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## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

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### 1.1 Product identifier

**Product name**            **AGRIGAS M (METHYL BROMIDE)**  
**Synonyms**                213 - SDS NUMBER • BROMOMETHANE • FREON R40 B1 • PRODUCT CODE: 193

### 1.2 Uses and uses advised against

**Uses**                        CHEMICAL REAGENT • FUMIGANT • PESTICIDE

### 1.3 Details of the supplier of the product

**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)  
**Website**                    <http://www.boc.com.au>

### 1.4 Emergency telephone numbers

**Emergency**                1800 653 572 (24/7) (Australia only)

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## 2. HAZARDS IDENTIFICATION

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### 2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

#### Physical Hazards

Gases Under Pressure: Liquefied gas

#### Health Hazards

Acute Toxicity: Oral: Category 3  
Skin Corrosion/Irritation: Category 2  
Serious Eye Damage / Eye Irritation: Category 2A  
Acute Toxicity: Inhalation: Category 3  
Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)  
Germ Cell Mutagenicity: Category 2  
Specific Target Organ Toxicity (Repeated Exposure): Category 2

#### Environmental Hazards

Aquatic Toxicity (Acute): Category 1  
Hazardous to the Ozone Layer: Category 1

### 2.2 GHS Label elements

**Signal word**                **DANGER**

#### Pictograms



**PRODUCT NAME AGRIGAS M (METHYL BROMIDE)****Hazard statements**

H280	Contains gas under pressure; may explode if heated.
H301	Toxic if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H420	Harms public health and the environment by destroying ozone in the upper atmosphere.

**Prevention statements**

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

**Response statements**

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311	Call a POISON CENTRE or doctor/physician.
P321	Specific treatment is advised - see first aid instructions.
P330	Rinse mouth.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

**Storage statements**

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

**Disposal statements**

P501	Dispose of contents/container in accordance with relevant regulations.
P502	Refer to manufacturer/supplier for information on recovery/recycling.

**2.3 Other hazards**

No information provided.

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**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

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**3.1 Substances / Mixtures**

Ingredient	CAS Number	EC Number	Content (v/v)
METHYL BROMIDE	74-83-9	200-813-2	100%

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**4. FIRST AID MEASURES**

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**4.1 Description of first aid measures**

<b>Eye</b>	Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
<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 breathing is difficult. Seek immediate medical attention. For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.
<b>Skin</b>	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. It is recommended that warm water is applied to clothing before removing it so as to prevent further skin damage. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.
<b>Ingestion</b>	Due to product form and application, ingestion is considered unlikely.

## PRODUCT NAME **AGRIGAS M (METHYL BROMIDE)**

**First aid facilities** Eye wash facilities and safety shower should be available.

### **4.2 Most important symptoms and effects, both acute and delayed**

Methyl bromide is absorbed through skin and causes damage to the central nervous system and lungs. Symptoms may be delayed up to 48 hours. Nervous system injury is characterised by lethargy, muscular pains, visual, speech and sensory disturbances and mental confusion. More severe effects include tremors, hallucinations, fainting spells and seizures. Vapours are irritating to the eyes, skin and respiratory system. Direct contact with the liquefied material or escaping compressed gas may cause cold burns similar to frostbite injury.

### **4.3 Immediate medical attention and special treatment needed**

Treat for asphyxia and cold burns.

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## **5. FIRE FIGHTING MEASURES**

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### **5.1 Extinguishing media**

Use water fog to cool containers from protected area.

### **5.2 Special hazards arising from the substance or mixture**

Non flammable. May evolve toxic gases (bromides, bromine) when heated to decomposition. May ignite with a very high energy source of ignition.

### **5.3 Advice for firefighters**

Temperatures in a fire may cause cylinders to rupture. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Ensure work area is thoroughly ventilated before re-entry.

### **5.4 Hazchem code**

2X  
2 Fine Water Spray.  
X Wear liquid-tight chemical protective clothing and breathing apparatus. Contain spill and run-off.

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## **6. ACCIDENTAL RELEASE MEASURES**

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### **6.1 Personal precautions, protective equipment and emergency procedures**

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS.

### **6.2 Environmental precautions**

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

### **6.3 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.

### **6.4 Reference to other sections**

See Sections 8 and 13 for exposure controls and disposal.

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## **7. HANDLING AND STORAGE**

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### **7.1 Precautions for safe 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.

### **7.2 Conditions for safe storage, including any incompatibilities**

Do not store near incompatible materials. Cylinders should be stored below 65°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.

### **7.3 Specific end uses**

No information provided.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

#### Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Methyl bromide	SWA [AUS]	5	19	--	--

#### Biological limits

No biological limit values have been entered for this product.

