

# SAFETY DATA SHEET

## R134A

Infosafe No.: FMSDT  
ISSUED Date : 31/01/2020  
ISSUED by: BOC LIMITED (AUSTRALIA)

### 1. IDENTIFICATION

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**GHS Product Identifier**

R134A

**Product Code**

155

**Company Name**

BOC LIMITED (AUSTRALIA)

**Address**10 Julius Avenue North Ryde  
NSW 2113 Australia**Telephone/Fax Number**

Tel: 131 262, (02) 8874 4400

Fax: 132 427 (24 hours)

**Emergency phone number**

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

**Recommended use of the chemical and restrictions on use**

AIR CONDITIONING · REFRIGERANT · REFRIGERATION SYSTEMS

**Other Names**

Name	Product Code
1, 1, 1, 2 TETRAFLUOROETHANE	
133 - SDS NUMBER	
FORANE 134A	
HFC134A	

### 2. HAZARD IDENTIFICATION

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**GHS classification of the substance/mixture**

Gases under Pressure: Liquefied Gas

**Signal Word (s)**

WARNING

**Hazard Statement (s)**

H280 Contains gas under pressure; may explode if heated.

**Pictogram (s)**

Gas cylinder



**Precautionary statement – Storage**

P410+P403 Protect from sunlight. Store in a well-ventilated place.

**Other Information**

GHS classification(s): Gases Under Pressure: Liquefied gas

Other hazards

Asphyxiant. Effects are proportional to oxygen displacement.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Information on Composition**

Ingredient: 1,1,1,2-TETRAFLUOROETHANE (HFC 134A)

EC Number: 212-377-0

**Ingredients**

Name	CAS	Proportion
1, 1, 1, 2- tetrafluoroethane (HFC 134a)	811- 97- 2	> 99. 9 %

**4. FIRST-AID MEASURES**

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**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 Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor.

**Ingestion**

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

**Skin**

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.

**Eye contact**

Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

**First Aid Facilities**

None allocated.

**Indication of immediate medical attention and special treatment needed if necessary**

Treat symptomatically.

**Most important symptoms/effects, acute and delayed**

In high concentrations may cause asphyxiation. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**5. FIRE-FIGHTING MEASURES**

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**Suitable Extinguishing Media**

Use water fog to cool containers from protected area.

**Specific Methods**

Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Do not approach cylinders or containers suspected of being hot.

**Specific Hazards Arising From The Chemical**

Non flammable. May evolve toxic gases (fluorides, carbon oxides, hydrocarbons) when heated to decomposition.

**Hazchem Code**

2TE

**Decomposition Temperature**

NOT AVAILABLE

**Other Information**

Hazchem code

2TE

2 Fine Water Spray.

T Wear full fire kit and breathing apparatus. Dilute spill and run-off.

E Evacuation of people in and around the immediate vicinity of the incident should be considered.

## 6. ACCIDENTAL RELEASE MEASURES

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**Methods And Materials For Containment And 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.

**Personal Precautions**

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

**Environmental Precautions**

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

**Other Information**

Reference to other sections

See Sections 8 (EXPOSURE CONTROLS/PERSONAL PROTECTION) and 13 (DISPOSAL CONSIDERATIONS) for exposure controls and disposal.

## 7. HANDLING AND STORAGE

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**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.

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

Do not store near 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.

**Additional information on precautions for use**

Specific end use(s)

No information provided.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Occupational exposure limit values**

Ingredient: 1,1,1,2-Tetrafluoroethane

Reference: SWA (AUS)

TWA

ppm: 1000

mg/m<sup>3</sup>: 4240

**Biological Limit Values**

No biological limit values have been entered for this product.

**Appropriate 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.

**Respiratory Protection**

Where an inhalation risk exists, wear an Air-line respirator.

**Eye Protection**

Wear safety glasses.

**Hand Protection**

Wear nitrile gloves.

**Body Protection**

Wear safety boots.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
<b>Form</b>	Liquefied Gas	<b>Appearance</b>	CLEAR GAS (LIQUEFIED UNDER PRESSURE)
<b>Odour</b>	SLIGHT ETHEREAL ODOUR	<b>Decomposition Temperature</b>	NOT AVAILABLE
<b>Melting Point</b>	-101°C	<b>Boiling Point</b>	-26.4°C
<b>Solubility in Water</b>	0.9 g/L @ 20°C	<b>Specific Gravity</b>	1.10 to 1.21
<b>pH</b>	NOT APPLICABLE	<b>Vapour Pressure</b>	665 kPa @ 25°C
<b>Vapour Density (Air=1)</b>	3.5 (Air = 1)	<b>Evaporation Rate</b>	NOT APPLICABLE
<b>Odour Threshold</b>	NOT AVAILABLE	<b>Viscosity</b>	NOT AVAILABLE
<b>Volatile Component</b>	100 %	<b>Partition Coefficient: n-octanol/water</b>	NOT AVAILABLE
<b>Flash Point</b>	Not relevant	<b>Flammability</b>	NON FLAMMABLE
<b>Auto-Ignition Temperature</b>	NOT AVAILABLE	<b>Explosion Limit - Upper</b>	NOT RELEVANT
<b>Explosion Limit - Lower</b>	NOT RELEVANT	<b>Explosion Properties</b>	NOT AVAILABLE
<b>Oxidising Properties</b>	NOT AVAILABLE		

**Other Information**

Critical temperature: 100.6°C

Critical pressure: 4,060 kPa

## 10. STABILITY AND REACTIVITY

**Reactivity**

Carefully review all information provided in sections 10 (STABILITY AND REACTIVITY).

**Chemical Stability**

Stable under recommended conditions of storage.

**Conditions to Avoid**

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

**Incompatible materials**

Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide), alkaline earth metals (e.g. manganese).

**Hazardous Decomposition Products**

May evolve toxic gases (carbon oxides, hydrogen fluoride, hydrocarbons) when heated strongly.

**Possibility of hazardous reactions**

Polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

**Toxicology Information**

Acute toxicity: Based on available data, the classification criteria are not met.

**Acute Toxicity - Inhalation**

1,1,1,2-TETRAFLUOROETHANE (HFC 134A)

Inhalation LC50

1500 g/m<sup>3</sup>/4 hour (rat)

**Skin corrosion/irritation**

Not classified as a skin irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Serious eye damage/irritation**

Not classified as irritating to the eyes. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Mutagenicity**

Not classified as a mutagen.

**Respiratory sensitisation**

Not classified as causing respiratory sensitisation.

**Skin Sensitisation**

Not classified as causing skin sensitisation.

**Carcinogenicity**

Not classified as a carcinogen.

**Reproductive Toxicity**

Not classified as a reproductive toxin.

**STOT-single exposure**

Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.

**STOT-repeated exposure**

Not classified as causing organ effects from repeated exposure.

**Aspiration Hazard**

Not classified as causing aspiration.

## 12. ECOLOGICAL INFORMATION

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**Ecological information**

Toxicity

No information provided.

**Persistence and degradability**

No information provided.

**Mobility**

No information provided.

**Bioaccumulative Potential**

No information provided.

**Other Adverse Effects**

Global warming has been predicted as a potential consequence of the emission of this product.

## 13. DISPOSAL CONSIDERATIONS

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**Waste Disposal**

Cylinders should be returned to the manufacturer or supplier for disposal of contents.

**Local Legislation**

Dispose of in accordance with relevant local legislation.

## 14. TRANSPORT INFORMATION

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**U.N. Number**

3159

**UN proper shipping name**

1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

**Transport hazard class(es)**

2.2

**Hazchem Code**

2TE

**IERG Number**

06

**UN Number (Air Transport, ICAO)**

3159

**IATA/ICAO Proper Shipping Name**

1,1,1,2-TETRAFLUOROETHANE(REFRIGERANT GAS R 134a)

**IATA/ICAO Hazard Class**

2.2

**IMDG UN No**

3159

**IMDG Proper Shipping Name**

1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

**IMDG Hazard Class**

2.2

**Other Information**

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

LAND TRANSPORT (ADG)

UN Number: 3159

Proper Shipping Name: 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

Transport hazard class: 2.2

Packing Group: None Allocated

SEA TRANSPORT (IMDG / IMO)

UN Number: 3159

Proper Shipping Name: 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

Transport hazard class: 2.2

Packing Group: None Allocated

AIR TRANSPORT (IATA / ICAO)

UN Number: 3159

Proper Shipping Name: 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)

Transport hazard class: 2.2

Packing Group: None Allocated

Environmental hazards: No information provided

Special precautions for user

Hazchem code: 2TE

GTEPG: 2C2

EMS: F-C, S-V

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

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**Regulatory information**

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

Classifications:

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

**Poisons Schedule**

Not Scheduled

**Australia (AICS)**

All components are listed on AICS, or are exempt.

## 16. OTHER INFORMATION

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**Signature of Preparer/Data Service**

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.rmtglobal.com

**Other Information**

SDS NUMBER: 133

**Additional information**

The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (e.g. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.

**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/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

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**END OF SDS**

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