

ADDENDUM TO SAFETY DATA SHEET (SDS)

This SDS is delivered in an internationally recognised GHS format. This addendum provides information specifically for this product according to the Australian *Model Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals*, September 2015. This addendum should not be detached but rather read in conjunction with the SDS which follows. It remains integral to the attached SDS.

IDENTIFICATION				
Product Name	CYCLOHEXANE			
Manufacturer	RCI Labscan Limited			
Product Code/s	AR1033, CG1033, GP1033, IR1033, LC1033, PC1033, RP1033, XP1033			
SDS Revision No:	N/A	Date of Issue:	01/03/2015	Page 00 of 9

SUPPLIER CONTACT DETAILS			
Company	Chem-Supply Pty Ltd		
Australian Address	38 – 50 Bedford Street, Gillman SA 5013		
Telephone	(08) 8440 2000	Fax	(08) 8440 2001
Emergency - Australia	(08) 8440 2000 (8:30 am to 5:00 pm Monday to Friday)		

MODEL WORK HEALTH AND SAFETY REGULATIONS	
GHS Hazard Class and Category	Flammable Liquids (Category 2); Skin corrosion/irritation (Category 2); Specific target organ toxicity – Repeated exposure – Central nervous system (Category 3); Aspiration Hazard (Category 1)
Signal Word	DANGER
Hazard Statements	H225; H315; H336; H304; H400; H410
Precautionary Statements	See section 2.2, page 2
Australian Exposure Standard/s	TWA: 100 ppm (350 mg/m ³), STEL: 300 ppm (1050 mg/m ³)

AUSTRALIAN DANGEROUS GOODS CODE INFORMATION			
UN Number	1145	DG Class	3
Packing Group	II	Sub. Risk/s	
Proper Shipping Name	CYCLOHEXANE		
Hazchem Code	3YE		

ADDITIONAL REGULATORY INFORMATION	
Poisons Schedule (SUSMP)	-
AICS	Listed on the Australian Inventory of Chemical Substances

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

1.1 Product identifier

Product name	CYCLOHEXANE
CAS-No.	110-82-7
Product code	AR1033, CG1033, GP1033, IR1033, LC1033, PC1033, RP1033, XP1033

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

Identified uses	Chemical for analysis and production.
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1.3 Details of the supplier of the safety data sheet

Company	RCI LABSCAN LIMITED. 24 Rama 1 Road, Pathumwan, Bangkok 10330 Thailand
Telephone number	(662) 613-7911-4
Fax number	(662) 613-7915

1.4 Emergency Telephone Number

Emergency phone	(662) 613-7911-4
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225
 Skin irritation (Category 2), H315
 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
 Aspiration hazard (Category 1), H304
 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.

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

F	Highly flammable	R11
Xi	Irritant	R38
Xn	Harmful	R65
		R67
N	Dangerous for the environment	R50/53

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word	Danger
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Hazard statement(s)

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing vapours.
P264	Wash hand thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/eye protection/face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/physical if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use carbon dioxide, dry chemical or foam for extinction.
P391	Collect spillage.
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 Hexahydrobenzene, Hexamethylene, Naphthene.

CAS-No	EC-No	EC-Index-No	Formula	Molecular Weight	Weight %
110-82-7	203-806-2	601-017-00-1	C ₆ H ₁₂	84.16 g/mol	>99

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Concentration	Classification
Cyclohexane		
CAS-No 110-82-7 EC-No 203-806-2 EC-Index-No 601-017-00-1	>99%	Flammable liquids (Category 2), H225 Skin irritation (Category 2), H315 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336 Aspiration hazard (Category 1), H304 Acute aquatic toxicity (Category 1), H400 Chronic aquatic toxicity (Category 1), H410

Hazardous ingredients according to Directive 1999/45/EC

Component	Concentration	Classification
Cyclohexane		
CAS-No 110-82-7 EC-No 203-806-2 EC-Index-No 601-017-00-1	>99%	F, Highly flammable, R11 Xi, Irritant, R38 Xn, Harmful, R65 R67 N, Dangerous for the environment, R50/53

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, caution if victim vomits. Risk of aspiration. Keep airways free. In case of spontaneous vomiting: Risk of aspiration. Pulmonary failure possible. Call in physician.

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. Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and protective suit.

