RCI Labscan Limited

SAFETY DATA SHEET

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Revision Date Dec 12, 2017

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

1.1 Product identifier

Product name	CHLOROFORM
CAS-No.	67-66-3
Product code	AH1028E, AH1029E, AR1027E, BP1027E, CG1027E, EP1027E, GN1027E, GP1027E, LC1027E, IR1027E, PC1027E, RP1027E

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	Chem-Supply 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)

Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin irritation, (Category 2), H315
Eye irritation, (Category 2), H319
Carcinogenicity, (Category 2), H351
Reproductive toxicity, (Category 2), H361d
Specific Target Organ Toxicity (repeated exposure), (Category 1), H372
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Carc.Cat.3	Carcinogenic Category 3	R40
Repr. Cat. 3	Toxic to Reproduction Category 3	R63
Xi	Irritant	R36/38
Xn	Harmful	R20/22, R48/20

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Pictogram

Signal word	Danger

Hazard statement(s)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing vapors.
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/eye protection/face protection.
P281	Use personal protective equipment as required.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P311	Call a POISON CENTER or doctor/physician.
P314	Get medical advice/attention if you feel unwell.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms: Formyl trichloride, Methane trichloride, Methenyl trichloride, Methyl trichloride, Trichloromethane

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
67-66-3	200-663-8	602-006-00-4	$CHCl_3$	119.38 g/mol	>99

Hazardous ingredients according to WHS Regulations (Australia)

Component	Concentration	Classification
Chloroform		
CAS-No 67-66-3 EC-No 200-663-8 EC-Index-No 602-006-00-4	>99%	Acute toxicity, Oral (Category 4), H302 Acute toxicity, Inhalation (Category 3), H331 Skin irritation, (Category 2), H315 Eye irritation, (Category 2), H319 Carcinogenicity, (Category 2), H351 Reproductive toxicity, (Category 2), H361d Specific Target Organ Toxicity (repeated exposure), (Category 1), H372

Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
Chloroform		
CAS-No 67-66-3 EC-No 200-663-8 EC-Index-No 602-006-00-4	>99%	Carc.Cat.3, Carcinogenic Category 3, R40 Repr. Cat. 3, Toxic to Reproduction Category 3, R63 Xi, Irritant, R36/38 Xn, Harmful, R20/22, R48/20

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

3.2 Stabilized

Ethanol

Synonyms Ethyl alcohol Denatured, Denatured alcohol, Ethanol Denatured.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
64-17-5	200-578-6	603-002-00-5	C_2H_5OH	46.07 g/mol	<1

Hazardous ingredients according to WHS Regulations (Australia)

Component	Concentration	Classification
Sulfuric acid		
CAS-No 64-17-5 EC-No 200-578-6 EC-Index-No 603-002-00-5	<1%	Flammable liquids (Category 2), H225

Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
Sulfuric acid		
CAS-No 64-17-5 EC-No 200-578-6 EC-Index-No 603-002-00-5	<1%	F, Highly flammable, R11

For the full text of the H-Statements and R-Phrases 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. 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

After swallowing: immediately make victim drink plenty of water. Subsequently administer: Activate charcoal 20-40 g in 10% slurry. Laxative: Sodium Sulfate 1 tablespoon/250 ml of water. Indications for the doctor: Gastric lavage. No milk, No castor oil, No alcohol.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In adaption to materials stored in the immediate neighborhood.

5.2 Special hazards arising from the substance or mixture

Non-combustible liquid. Vapors heavier than air. Ambient fire may liberate hazardous vapors. The following may develop in event of fire: Hydrochloric acid, phosgene, chlorine.

5.3 Advice for firefighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin. Keep a safety distance and wear suitable protective clothing.

5.4 Hazchem Code

2Z

5.5 Further information

Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

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). 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:	2 ppm (10 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

- Full contact wears gloves from viton material.
- 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 AX (EN 371).

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	Sweetish
Odour Threshold	Not Available
pH	Not Available
Melting point/range	-63 ºC
Boiling point/range	61 ºC
Flash point	Not flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	Not Available
upper	Not Available
Vapor Pressure	213 hPa at 20ºC
Relative Vapor Density	4.25
Density	1.479 g/ml at 20ºC
Water solubility	8 g/l at 20ºC
Partition coefficient (n-octanol/water)	log Pow: 2.0
Auto-Ignition temperature	Not combustible
Decomposition Temperature	Not Available
Viscosity	0.56 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

Heat-sensitive, light sensitive / decomposition; unsuitable working materials: various plastic, rubber. Explosible with air in a vaporous/gaseous state.

