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Safety Data Sheet

TMQ

SECTION 1: IDENTIFICATION

Chemical Name	2,2,4-trimethyl-1,2-dihydroquinoline polymer
Trade Name	TMQ
Recommended use	Antioxidant widely used in the manufacture of rubber products.
Restrictions	Not available
Supplier	SunBoss Chemicals Corp.
Address	8-110 West Beaver Creek Road Richmond Hill, ON L4B 1J9
Telephone	905-707-3433
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Emergency Information

After normal hours call Chemtrec at 1-800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

GHS Classification	CHRONIC AQUATIC TOXICITY – Category 3
GHS Label elements	
Pictograms:	No hazard pictogram is used.
Signal word:	No signal word used.
Hazard Statement(s)	Harmful to aquatic life with long lasting effects.
Precautionary Statement(s)	
Prevention:	Avoid release to the environment.
Response:	Not applicable.
Storage:	Not applicable.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental Hazard information	Not applicable

Supplemental label elements for certain mixtures

Not applicable

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D2B TOXIC MATERIALS/Materials Causing Other Toxic Effects.

Potential Health Effects

Inhalation

May cause mild respiratory irritation. May irritate mouth, nose, and throat. Signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

Ingestion

Illness may occur after a single swallowing.

Skin contact

May cause mild skin irritation. Signs/symptoms can include redness, swelling, itching, and dryness. May cause an allergic skin reaction. May cause drying of the skin.

Eye Contact

May cause mild eye irritation. Signs/symptoms can include redness, swelling, pain and tearing.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Synonyms

Antioxidant TMQ, RD, Polymerized 1,2-Dihydro-2,2,4 trimethylquinoline

Component	CAS Number	EINECS Number	Concentration %
1,2-Dihydro-2,2,4-trimethylquinoline (Dimer+Trimer+Tetramer)	26780-96-1	500-051-3	≥ 40%
1,2-Dihydro-2,2,4-trimethylquinoline (others)	26780-96-1	500-051-3	≥ 60%

SECTION 4. FIRST AID PROCEDURES

Most important symptoms and effects, both acute and delayed:

Not applicable.

In case of inhalation:

Remove person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. 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 collar tie, belt or waistband.

In case of ingestion:

Wash out mouth with water. Move exposed person to fresh air. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the victims feels sick as vomiting may be dangerous. Only induce vomiting at the instruction of a physician. If vomiting occurs, the head should be kept low to prevent vomit from entering the lungs. Never give anything by mouth to an unconscious person. Get medical attention if adverse effects persist or are severe.

In case of skin contact:	Remove contaminated clothing, wash skin with water, using soap if available. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if irritation persists. Launder clothing and clean shoes thoroughly before reuse.
In case of eye contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes 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 persists.
Indication of any immediate medical attention and special treatment needed:	Provide symptomatic/supportive care as necessary. Treatment based on sound judgment of physician and individual reactions of patient.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use water fog, carbon dioxide, foam or dry chemical.
Unsuitable Extinguishing Media	Do not use water jet.
Specific Hazard/hazardous combustion products	Toxic emissions may result if product is involved in a fire. The following can be released: carbon oxide, nitrogen oxide, oxides of sulphur.
Special Fire Fighting Procedures	Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow run-off to enter waterways.
Special Protective Equipment	Full protective clothing and approved self-contained breathing apparatus required for fire-fighting personnel.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate the area. Wear protective equipment specified. Avoid the generation of dust. Keep untrained personnel away from spill.
Environmental Precautions	Prevent further leakage or spillage of product. Do not let product enter waterways, drains or soil. Inform environmental authorities if the product has entered the sewer, waterways, soil or air. Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
Clean up Methods	Isolate area and remove sources of friction, impact, heat, low level electrical current and RF energy. Isolate spill and stop leak where safe. For large spill, collect material with a non-combustible, absorbent product such as sand or earth. Vacuum or sweep up material and place in a labelled waste container. Do NOT spread spilled product with water.