### 8.2 Exposure controls

**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 or insulated gloves.
<b>Body</b>	Wear coveralls and safety boots.
<b>Respiratory</b>	Wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	CLEAR COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
<b>Odour</b>	SLIGHT SWEET ODOUR
<b>Flammability</b>	NON FLAMMABLE
<b>Flash point</b>	NOT RELEVANT
<b>Boiling point</b>	3.5°C to 4°C
<b>Melting point</b>	-94°C
<b>Evaporation rate</b>	NOT APPLICABLE
<b>pH</b>	NOT APPLICABLE
<b>Vapour density</b>	3.4 (Air = 1)
<b>Relative density</b>	1.73 @ 0°C (Liquid)
<b>Solubility (water)</b>	SLIGHTLY SOLUBLE
<b>Vapour pressure</b>	220 kPa @ 25°C
<b>Upper explosion limit</b>	14.5 %
<b>Lower explosion limit</b>	13.5 %
<b>Partition coefficient</b>	NOT AVAILABLE
<b>Autoignition temperature</b>	537°C
<b>Decomposition temperature</b>	NOT AVAILABLE
<b>Viscosity</b>	NOT AVAILABLE
<b>Explosive properties</b>	NOT AVAILABLE
<b>Oxidising properties</b>	NOT AVAILABLE
<b>Odour threshold</b>	NOT AVAILABLE

### 9.2 Other information

<b>% Volatiles</b>	100 %
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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

**PRODUCT NAME AGRIGAS M (METHYL BROMIDE)**

**10.2 Chemical stability**

Stable under recommended conditions of storage.

**10.3 Possibility of hazardous reactions**

Polymerization will not occur.

**10.4 Conditions to avoid**

Avoid heat, sparks, open flames and other ignition sources. Avoid exposure to moisture.

**10.5 Incompatible materials**

Incompatible with oxidising agents (e.g. hypochlorites), aluminum/aluminium alloys (forming spontaneously combustible aluminium trimethyl), heat and ignition sources. Slightly corrosive when moist.

**10.6 Hazardous decomposition products**

May evolve toxic gases (bromides, bromine) when heated to decomposition.

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**11. TOXICOLOGICAL INFORMATION**

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**11.1 Information on toxicological effects**

**Acute toxicity** Toxic if swallowed or if inhaled. Methyl bromide is absorbed through skin and causes damage to the central nervous system and lungs. Symptoms may be delayed up to 48 hours. Nervous system injury is characterised by lethargy, muscular pains, visual, speech and sensory disturbances and mental confusion. More severe effects include tremors, hallucinations, fainting spells and seizures.

**Information available for the ingredients:**

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
METHYL BROMIDE	214 mg/kg (rat)	135 mg/kg (subcutaneous, rat)	302 ppm/8h (rat)

**Skin** Irritating to the skin. Contact may result in irritation, redness, rash and dermatitis. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Eye** Irritating to the eyes. Contact may result in irritation, lacrimation, pain and redness. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Sensitisation** Not classified as causing skin or respiratory sensitisation.

**Mutagenicity** May cause genetic defects.

**Carcinogenicity** Methyl bromide is not classifiable as to its carcinogenicity to humans (IARC Group 3).

**Reproductive** Not classified as a reproductive toxin. However, some animal studies have shown fetal defects in doses causing maternal toxicity.

**STOT - single exposure** Over exposure to vapours may result in respiratory irritation, nausea, dizziness and headache. High level exposure may result in drowsiness and breathing difficulties.

**STOT - repeated exposure** Chronic exposure may result in liver, kidney and brain damage.

**Aspiration** Not classified as causing aspiration.

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**12. ECOLOGICAL INFORMATION**

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**12.1 Toxicity**

Very toxic to aquatic life.

**12.2 Persistence and degradability**

No information provided.

**12.3 Bioaccumulative potential**

No information provided.

**12.4 Mobility in soil**

No information provided.

**12.5 Other adverse effects**

Harms public health and the environment by destroying ozone in the upper atmosphere.

### 13. DISPOSAL CONSIDERATIONS

#### 13.1 Waste treatment methods

**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)
<b>14.1 UN Number</b>	1062	1062	1062
<b>14.2 Proper Shipping Name</b>	METHYL BROMIDE	METHYL BROMIDE	METHYL BROMIDE
<b>14.3 Transport hazard class</b>	2.3	2.3	2.3
<b>14.4 Packing Group</b>	None allocated.	None allocated.	None allocated.

#### 14.5 Environmental hazards

Marine Pollutant.

#### 14.6 Special precautions for user

**Hazchem code** 2X  
**GTEPG** 2B1  
**EmS** F-C, S-U

**Other information** Transport on open top vehicles in accordance with Australian Code for the Transport of Dangerous Goods. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.

### 15. REGULATORY INFORMATION

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**Poison schedule** Classified as a Schedule 7 (S7) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).  
**Classifications** Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).  
**Inventory listings** **AUSTRALIA: AIIIC (Australian Inventory of Industrial Chemicals)**  
 All components are listed on AIIIC, 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. This product must only be used by authorised personnel such as licensed fumigators.

APPLICATION METHOD: Liquid withdrawal to specialised dispensing or vapourising equipment.

**PRODUCT NAME AGRIGAS M (METHYL BROMIDE)****PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, 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: form of product; 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 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
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
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
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
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

**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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