

**SAFETY DATA SHEET**

# 1750

Product Name **7 COMPONENT MIXTURE (C2H6, C5H12, C3H8, H2, BALANCE C4H10)****1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

Supplier name	<b>BOC LIMITED (AUSTRALIA)</b>
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) <a href="http://www.boc.com.au">http://www.boc.com.au</a>
Synonym(s)	1750 - MSDS NUMBER • PRODUCT CODES: 285, 288 • SPECIAL GAS MIXTURE
Use(s)	CALIBRATION • INDUSTRIAL APPLICATIONS
SDS date	13 November 2014

**2. HAZARDS IDENTIFICATION****CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA****Risk Phrases**

R12 Extremely Flammable.

**Safety Phrases**

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	CAS Number	EC Number	Content
BUTANE	106-97-8	203-448-7	15%
HYDROGEN	1333-74-0	215-605-7	7.5%
PROPANE	74-98-6	200-827-9	5%
ISOPENTANE	78-78-4	201-142-8	4%
PENTANE	109-66-0	203-692-4	3%
ETHANE	74-84-0	200-814-8	0.5%
ISOBUTANE	75-28-5	200-857-2	Remainder

**4. FIRST AID MEASURES**

Eye None required.

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

None required.

## Ingestion

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

## Advice to doctor

Treat symptomatically.

**5. FIRE FIGHTING MEASURES**

## Flammability

Highly flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked 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 with air.

## Extinguishing

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.

## 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.

**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 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
Butane	SWA (AUS)	800	1900	--	--
Ethane	SWA (AUS)			Asphyxiant	
Hydrogen	SWA (AUS)			Asphyxiant	
Isobutane	SWA (AUS)	1000	--	--	--
Pentane	SWA (AUS)	600	1770	750	2210
Propane	SWA (AUS)			Asphyxiant	

## Biological limits

No biological limit allocated.

## Engineering controls

Provide suitable ventilation to minimise or eliminate exposure. Confined areas (e.g. tanks) should be adequately ventilated or gas tested. 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 Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Appearance</b>	COLOURLESS GAS
<b>Odour</b>	SLIGHT ODOUR
<b>Flammability</b>	HIGHLY FLAMMABLE
<b>Flash point</b>	NOT AVAILABLE
<b>Boiling point</b>	NOT AVAILABLE
<b>Melting point</b>	NOT AVAILABLE
<b>Evaporation rate</b>	NOT APPLICABLE
<b>pH</b>	NOT APPLICABLE
<b>Vapour density</b>	NOT AVAILABLE
<b>Specific gravity</b>	NOT APPLICABLE
<b>Solubility (water)</b>	INSOLUBLE
<b>Vapour pressure</b>	NOT AVAILABLE
<b>Upper explosion limit</b>	1.9 % (Butane)
<b>Lower explosion limit</b>	8.5 % (Butane)
<b>Autoignition temperature</b>	462°C (iso-Butane)
<b>Explosive properties</b>	NOT AVAILABLE
<b>Oxidising properties</b>	NOT AVAILABLE
<b>Cylinder pressure (when full)</b>	180 kPa
<b>% Volatiles</b>	100 %

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## 10. STABILITY AND REACTIVITY

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<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 (e.g. hypochlorites), acids (e.g. 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.

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## 11. TOXICOLOGICAL INFORMATION

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<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.
<b>Eye</b>	Non irritant.
<b>Inhalation</b>	Asphyxiant. Effects are proportional to oxygen displacement. Non irritant.

**Skin****Ingestion****Toxicity data**

Ingestion is considered unlikely due to product form.

BUTANE (106-97-8)

LC50 (inhalation)

658000 mg/m<sup>3</sup>/4H (rat)

PROPANE (74-98-6)

LC50 (inhalation)

&gt; 800000 ppm/15M (rat)

PENTANE (109-66-0)

LC50 (inhalation)

364 g/m<sup>3</sup>/4 hours (rat)

LC50 (inhalation)

325 g/m<sup>3</sup>/2 hours (mouse)

LD50 (intravenous)

446 mg/kg (mouse)

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**12. ECOLOGICAL INFORMATION**

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**Toxicity** No information provided.**Persistence and degradability** No information provided.**Bioaccumulative potential** No information provided.**Mobility in soil** No information provided.**Other adverse effects** No known ecological damage is caused by this product.

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**13. DISPOSAL CONSIDERATIONS**

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**Waste disposal** Cylinders should be returned to the manufacturer or supplier for disposal of contents.**Legislation** Dispose of in accordance with relevant local legislation.

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**14. TRANSPORT INFORMATION**

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**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.	-	-
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.

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**15. REGULATORY INFORMATION**

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**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).

## 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 <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	Included Risk Phrase.
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**