

1. IDENTIFICATION

Product Name	1,2-Dihydro-2,2,4-Trimethylquinoline
Other Names	Polymerized-2,2,4-trimethyl-1,2-dihydroquinoline; Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer; Trimethyl-1,2-Dihydroquinoline)
Uses	Rubber antioxidant.
Chemical Family	No Data Available
Chemical Formula	(C ₁₂ H ₁₅ N) _n
Chemical Name	1,2-Dihydro-2,2,4-Trimethylquinoline
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty 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	Long-term Hazard To The Aquatic Environment - Category 3		
Hazard Statements	H412	Harmful to aquatic life with long lasting effects.	
Precautionary Statements	Prevention	P273	Avoid release to the environment.

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
Polymerized-2,2,4-trimethyl-1,2-dihydroquinoline	No Data Available	26780-96-1	100.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Eye	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Skin	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse
Inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product.

5. FIRE FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	Flammable in the presence of the following materials or conditions: open flames sparks and static discharge and heat. As with any dry material, pouring or allowing to free-fall or to be conveyed through chutes or pipes can accumulate and generate electrostatic sparks potentially causing ignition of the material itself, or of any flammable

materials which may come in contact with the material or its container.

Extinguishing Media	In case of fire, appropriate extinguishing media include water spray, water mist, foam, dry chemical powder and carbon dioxide. Do NOT use water jet.
Hazardous Products of Combustion	Under fire conditions, product will emit toxic fumes including carbon monoxide and nitrous gases.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. Slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly as hazardous waste.
Containment	Stop leak if safe to do so. Isolate the danger area.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Avoid dust generation. The usual precautions for handling chemicals should be observed. Dust/air mixtures may ignite violently upon exposure to sparks or sources of ignition. Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. This product has a UN classification of 3077 and a Dangerous Goods Class 9 (Miscellaneous) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail. NOTE: This product is subject to special provision AU01 according to The ADG7. SP No. AU01 Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in; (a) packagings; (b) IBCs; or (c) any other receptacle not exceeding 500 kg(L).
Container	Container type/package must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the exposure standard for dust not otherwise specified is 10mg/m ³ (for inspirable dust) and 3mg/m ³ (for respirable dust). No Data Available
----------------	--

Exposure Limits	
Biological Limits	No information available on biological limit values for this product.
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	RESPIRATOR: Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment (AS1715/1716). EYES: Wear safety goggles (AS1336/1337). HANDS: Wear protective gloves. PVC or rubber gloves (AS2161). CLOTHING: Wear suitable protective clothing and safety footwear (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Granule
Odour	Faint aromatic odour
Colour	Amber, Brown
pH	approx. 7 Aqueous Dispersion
Vapour Pressure	Negligible (@ No Data Available)
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	82 °C
Freezing Point	No Data Available
Solubility	Insoluble in the following materials: cold water.
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	600-630 Kg/m ³
Corrosion Rate	No Data Available
Decomposition Temperature	>200 °C
Density	1.1 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	Log Pow = 3.22
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Solubility in other solvents: Acet ,benzene, chloroform, carbon bisulfide

Potential for Dust Explosion	Dust suspended in air in critical proportions and in the presence of an ignition source presents an explosion hazard. The following characteristics apply to powder and also, are expected to apply to dust from pastilles if this form is reduced to a powder: - Minimum explosive concentration: 0.03 oz/ft ³ (30 g/m ³) - Minimum ignition energy (dust cloud): 0.15 joules - Maximum rate of pressure rise: 16,800 psi/sec at 0.1 oz/ft ³ (1,160 bars/sec at 100 g/m ³) - Maximum pressure of explosion: 66 psig at 0.5 oz/ft ³ (4.6 bars-gauge at 500 g/m ³) - Explosion severity: 5.8 Severe - Volume resistivity: 4.28 x 10 ¹⁵ ohm-cm - National Electrical Code (NFPA 70): Group G Dust
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage and handling conditions (see section 7).
Conditions to Avoid	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
Materials to Avoid	Reactive or incompatible with the following materials: oxidising agents
Hazardous Decomposition Products	Under fire conditions, product will emit toxic fumes including carbon monoxide and nitrous gases.
Hazardous Polymerisation	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

General Information	LD50 Dermal, Rat, 5010 mg/kg LD50 Oral, Rat, 3190 mg/kg Polymerized 1,2-dihydro-2,2,4-trimethylquinoline: Two year chronic feeding study in rats: no evidence of carcinogenicity. Polymerized 1,2-dihydro-2,2,4-trimethylquinoline: Fetal toxicity noted only at levels that produced maternal toxicity.
EyeIrritant	Slightly irritating to eyes but not sufficient for classification. Adverse symptoms may include the following: irritation, redness.
Inhalation	Inhalation of dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Adverse symptoms may include the following: respiratory tract irritation, coughing.
SkinIrritant	Non-irritating to skin. Repeated contact may cause skin sensitization.
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	Acute EC50 >100 mg/l, Algae, 72 hours Acute EC50 56 mg/l, Daphnia, 48 hours Acute LC50 >100 mg/l, Fish - Zebra Danio, 96 hours
Persistence/Degradability	0 % - Not readily - 28 days
Mobility	No information available on mobility for this product.
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	LogPow 1.2 to 7.7 BCF 477 to 1160 High potential.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	1,2-Dihydro-2,2,4-Trimethylquinoline
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	SPAU01

Land Transport (Malaysia)

ADR

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,2-Dihydro-2,2,4-Trimethylquinoline)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,2-Dihydro-2,2,4-Trimethylquinoline)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available

EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,2-Dihydro-2,2,4-Trimethylquinoline)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
ERG	171 Substances (Low to Moderate Hazard)
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,2-Dihydro-2,2,4-Trimethylquinoline)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available
EMS	FA,SF
Marine Pollutant	Yes

Air Transport

IATA DGR

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,2-Dihydro-2,2,4-Trimethylquinoline)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

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 Not Assessed**National/Regional Inventories**

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

16. OTHER INFORMATION

Related Product Codes	TMQAAA1000, TMQAAA1001, TMQAAA1002, TMQAAA1003, TMQAAA1004, TMQAAA1700, TMQAAA1701, TMQAAA1702, TMQAAA1703, TMQAAA1704, TMQAAA2000, TMQAAA2500, TMQAAA3000, TMQAAA3500, TQMAAA1000
Revision	3
Revision Date	03 Jan 2016
Reason for Issue	SDS updated
Key/Legend	< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² 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/cm³ 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 insoluble in each other.
inHg Inch of Mercury
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ 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
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ 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 Health 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