Spillage</b>	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**

---

<b>Storage</b>	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.
<b>Handling</b>	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 standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Carbon dioxide	SWA (AUS)	5000	9000	30000	54000
Carbon dioxide in coal mines	SWA (AUS)	12500	22500	30000	54000
Ethane	SWA (AUS)	Asphyxiant			
Isobutane	SWA (AUS)	1000	--	--	--
Methane	SWA (AUS)	Asphyxiant			
Nitrogen	SWA (AUS)	Asphyxiant			
Propane	SWA (AUS)	Asphyxiant			
n-Hexane	SWA (AUS)	20	72	--	--

### Biological limits

Ingredient	Determinant	Sampling Time	BEI
N-HEXANE	2,5-Hexanedione in urine (without hydrolysis)	End of shift at end of workweek	0.4 mg/L

Reference: ACGIH Biological Exposure Indices

### 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 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	SWEET OIL-TYPE ODOUR
Flammability	HIGHLY FLAMMABLE
Flash point	NOT AVAILABLE
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	0.555 (Air = 1) (Methane)
Specific gravity	NOT APPLICABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	15 % (Methane)
Lower explosion limit	5 % (Methane)
Partition coefficient	NOT AVAILABLE
Autoignition temperature	537°C (Methane)
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
% Volatiles	100 %

---

**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>	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.
<b>Hazardous Decomposition Products</b>	This material will not decompose to form hazardous products other than that already present.
<b>Hazardous Reactions</b>	Polymerization will not occur.

---

**11. TOXICOLOGICAL INFORMATION**

---

<b>Health Hazard Summary</b>	Asphyxiant gas. Symptoms of exposure are directly related to displacement of oxygen. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate may accelerate and the rate and volume of breathing may increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may result in no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may result in nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. n-Hexane may impair fertility. Due to the low concentration in the product, adverse effects are not anticipated.																						
<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>	<table><tr><td>PROPANE (74-98-6)</td><td></td></tr><tr><td>LC50 (inhalation)</td><td>&gt; 800000 ppm/15M (rat)</td></tr><tr><td>N-HEXANE (110-54-3)</td><td></td></tr><tr><td>LC50 (inhalation)</td><td>48000 ppm/4 hours (rat)</td></tr><tr><td>LD50 (ingestion)</td><td>25 g/kg (rat)</td></tr><tr><td>LD50 (skin)</td><td>3000 mg/kg (rabbit)</td></tr><tr><td>METHANE (74-82-8)</td><td></td></tr><tr><td>LC50 (inhalation)</td><td>326 gm/m<sup>3</sup>/2h (mouse)</td></tr><tr><td>CARBON DIOXIDE (124-38-9)</td><td></td></tr><tr><td>LC50 (inhalation)</td><td>470000 ppm/30M (rat)</td></tr><tr><td>LCLo (inhalation)</td><td>9 pph/5M (human)</td></tr></table>	PROPANE (74-98-6)		LC50 (inhalation)	> 800000 ppm/15M (rat)	N-HEXANE (110-54-3)		LC50 (inhalation)	48000 ppm/4 hours (rat)	LD50 (ingestion)	25 g/kg (rat)	LD50 (skin)	3000 mg/kg (rabbit)	METHANE (74-82-8)		LC50 (inhalation)	326 gm/m <sup>3</sup> /2h (mouse)	CARBON DIOXIDE (124-38-9)		LC50 (inhalation)	470000 ppm/30M (rat)	LCLo (inhalation)	9 pph/5M (human)
PROPANE (74-98-6)																							
LC50 (inhalation)	> 800000 ppm/15M (rat)																						
N-HEXANE (110-54-3)																							
LC50 (inhalation)	48000 ppm/4 hours (rat)																						
LD50 (ingestion)	25 g/kg (rat)																						
LD50 (skin)	3000 mg/kg (rabbit)																						
METHANE (74-82-8)																							
LC50 (inhalation)	326 gm/m <sup>3</sup> /2h (mouse)																						
CARBON DIOXIDE (124-38-9)																							
LC50 (inhalation)	470000 ppm/30M (rat)																						
LCLo (inhalation)	9 pph/5M (human)																						

---

**12. ECOLOGICAL INFORMATION**

---

<b>Toxicity</b>	No information provided.
<b>Persistence and degradability</b>	No information provided.
<b>Bioaccumulative potential</b>	No information provided.
<b>Mobility in soil</b>	No information provided.
<b>Other adverse effects</b>	When discharged into the atmosphere, Methane may contribute to the greenhouse effect. Methane has a global warming potential of 21 (CO <sub>2</sub> = 1).

---

**13. DISPOSAL CONSIDERATIONS**

---

<b>Waste disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents.
<b>Legislation</b>	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	1954	-	-
Proper Shipping Name	COMPRESSED GAS, FLAMMABLE, N.O.S. (Contains methane)	-	-
Transport Hazard Class	2.1	-	-
Packing Group	None Allocated	-	-

Environmental hazards No information provided

**Special precautions for user**

Hazchem code 2SE

GTEPG 2A1

**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.

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.

**Product Name**      **10 COMPONENT MIXTURE (BALANCE METHANE) (# 2414)**

<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
	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 <sup>3</sup>	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
2.0	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.

**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.

**Revision:** 2  
**SDS Date:** 10 September 2014

**End of SDS**