10.2 Chemical stability

Sensitive to light and heat. Decompose on exposure to light and heat. Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with: strong bases, aluminium (powder), amines, ammonia, alkali/alkaline earth metals, fluorine, oxygen, acetone / alkali, dibenzoyl peroxide, iron powder, sodium amide, sodium hydroxide / methanol, sodium methoxide / methanol, nitromethane, nitrogen dioxide.

The substance can react dangerously with: strong oxidizing agents, water, bis-(dimethylamino)-dimethyltin, potassium tert.-butoxide, metal powder, mineral acids, silicon hydride, triisopropylphosphine.

10.4 Conditions to avoid

Heating and light.

10.5 Incompatible materials

Alkali metals, alkaline earth metals, light metals in powder form, peroxide, fluorine, alcoholates, strong bases, ketones, alkalis, alkalis hydroxide, alcohols, organic nitro compounds, alkali amides, oxygen, alkali oxygen, nitrogen oxides, bis-(dimthylamino)-dimethyl tin, amines, ammonia, phosphine.

10.6 Hazardous decomposition products

Hydrochloric acid, phosgene, chlorine, Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD_{LO} (inhalation, human): 124.1 mg/l/ 5 min
LC_{50} (inhalation, rat): > 47.7 mg/l/4h

Acute oral toxicity

Absorption: nausea, vomiting.

Acute inhalation toxicity

Absorption: coughing and dyspnea.

Skin corrosion/irritation

Irritations: drying out effect resulting in rough and chapped skin. Danger of skin absorption.

Serious eye damage/eye irritation

Slight irritation.

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Bacterial mutagenicity : Ames test ; negative.

Carcinogenicity

The National Cancer Institute (NCI) has found clear evidence for carcinogenicity. Limited evidence of a carcinogenic effect.
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chloroform)

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1. - Liver, Kidney

Aspiration hazard

Not Available

Further information

After accidental swallowing the substance may pose a risk of aspiration. Passage into the lung (vomiting) can result in a condition resembling pneumonia (chemical pneumonitis).
After absorption; nausea, vomiting, agitation, spasms, narcosis.
After long-term exposure to the chemical: drop in blood pressure, headache, ataxia (impaired locomotor coordinator), gastrointestinal complaints, cardiovascular disorders.
Damage of liver, kidneys and heart.
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} L.macrochirus : 18 mg/l/96 h.
Toxicity to daphnia and other aquatic invertebrates	EC_{50} Daphnia magna: 79 mg/l/48h.
Toxicity to algae	IC_5 Sc.quadricauda: 1100 mg/l/8d.
Toxicity to bacteria	EC_{50} activated sludge: 1010 mg/l/3h

12.2 Persistence and degradability

Biodegradability: No Biodegradation

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water): log Pow: 2.0 (experimental).
No appreciable bioaccumulation potential is to be expected (log P o/w 1-3). Distribution preferentially in air.

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Biological effects: Harmful effect for aquatic organisms. Endangers drinking water supplies if swallowed to enter soil and or waters in large quantities.
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 (ADG Code)

UN Number	1888
UN proper shipping name	CHLOROFORM
Transport hazard class(es)	6.1
Hazchem Code	2Z
Packing group	III
Environmental hazards	No
Special precautions for user	Yes

Sea transport (IMDG)

UN Number	1888
UN proper shipping name	CHLOROFORM
Transport hazard class(es)	6.1

Packing group	III
Marine pollutant	No
Special precautions for user	Yes
EmS	F-A S-A

Air transport (IATA)

UN Number	1888
UN proper shipping name	CHLOROFORM
Transport hazard class(es)	6.1
Packing group	III
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	S6

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.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

Full text of R-phrases referred to under sections 2 and 3

Carc.Cat.3	Carcinogenic Category 3
F	Highly flammable
Repr. Cat. 3	Toxic to Reproduction Category 3
Xi	Irritant
Xn	Harmful
R11	Highly flammable.
R20/22	Harmful by inhalation and if swallowed.
R36/38	Irritating to eyes and skin.
R40	Limited evidence of a carcinogenic effect.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation swallowed.
R63	Possible risk of harm to the unborn child.

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Labelling according to Code of Practice for the Lebelling of Workplace Hazardous Chemicals (Safe Work Australia).
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

Contact Chem – Supply Pty Ltd Ph. (08) 8440 2000.

Revision Date

12/12/2017