SAFETY DATA SHEET
PROPYLENE CARBONATE
REVISION 5, DATE 11 NOV 21

1. IDENTIFICATION

Product Name	**Propylene Carbonate**
Other Names	Carbonic acid, cyclic methylethylene ester; PC
Uses	Chemical basic material; Industrial/professional use; Processing aid.
Chemical Family	No Data Available
Chemical Formula	C4H6O3
Chemical Name	1,3-Dioxolan-2-one, 4-methyl-
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)	Not Scheduled

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Serious Eye Damage/Irritation - Category 2A	
Pictograms			
Signal Word		Warning	
Hazard Statements		**H319**	Causes serious eye irritation.
Precautionary Statements	Prevention	**P280**	Wear eye protection/face protection.
		P264	Wash hands and face thoroughly after handling.
	Response	**P305 + P351 + P338**	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P337 + P313	If eye irritation persists: Get medical advice.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Propylene carbonate	C4H6O3	108-32-7	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then give small quantities of water to drink. Do not induce vomiting. Get medical advice/attention if you feel unwell. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention; Subsequently consult an ophthalmologist.
Skin	IF ON SKIN: Remove and isolate contaminated clothing and shoes. Immediately flush skin with running water for at least 15 minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically.

Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Combustible liquid; may burn but does not ignite readily.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction - Do not use high power water jet. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and Explosion Hazard	Containers may explode when heated.
Hazardous Products of Combustion	Fire may produce irritating and/or toxic gases, including Carbon monoxide and carbon dioxide.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	116 °C
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	430 °C
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Avoid breathing vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Absorb with earth, sand or other non-combustible material and transfer to suitable, closed containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
Decontamination	No information available.
Environmental Precautionary Measures	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Evacuation Criteria	Spill or leak area should be isolated immediately. Evacuate surrounding areas Keep unauthorised/unprotected personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing mist/vapours and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Combustible liquid: Keep away from heat and sources of ignition - No smoking. Earth (ground) lines and equipment used during transfer to reduce possibility of static spark initiated fire or explosion.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect from moisture/humidity. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Use appropriate containment to avoid environmental contamination.

Container	Keep in the original container or an approved alternative made from a compatible material. Do not store in unlabelled containers. *Empty containers retain product residue and can be hazardous. Do not reuse container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. Derived no-effect levels (DNELs) for workers: - Dermal (long-term, systemic effects): 20 mg/kg bw/day - Dermal (long-term, local effects): 10 mg/kg bw/day - Inhalative (long-term, systemic effects): 70.53 mg/m3 - Inhalative (long-term, local effects): 20 mg/m3
Exposure Limits	No Data Available
Biological Limits	Predicted no-effect concentrations (PNECs): - Freshwater: 0.9 mg/L - Marine water: 0.09 mg/L - Intermittent release: 9 mg/L - Soil: 0.81 mg/kg dw. - STP: 7,400 mg/L
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection if vapours form. Recommended: Filter type A, against vapours of organic substances (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Tightly sealed goggles. - Hand protection: Handle with gloves. Recommended: Chemical-resistant, impervious gloves, e.g. natural rubber (latex) or nitrile rubber. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Standard work wear and safety boots for normal handling and use.
Special Hazards Precaustions	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off contaminated clothing and wash it before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	No information available.
Colour	Clear
pH	No Data Available
Vapour Pressure	0.06 hPa (@ 25)
Relative Vapour Density	No Data Available
Boiling Point	242 °C
Melting Point	No Data Available
Freezing Point	-49 °C
Solubility	200 g/L in water 25°C
Specific Gravity	1.2
Flash Point	116 °C

Auto Ignition Temp	430 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.2 g/mL
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	Log Pow: -0.41 (20 °C)
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	2.76 mPa*s (@ 20 °C)
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Dissociation constant (pKa): 3.92 (20 °C)
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Combustible liquid; may burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating and/or toxic gases, including Carbon monoxide and carbon dioxide.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No dangerous reactions are known.
Chemical Stability	The substance is stable under normal storage and handling conditions.
Conditions to Avoid	Keep away from heat and sources of ignition. Protect from moisture/humidity.
Materials to Avoid	Incompatible/reactive with strong oxidising agents, reducing agents, acids, bases, peroxides.
Hazardous Decomposition Products	Fire/decomposition may produce irritating and/or toxic gases, including Carbon monoxide and carbon dioxide.
Hazardous Polymerisation	Does not occur.

11. TOXICOLOGICAL INFORMATION

General Information	- Acute toxicity: Based on available data, the classification criteria are not met. May cause nausea, vomiting, headache, central nervous system depression.