5.4 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). 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

Derived No Effect Level (DNEL)

Application Area	Health Effects	Exposure	Value
Worker	Acute Local effects	Inhalation	700 mg/m ³
Worker	Acute Systemic effects	Inhalation	700 mg/m ³
Worker	Long-term Local effects	Inhalation	700 mg/m ³
Worker	Long-term Systemic effects	Inhalation	700 mg/m ³
Worker	Long-term Systemic effects	Skin contact	2016 mg/kg Body weight
Consumer	Acute Local effects	Inhalation	412 mg/m ³
Consumer	Acute Systemic effects	Inhalation	412 mg/m ³
Consumer	Long-term Local effects	Inhalation	206 mg/m ³
Consumer	Long-term Systemic effects	Ingestion	59.4 mg/kg Body weight
Consumer	Long-term Systemic effects	Inhalation	206 mg/m ³
Consumer	Long-term Systemic effects	Skin contact	1186 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

Compartment	Value
Aquatic intermittent release	3.627 mg/kg
Fresh water	0.207 mg/l

Fresh water sediment	3.627 mg/kg
Marine water	0.207 mg/l
Sewage treatment plant	3.24 mg/l
Soil	2.99 mg/kg

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 nitrile rubber material.
- Splash contact wears gloves from nitrile 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	Characteristic
Odour Threshold	Not Available
pH	Not Available
Melting point/range	6 °C
Boiling point/range	81 °C at 1013 hPa
Flash point	-18 °C (closed cup)
Evaporation rate	Not Available
Flammability (solid, gas)	Not Available
Explosion limits: lower	1.2 % (V)
upper	8.3 % (V)
Vapor Pressure	103 hPa at 20°C
Relative Vapor Density	2.9
Density	0.779 g/ml at 20°C
Water solubility	55 mg/l at 20°C
Partition coefficient (n-octanol/water)	log Pow: 3.44
Auto-Ignition temperature	260 °C
Decomposition Temperature	Not Available
Viscosity	0.98 mPa.s at 20°C
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. Unsuitable working materials: Various plastic, rubber. Explosible with air in a vaporous/gaseous state.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with: nitrogen dioxide (liquid/heat).

The substance can react dangerously with: oxidizing agents.

The substance forms an explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents, nitrogen dioxide.

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LC₅₀ (inhalation, rat): 14 mg/l /4h

LD₅₀ (oral, rat): 5000 mg/kg

LD₅₀ (dermal, rabbit): >2000 mg/kg

Acute oral toxicity

Symptoms: Gastic pain, gastrointertinal complaints, respiratory paralysis, unconsciousness, collapse. Risk of aspiration upon vomiting.

Acute inhalation toxicity

Symptoms: Drowsiness, dizziness, nausea, coughing, vomiting. Inhalation may lead to the formation of oedemas in the respiratory tract.

Skin corrosion/irritation

Irritations

Serious eye damage/eye irritation

Slight irritations

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Not Available

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

May cause pulmonary edema and pneumonitis.

Further information

Damage of lungs. 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: 34 mg/l /96h.
Toxicity to daphnia and other aquatic invertebrates	EC ₅₀ Daphnia magna: 3.78 mg/l /48h.
Toxicity to algae	IC ₅₀ Desmodesmus subspicatus: >500 mg/l/72h.
Toxicity to bacteria	EC ₅₀ Photobacterium phosphoreum: 200 mg/l/5min. microtox test.

12.2 Persistence and degradability

Biodegradability 6% /28d. Slightly biodegradable.

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water) log Pow: 3.44 (experimental).
An appreciable bioaccumulation potential is to be expected (log P o/w >3).

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

High toxic for aquatic organisms. May cause long term adverse effects in the aquatic environment. Endangers drinking water supplies if swallowed to enter soil and/or water in large quantities. Change in the flavour characteristic of fish protein.
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	1145
UN proper shipping name	CYCLOHEXANE
Transport hazard class(es)	3
Packaging group	II
Environmental hazards	Yes
Special precautions for user	Yes

Sea transport (IMDG)

UN Number	1145
UN proper shipping name	CYCLOHEXANE
Transport hazard class(es)	3
Packaging group	II
Marine pollutant	Yes
Special precautions for user	Yes
EmS	F-E S-D

Air transport (IATA)

UN Number	1145
UN proper shipping name	CYCLOHEXANE
Transport hazard class(es)	3
Packaging group	II
Environmental hazards	Yes
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

Not Available

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.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.

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

F	Highly flammable
Xi	Irritant
Xn	Harmful
N	Dangerous for the environment.
R11	Highly flammable.
R38	Irritating to skin.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R67	Vapours may cause drowsiness and dizziness.

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

Contact to RCI Labscan Limited.

Revision Date

01/03/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.