SECTION 7: HANDLING AND STORAGE

Handling	Wear appropriate protective clothing. Avoid contact with eyes, skin and clothing. Avoid generating or breathing dust. Avoid release to the environment. Wash thoroughly with soap and water after handling. Wash hands before eating drinking, chewing gum, using tobacco or using the toilet. Re-close containers of unused product. Keep containers tightly closed when not in use.
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Storage

Store containers in a cool, dry, well-ventilated area. Store away from strong oxidizing materials, and acids. Avoid exposure to sunlight. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS	AGCIH (TLV)	OSHA (PEL)
1,2-Dihydro-2,2,4-trimethylquinoline Oligomers	Not available	Not available

Engineering Controls

Avoid dust generation. Ensure good ventilation and local exhaustion of the working area as necessary to control any air contaminants and dust to within their exposure limits. Discharge from the ventilation system should comply with the applicable air pollutions control regulations. Eliminate ignition sources.



Respiratory protection

Use in a well-ventilated area. A respirator approved for dust/fume or mist protection is recommended for mists, sprays or aerosols.. Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

Eye/face protection

Wear safety glasses or goggles to protect against exposure.

Body protection

Normal work coveralls. Launder contaminated clothing before reuse.

Hand protection

Use gloves as a standard industrial handling procedure. Appropriate chemical resistant gloves should be worn. All cleanable impervious glove types are acceptable.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Orange transparent granules
Odour	Aromatic
pH	Not applicable
Melting Point	118°F / 48°C
Boiling point	Not available
Flash Point	302°F / 150°C
Evaporation Rate	Not available
Flammability	Not determined

Exposure Limits	Not available
Vapour Pressure	<0.00048 Pa @ 25°C
Vapour Density (Air = 1)	Not available
Relative Density	1.08 g/cm ³ @ 20°C
Bulk Density	Not available
Solubility in water	Insoluble
Other Solubility	Soluble in benzene, carbon disulfide, acetone, chloroform.
Partition Coefficient: n-octanol/water	Log Pow = 3.2
Decomposition Temperature	ca. 536°F / 280°C
Viscosity	Not available
Thermal Stability	Not available
Specific Gravity	1.1 @ 20°C
Molecular Weight	173.25 g/mol
Molecular Formula	C ₁₂ H ₁₅ N

SECTION 10: STABILITY AND REACTIVITY

Reactivity	The product is stable under normal temperatures.
Chemical Stability	Stable when stored at room temperature in closed, original container. Stable under normal conditions of handling, use and transportation.
Possible Hazardous Reactions	Not available.
Conditions to avoid	Avoid contact with heat, sparks, open flame, and static discharge. Avoid contact with strong oxidants such as liquid chlorine and concentrated oxygen.
Incompatibility	Contact with oxidizing agents, strong acids and strong bases.
Hazardous Polymerization	Will not occur
Hazardous Decomposition Products	Carbon monoxide. Oxides of nitrogen.

SECTION 11: TOXICOLOGICAL INFORMATION

<u>Acute Toxicity</u>	
Acute Oral Toxicity	LD ₅₀ = 3190 mg/kg bw (Rat)
Acute Dermal Toxicity	LD ₅₀ = ca. 5010 mg/kg bw (Rabbit)

Acute Inhalation Toxicity	Not determined
Principle routes of Exposure	Eyes. Inhalation. Dermal - skin.
Ingestion	Illness may occur after a single swallowing of relatively large quantities of this material.
Skin contact	May cause mild skin irritation. May cause drying of the skin.
Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Aggravated Conditions	Pulmonary disorders. Dermal ailments.
Carcinogenicity	Negative in standard tests using bacteria and/or yeast cells. Some evidence of tumour formation reported in a long-term feeding study on rats. No evidence of increased tumour formation reported in a long-term feeding study on mice. This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.
Primary Irritation Effect	Practically non-irritating possible sensitizer.
Genotoxicity	No adverse effects in standard tests using yeast cells. Negative for genetic activity - in vitro tests. Negative for genetic activity - in vivo tests.
Reproductive/Developmental Toxicity	Animal studies have shown some adverse effects - low birth weight of pups, maternal toxicity - on female animals. Fetal toxicity noted only at levels that produced maternal toxicity.