- Skin corrosion/irritation: Not an irritant (Rabbit) [OECD 404].
- Eye/face protection: Causes serious eye irritation. Irritant (Rabbit, Draize) [OECD 405].
- Respiratory/skin sensitisation: Not skin sensitising (Human).
- Germ cell mutagenicity: Negative (in vitro): Ames test [OECD 471]; Unscheduled DNA Synthesis (UDS) [OECD 482]. Negative (in vo): Micronucleus test [OECD 474].
- Carcinogenicity: Not a carcinogen [OECD 451].
- Reproductive toxicity: Based on available data, the classification criteria are not met.
- STOT (single exposure): Based on available data, the classification criteria are not met.
- STOT (repeated exposure): Based on available data, the classification criteria are not met.
- Aspiration toxicity: No information available.

Acute

Ingestion Acute toxicity (Oral):
- LD50, Rat: >5,000 mg/kg bw. [Supplier's SDS].

Other Acute toxicity (Dermal):
- LD50, Rabbit: >2,000 mg/kg [OECD 402].

Reproduction Reproductive toxicity (Oral):
- NOAEL, Rat: 1,000 mg/kg bw/d [OECD 414].

Chronic

Ingestion Repeated exposure toxicity (Oral):
- NOAEL, Rat: >5,000 mg/kg bw/d [OECD 408]

Inhalation Repeated exposure toxicity (Inhalative):
- NOAEC, Rat: 100 mg/m3 [OECD 413].

Carcinogen Category None

12. ECOLOGICAL INFORMATION

Ecotoxicity Acute aquatic toxicity:
- LC50, Fish (Cyprinus carpio (Common carp)): 1,000 mg/L (96 h) [EU Method C.1].
- EC50, Crustacea (Daphnia magna (Big water flea)): 1,000 mg/L (48 h) [OECD 202].
- EC50, Algae (Desmodesmus subspicatus (Green algae)): 900 mg/L (72 h) [OECD 201].
- NOEC, Algae (Desmodesmus subspicatus (Green algae)): 900 mg/L (72 h) [OECD 201].

Effects in sewage plant:
- EC10, Bacterium (Pseudomonas putida): 7,400 mg/L (16 h) [DIN 38412, Part 8].

Persistence/Degradability Product is readily biodegradable.

Mobility No information available.

Environmental Fate Do not allow to enter into ground-water, surface water or drains.

Bioaccumulation Potential Low potential for bioaccumulation based on log Kow <=3.

Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Dispose of contents/container in accordance with local/regional/national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal.

Special Precautions for Land Fill Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	Propylene carbonate
Class	C2 Combustible Liquids - Flash Point >93°C, Closed Cup, Not Excluded Flammable
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GODS: Not regulated for LAND transport.

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	Propylene carbonate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	Propylene carbonate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)
US DOT

Proper Shipping Name	Propylene carbonate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available

Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport
IMDG Code

Proper Shipping Name	Propylene carbonate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport
IATA DGR

Proper Shipping Name	Propylene carbonate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	Additives Process Chemicals and Raw Materials Subsidiary Hazard Group Standard 2020 HSR002503 *HSR003348 (Revoked)

National/Regional Inventories

Australia (AIIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	203-572-1
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Listed

Additional Information	Cyclic ethers are used as important solvents, as chemical intermediate and as monomers for ring-opening polymerisation.

16. OTHER INFORMATION

Related Product Codes	PRCARB1000, PRCARB1001, PRCARB1002, PRCARB1003, PRCARB1004, PRCARB1005, PRCARB1006, PRCARB1007, PRCARB1008, PRCARB1009, PRCARB1499, PRCARB1500, PRCARB1501, PRCARB1596, PRCARB1597, PRCARB1598, PRCARB1599, PRCARB1600, PRCARB1604, PRCARB2000, PRCARB2500, PRCARB2501, PRCARB2600, PRCARB3000
Revision	5
Revision Date	11 Nov 2021
Reason for Issue	Updated SDS
Key/Legend	< Less Than > Greater Than **AICS** Australian Inventory of Chemical Substances **atm** Atmosphere **CAS** Chemical Abstracts Service (Registry Number) **cm^2** Square Centimetres **CO2** Carbon Dioxide **COD** Chemical Oxygen Demand **deg C (°C)** Degrees Celcius **EPA (New Zealand)** Environmental Protection Authority of New Zealand **deg F (°F)** Degrees Farenheit **g** Grams **g/cm^3** Grams per Cubic Centimetre **g/l** Grams per Litre **HSNO** Hazardous Substance and New Organism **IDLH** Immediately Dangerous to Life and Health **immiscible** Liquids are insoluable in each other. **inHg** Inch of Mercury **inH2O** Inch of Water

K Kelvin
kg Kilogram
kg/m^3 Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m^3 Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m^3 Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight