# SAFETY DATA SHEET

**Quantum Technical Services Ltd.**

## Section 1. Product and Company Identification

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|---|---|
| Product Name | **ILLUSTRIUM™ M1172 DTM Resin** |
| Recommended Use | Protective Coating for Industrial Equipment |
| Manufacturer | Quantum Technical Services Ltd. (Dba Quantum Chemical)<br>15 Riel Drive<br>St. Albert, AB, Canada T8N 3Z2<br>Tel: (780) 458-3355 (non-emergency phone number)<br>Fax: (780) 458-2852<br>www.quantumchemical.com |
| Chemical Emergencies | For 24-Hour Emergency call Canutec at 613.996.6666 |

## Section 2. Hazards Identification

**2.1 GHS Classification:** **This material is considered hazardous by OSHA Hazard Communication Standard (29 CFR 1910.1200)**

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| **Skin Sensitizer** | **Category 1** |
| **Serious Eye Damage** | **Category 2** |
| **Skin Corrosive** | **Category 2** |
| **Chronic Aquatic Toxicity** | **Category 2** |
| **Acute Aquatic Toxicity** | **Category 3** |
| **Acute Toxicity, Oral** | **Category 4** |
| **Acute Toxicity, Dermal** | **Category 4** |

**2.2 Label Elements:**

**Pictogram:**

**Signal Word:** **DANGER**

**Hazard Statements:**

**H302** Harmful if swallowed.
**H314** Causes severe skin burns and eye irritation.
**H317** May cause an allergic skin reaction.
**H402** Harmful to aquatic life.
**H412** Harmful to aquatic life with long lasting effects.

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| **Precautionary Statements:** | **P261** Avoid breathing dust/fume/gas/mist/vapours/spray.<br>**P264** Wash with plenty of soap and water thoroughly after handling.<br>**P270** Do not eat, drink, or smoke when using this product.<br>**P271** Use only outdoors or in a well-ventilated area.<br>**P272** Contaminated clothing should not be allowed out of the workplace.<br>**P280** Wear protective gloves/protective clothing/eye protection/face protection.<br>**P273** Avoid release to the environment |
| **Response:** | **P370+P378** In case of fire, use carbon dioxide, dry chemical, or foam to extinguish.<br>**P303+P361+P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.<br>**P332+P313** If skin irritation occurs: Get medical advice/attention.<br>**P304+P340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.<br>**P301+P311+P331** IF SWALLOWED: Call a POISON CENTER/doctor.<br>Do NOT induce vomiting.<br>**P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>**P337+P313** If eye irritation persists: Get medical advice/attention. |
| **Storage:** | **P403+P233** Store in a well-ventilated place. Keep container tightly closed.<br>**P235** Keep cool. |
| **Disposal:** | **P501** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. |

## Section 3. Composition and Ingredient Information

| **Hazardous Ingredients:** | **%** | **T.L.V.** | **C.A.S. #** | **OSHA PEL** |
|---|---|---|---|---|
| Aspartic Acid , N,N'-(methylene-4,1-cyclohexanediyl)bis-1,1',4,4' -tetraethyl ester | 60-80 | N/D | 136210-30-5 | N/D |
| Aliphatic Amine | 10-30 | N/D | Proprietary** | N/D |
| Cyclohexanemethanamine, 1,3,3 -trimethyl-N-(2-methylpropylidene -5-[(2-methylpropylidene) amino] | 1-5 | N/D | 54914-37-3 | N/D |
| Decanedioic Acid, bis(1,2,2,6,6-Pentamethyl – 4- piperdinyl) ester | 0.5-1.5 | 10 mg/m3 | 41556-26-7 | |
| Poly(oxy-1,2-ethanediyl),.alpha.-[3-3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropyl]-.omega. -[3[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropoxy] | 0.5-1.5 | N/D | 104810-47-1 | N/D |
| Poly(oxy-1,2-ethanediyl,.alpha.-[3-[3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4hydroxyphenyl] -1-oxopropyl]-.omega.hydroxy | 0.5 – 1.5 | N/D | 104810-48-2 | N/D |

**HMIRA RN 12166, Granted Mar. 16, 2023
Actual concentrations are withheld as a trade secret.

## Section 4. First Aid Measures

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| Eye Contact: | Immediately flush with plenty of water for at least 15 minutes, keeping eyelids open. If redness, itching, or a burning sensation develop, seek medical attention. |
| Skin Contact: | If skin is damaged or wounded, treat with saturated gauze pads or compresses using a freshly made up ascorbic acid solution (10g in 100g of water). Immediately flush skin with plenty of soap and water. Remove contaminated clothing and wash clothing before reuse. |
| Inhalation: | Move victim to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and seek medical attention. |
| Ingestion: | **Do not induce vomiting**. Seek medical attention immediately. |
| Most Important Symptoms/ Effects – Acute or Delayed: | Eye Disease, skin disorders and allergies. |

