RCI Labscan Limited

SAFETY DATA SHEET

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Revision Date Jun 01, 2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	TETRAHYDROFURAN
CAS-No.	109-99-9
Product code	AH1201B, AH1204B, AR1203B, GP1203B, LC1203B, PS1203B, RP1203B

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for analysis and production.

1.3 Details of the supplier of the safety data sheet

Company	ChemSupply Australia Pty Ltd 38 - 50 Bedford Street, Gillman SA 5013 Australia
Telephone number	(08) 8440 2000
Fax number	(08) 8440 2001

1.4 Emergency Telephone Number

Emergency phone	
Monday - Friday 8:30am - 5:00pm ACST	(08) 8440 2000
After hours: CHEMCALL	1800127406 / +6449179888

1.5 Manufacturer

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to WHS Regulations (Australia)

Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

H351	Suspected of causing cancer.
EUH019	May form explosive peroxides.

Precautionary statement(s)

P203	Obtain, read and follow all safety instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing fume/gas/mist/vapours/spray.
P264	Wash hand thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P317	IF SWALLOWED: Get medical help.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
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.
P318	IF exposed or concerned: Get medical advice.
P319	Get medical help if you feel unwell.
P330	Rinse mouth.
P337 + P317	If eye irritation persists: Get medical help.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms Cyclotetramethylene oxide, Diethylene oxide, 1,4-Epoxybutane, Oxacyclopentane, Oxolane, Tetramethylene oxide.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
109-99-9	203-726-8	603-025-00-0	C_4H_8O	72.11 g/mol	>99

Hazardous ingredients according to WHS Regulations (Australia)

Component	Concentration	Classification
Tetrahydrofuran		
CAS-No 109-99-9 EC-No 203-726-8 EC-Index-No 603-025-00-0	>99%	Flammable liquids (Category 2), H225 Acute toxicity, Oral (Category 4), H302 Eye irritation (Category 2), H319 Carcinogenicity (Category 2), H351 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Stabilized

2,6-Di-tert-butyl-4-methylphenol

Synonyms	Butylhydroxytoluene, Butylated hydroxytoluene, 2,6-di-tert-butyl-p-cresol, 2,6-Di-tert-butyl-4-methylphenol, 3,5-Di-tert-butyl-4-hydroxytoluene, BHT

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
128-37-0	204-881-4	-	$C_{15}H_{24}O$	220.36 g/mol	<0.025

Hazardous ingredients according to WHS Regulations (Australia)

Component	Concentration	Classification
2,6-Di-tert-butyl-4-methylphenol		
CAS-No 128-37-0 EC-No 204-881-4 EC-Index-No -	<0.025%	Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	Rinse mouth. Immediately make victim drink water (two glasses at the most). Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

Not Available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguish with carbon dioxide, dry chemical or foam. In the event of fire, cool tanks with water spray.

5.2 Special hazards arising from the substance or mixture

Vapors may form explosive mixture with air at ambient temperature. Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 Hazchem Code

•2YE

5.5 Further information

Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel or chemical absorbent pads). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see **Section 13**.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limit (Safe Work Australia)

TWA:	100 ppm (295 mg/m^3)
STEL:	Not Available

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

Individual protection measures (Personal protective equipment, PPE)
Eye/face protection
Goggles giving complete protection to eyes.

Skin protection
Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.
Handle with gloves
- Splash contact wears gloves from butyl rubber material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter A (EN 141 or EN 14387).

Environmental exposure controls
Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Form	Liquid
: Color	Colorless
Odour	Ether like
Odour Threshold	Not Available
pH	7-8 at 200g/l of H_2O at 20 ºC
Melting point/range	-108.5 ºC
Boiling point/range	65-66 ºC at 1013 hPa
Flash point	-21.5 ºC (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	1.5 % (V)
upper	12.4 % (V)
Vapor Pressure	173 hPa at 20ºC
Relative Vapor Density	2.5
Density	0.890 g/ml at 20ºC
Water solubility	Soluble at 20ºC
Partition coefficient (n-octanol/water)	log Pow: 0.45
Auto-Ignition temperature	215 °C
Decomposition Temperature	Not Available
Viscosity	0.48 mPa.s at 20ºC
Explosive properties	Not Explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

SECTION 10: Stability and reactivity

10.1 Reactivity
Highly inflammable. Light sensitive. Sensitive to air.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Risk of explosion in contact with air (formation of peroxides), alkali hydroxide, potassium, strong oxidizing agents, lithium aluminium hydride, thionyl chloride.

The substance can react dangerously with bromine, acids, calcium hydride/heat, metal halides, titanium tetrachloride.

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Alkali hydroxides, hydrides, air, oxygen, oxidizing agent, bromine.
Unsuitable working materials with various plastic, rubber, tin.

10.6 Hazardous decomposition products

Peroxide, Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD_{50} (oral, rat): 1650 mg/kg
LC_{50} (inhalation, rat): 53.9 mg/l/4h

Acute oral toxicity

Symptoms: irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Symptoms: mucosal irritations, coughing, dyspnoea, headache.

Skin corrosion/irritation

Irritation. Danger of skin absorption. Degreasing effect on the skin, possibly followed by secondary inflammation.

Serious eye damage/eye irritation

Irritations.

Respiratory or skin sensitization

The Sensitization test (guinea pig) is negative.
Experience in man is negative.

Germ cell mutagenicity

Bacterial mutagenicity; Ames test is negative.
No indication of mutagenic activity.

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

After inhalation in high does: drowsiness, narcosis.

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC_{50} P. promelas: 2160 mg/l/96h (in soft water).
Toxicity to daphnia and other aquatic invertebrates	EC_{50} Daphnia magna: 382 mg/l/24h.
Toxicity to algae	IC_5 Sc.quadricauda: 3700 mg/l/8d.
Toxicity to bacteria	EC_5 Ps. Putida: 580 mg/l/16h. EC_5 M.aeruginosa: 225 mg/l/8d.

12.2 Persistence and degradability

Biodegradability: 39% /28d. Not readily biodegradable.

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water): log Pow: 0.45 (experimental).
No bioaccumulation is to be expected (log P o/w <1)

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging

Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information

Land Transport (ADR/RID)

UN Number	2056
UN proper shipping name	TETRAHYDROFURAN
Transport hazard class(es)	3
Hazchem Code	•2YE
Packing group	II
Environmental hazards	No
Special precautions for user	Yes

Sea transport (IMDG)

UN Number	2056
UN proper shipping name	TETRAHYDROFURAN
Transport hazard class(es)	3
Packing group	II
Marine pollutant	No
Special precautions for user	Yes
EmS	F-E S-D

Air transport (IATA)

UN Number	2056
UN proper shipping name	TETRAHYDROFURAN
Transport hazard class(es)	3
Packing group	II
Environmental hazards	No
Special precautions for user	No

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

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

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule	None scheduled

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH019	May form explosive peroxides.

Recommended restrictions

Take notice of labels and safety data sheets for the working. Chemicals Take necessary action to avoid static electricity discharge.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.
Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.
Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany, Source: IFA for Databases on hazardous substances (GESTIS).

Further information

ChemSupply Australia Pty Ltd Ph. (08) 8440 2000.

Revision Date

01/06/2022