BOC
A Member of The Linde Group

SAFETY DATA SHEET

 # 196

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **R141B + 5% METHANOL**

Synonym(s) 1,1 DICHLORO-1-FLUOROETHANE • 196 - SDS NUMBER

1.2 Uses and uses advised against

Use(s) CLEANING SOLVENT • ELECTRONICS • PRECISION ENGINEERING

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 number(s)

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

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s) Specific Target Organ Systemic Toxicity (Single Exposure): Category 2
Aquatic Toxicity (Chronic): Category 3
Hazardous to the Ozone Layer: Category 1

2.2 Label elements

Signal word **WARNING**

Pictogram(s)

Hazard statement(s)

H371	May cause damage to organs.
H412	Harmful to aquatic life with long lasting effects.
H420	Harms public health and the environment by destroying ozone in the upper atmosphere.

Prevention statement(s)

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.
P273	Avoid release to the environment.

Response statement(s)

P309 + P311	IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

Storage statement(s)

P405	Store locked up.

Disposal statement(s)

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.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
1,1-DICHLORO-1-FLUOROETHANE (HCFC 141B)	1717-00-6	404-080-1	95%
METHANOL	67-56-1	200-659-6	5%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

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.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower are recommended.

4.2 Most important symptoms and effects, both acute and delayed

Occupational exposure to methanol at high vapour concentrations in poorly ventilated areas has been reported to cause visual disturbances, liver enlargement and death.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases (chlorides, phosgene, fluorides, hydrogen fluoride, carbon oxides) when heated to decomposition. Vapour may form explosive mixtures with air.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled and protected from physical damage when not in use. Check regularly for leaks or spills. Store below 50°C.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Methanol	SWA (AUS)	200	262	250	328

Biological limits

Ingredient	Determinant	Sampling Time	BEI
METHANOL	Methanol in urine	End of shift	15 mg/L

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face Wear splash-proof goggles.

Hands Wear PVC or rubber gloves.

Body When using large quantities or where heavy contamination is likely, wear coveralls.

Respiratory Where an inhalation risk exists, wear a Type A (Organic vapour) respirator. At high vapour levels, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator. Where the boiling point is < 65°C, use an AX filter type.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	COLOURLESS LIQUID
Odour	SLIGHT ETHER-LIKE ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	29.4°C

9.1 Information on basic physical and chemical properties

Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	5.018 (Air = 1)
Specific gravity	1.210
Solubility (water)	SLIGHTLY SOLUBLE
Vapour pressure	700 hPa @ 20°C
Upper explosion limit	17.7 %
Lower explosion limit	5.6 %
Partition coefficient	NOT AVAILABLE
Autoignition temperature	532°C
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Hazardous polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide), metals, heat and ignition sources. Contact with metallic powders may result in an exothermic reaction and a potential risk of explosion.

10.6 Hazardous decomposition products

May evolve toxic gases (chlorides, phosgene, fluorides, hydrogen fluoride, carbon oxides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Health hazard summary

Asphyxiant vapour - narcotic at high levels. Adverse health effects may result from exposure to high vapour levels or with direct eye or skin contact. Use safe work practices to avoid vapour generation - inhalation. Acute symptoms from over exposure resemble narcosis. Over exposure may result in cardiac arrhythmias (irregular beating or arrest of the heart) in sensitive individuals. Occupational exposure to methanol at high vapour concentrations in poorly ventilated areas has been reported to cause visual disturbances, liver enlargement and death. Ensure safe work practices to avoid exposure.

Eye

Low to moderate irritant. Contact may result in mild irritation, lacrimation and redness.

Inhalation

Irritant - asphyxiant. Over exposure may result in respiratory irritation, coughing, nausea, dizziness and headache. High level exposure may result in dizziness, breathing difficulties and anaesthesia, cardiac arrhythmias, pulmonary oedema and unconsciousness at very high levels.

Skin

Irritant. Contact may result in drying and defatting of the skin, rash and dermatitis.

Ingestion

Harmful. Ingestion may result in nausea, vomiting, abdominal pain, diarrhoea, fatigue, dizziness and unconsciousness.

Toxicity data

1,1-DICHLORO-1-FLUOROETHANE (HCFC 141B) (1717-00-6)

LD50 (oral)	> 5 g/kg (rat)
LD50 (dermal)	> 2 g/kg (rat)
LC50 (inhalation)	151 g/m³/2 hours (mouse)

METHANOL (67-56-1)

LD50 (oral)	300 mg/kg (human)
LD50 (dermal)	15,800 mg/kg (rabbit)

METHANOL (67-56-1)
LC50 (inhalation) 50 g/m³/2 hours (mouse)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Fish toxicity: LC50 (Brachydanio rerio) = 126 mg/L/96 hours.

12.2 Persistence and degradability

Not readily degradable.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

Dangerous for the ozone layer. Hydrogenated chlorofluorocarbon compounds (HCFC's) do not persist in the stratosphere to the same degree as chlorofluorocarbons (CFC's). Although ozone depleting, they have a lower ozone depleting effect than CFC's. Release of HCFCs into the environment should be minimised and where possible, recycling of HCFCs is recommended.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal OZONE DEPLETING SUBSTANCE. Do not send to landfill. Ensure product is transported to approved incineration facility equipped with after burner and scrubber for disposal. Contact the manufacturer/supplier for additional information (if required). Prevent contamination of drains and waterways as environmental damage may result.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code None Allocated

15. REGULATORY INFORMATION

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

Poison schedule Classified as a Schedule 5 (S5) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes

N	Dangerous for the environment
Xn	Harmful

Risk phrases	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R59	Dangerous for the ozone layer.
	R68/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.
Safety phrases	S7	Keep container tightly closed.
	S16	Keep away from sources of ignition - No smoking.
	S24	Avoid contact with skin.
	S36/37	Wear suitable protective clothing and gloves.
	S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
	S59	Refer to manufacturer / supplier for information on recovery / recycling.
	S61	Avoid release to the environment. Refer to special instructions/safety data sheets.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

OZONE DEPLETING SUBSTANCE. It is an offence to distribute and manufacture the following identified ozone depleting substances unless authorised to do so: 1,1,1-trichloroethane, carbon tetrachloride, CFCs - 11,12,13, 111, 112, 113, 114, 115, 211, 212, 213, 214, 215, 216 & 217. HCFCs - 21, 22, 31, 122, 123, 124, 131, 133, 141, 141b, 142, 142b, 151, 221, 222, 223, 224, 225, 225ca, 225cb, 226, 231, 232, 233, 234, 235, 241, 242, 243, 244, 251, 252, 253, 261, 262 & 271. HALONS - 1211, 1311, 114 & 115.

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
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/m³	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.

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