SECTION 12: ECOLOGICAL INFORMATION

TOXICITY

Acute Toxicity		Time	Species	Method
LC50	50.0 mg/l	96Hr	Rainbow Trout	OECD 203
LC50	54.0 mg/l	96Hr	Bluegill Sunfish	OECD 203
LC50	64.0 mg/l	96Hr	Fathead Minnow	OECD 203
EC50	5.8 mg/l	48Hr	Daphnia	OECD 202

Bioaccumulation	Tests indicate this material will not bio-accumulate or persist in the environment.
Persistence and Biodegradability	Biodegradability: <10% in river water. 8% based on CO2 evolution. Photo transformation: Extremely rapid. 75% in 3 minutes.
Mobility in Soil	log Kow >4.09
Other Adverse Effects	Harmful to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal	This material is a non-hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.
Contaminated Packaging	If empty container retains product residues, all label precautions must be observed. Transport with all closures in place. Return for reuse or dispose according to national or local regulations. Dispose of container according to national or local regulations. Do NOT reuse container.

SECTION 14: TRANSPORT INFORMATION

DOT

UN/ID No.	Not Regulated
Proper Shipping Name	None
Hazard Class	None
Packing Group	None

IATA

UN/ID No.	Not Regulated
Proper Shipping Name	None
Hazard Class	None
Packing Group	None

IMDG

UN/ID No.	Not Regulated
Proper Shipping Name	None
Hazard Class	None
Packing Group	None

<u>TDG (Canada)</u>	Not Regulated
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SECTION 15: REGULATORY INFORMATION

USA - TSCA	This substance is listed in the inventory
Canada - DSL	This substance is listed in the inventory
EINECS/ELINCS	This substance is listed in the inventory
Australia - AICS	This substance is listed in the inventory
Korea - ECL	This substance is listed in the inventory
Japan - ENCS	This substance is listed in the inventory
China - IECSC	This substance is listed in the inventory
Philippines - PICCS	This substance is listed in the inventory
	This substance is listed in the inventory

US Regulations

SARA Section 302	None Found
SARA 311/312 Hazard Categories	Delayed Fire
SARA 313 Chemical	Not determined
RCRA Status	Not a RCRA waste

Other regulations:

California Proposition 65: None of the components are listed.

New Jersey Right-to-know List: None of the components are listed.

Pennsylvania Right-to-Know List: None of the components are listed.

Minnesota Right-to-Know List: None of the components are listed.

Massachusetts Right-to-Know Law: None of the components are listed.

FDA Status 21 CFR:

Not regulated for use in food contact applications under FDA 21 CFR.

Canadian Regulations

WHMIS Hazard Class



D2B TOXIC MATERIALS/Material Causing Other Toxic Effects

NPRI

Not Listed

NFPA Rating (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	1
FIRE	1
REACTIVITY	0

HMIS Classification (Scale 0-4)

- 0 - Minimal Hazard
- 1 - Slight Hazard
- 2 - Moderate Hazard
- 3 - Serious Hazard
- 4 - Severe Hazard

HEALTH	1
FIRE	1
REACTIVITY	0

SECTION 16: OTHER INFORMATION

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists Inc.
CAS: Chemical Abstracts Service (Division of American Chemical Society)
DOT: Department of Transportation (USA)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System (USA)
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association

IMDG: International Marine Code for Dangerous Goods
LD50: Lethal Dose Medium
LC50: Lethal Concentration Medium
EC50: Effective Concentration Medium
NIOSH: National Institute for Occupational Safety and Health
NFPA: National Fire Protection Association (USA)
NPRI: National Pollutant Release Inventory (Canada)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration (USA)
PEL: Permissible Exposure Limits
TDG: Transportation of Dangerous Goods (Canada)
TLV: Threshold Limit Value
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

SECTION 17: REVISION DATE

Revision number: 7

Date of Issue: July 20, 2015

Changes: Reformatted and updated according to the Global Harmonized System (GHS)