## Section 5. Fire Fighting Measures

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| Suitable Extinguishing Media: | Use carbon dioxide, foam, and dry chemical Use water spray to keep fire exposed containers cool. |
| Unsuitable Extinguishing Media: | High volume water jet. |
| Unusual Fire and Explosion Hazards: | Wear protective clothing and self-contained breathing apparatus to protect against potential toxic and irritating fumes. |
| Hazardous Combustion Products: | Carbon dioxide and monoxide, oxides of Nitrogen, unidentified compounds. |

## Section 6. Accidental Release Measures

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| Leak/Spill: | Evacuate all non-essential personnel. Eliminate all sources of ignition. Ventilate area. Utilize recommended protective clothing. Dike area to prevent spreading. Absorb with inert material. Collect material in open containers. Remove containers to a safe place and cover loosely. |

## Section 7. Handling and Storage

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| Handling Procedures: | Do not breathe vapors or spray mist. Avoid contact with eyes or skin, Avoid contact with clothing. Use only with adequate ventilation and personal protection. Wash hands and face thoroughly after handling and before eating and drinking. |
| Storage Needs: | Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of reach of children. |
| Incompatible Materials or Ignition Sources: | Hazardous polymerization does not occur, Avoid strong oxidizing agents, acids, isocyanates. |

## Section 8. Exposure Controls and Personal Protection

| Exposure Limits: | C.A.S. # | | |
|---|---|---|---|
| Decanedioic Acid, bis(1,2,2,6,6-Pentamethyl – 4- piperdinyl) ester | 41556-26-7 | ACGIH TLV | (TWA) 10 mg/m3 |

No other information on exposure limits available.

Protective Equipment:

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| Eye/Type: | Chemical tight goggles; full face shield if possibility of splashing. |
| Respiratory/Type: | Respiratory masks should be worn at all times in the case of inadequate ventilation. A NIOSH/MSHA approved respirator with an organic vapour cartridge is acceptable. |
| Gloves/Type: | Use neoprene or rubber gloves. |
| Clothing/Type: | Wear adequate protective coveralls and footwear. |
| Other/Type: | Eyewash fountain. Emergency shower should be in close proximity. |
| Ventilation Requirements: | Ventilate adequately. See complete details above under handling instructions. |

## Section 9. Physical and Chemical Properties

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| Physical State: | Liquid. |
| Appearance: | Clear |
| Odour: | Slight. |
| Odour Threshold: | Not Available |
| Specific Gravity: | 1.09 @ 20°C. |
| Flash Point: | >200 °F; >93.3°C (estimated). |
| Vapor Pressure (mm Hg): | Not Determined. |
| Vapor Density (Air=1): | Not Applicable. |
| Evaporation Rate: | Not Available. |
| Boiling Point: | Not Available. |
| pH: | Not Available. |
| Solubility in Water: | Insoluble in water @ 68° F (20°C). |
| Freezing Point (°C): | Not Available. |
| Melting Point: | Not Available. |
| Percent Solids by Weight: | 100%. |
| Percent Volatile (g/L): | 0% by weight; 0% by volume. |
| VOC (g/L): | 0% with water; 0% without water. |
| Viscosity: | Not Available. |
| Flammability (Solid, Gas): | Not Applicable. |
| Upper/Lower Explosion/ Flammability Limit: | Not Applicable. |
| Partition Coefficient (n-octanol/Water): | Not Available. |
| Auto-ignition Temperature: | Not Available. |
| Decomposition Temperature: | Not Available. |

## Section 10. Stability and Reactivity

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| Stability: | Stable. |
| Conditions to Avoid: | Excessive heat, open flame, sparks, and strong oxidizing agents.<br>Protect from atmospheric moisture. |
| Incompatibility: | Oxidizing agents/acids. |
| Reactivity Conditions: | Product is stable; hazardous polymerization will not occur. |
| Hazardous Products of Decomposition: | By fire: carbon monoxide, carbon dioxide. Nitrogen oxides. amines. ammonia, aliphatic fragments. |
| Conditions to Avoid: | Avoid incompatible reactants, especially strong bases, water or temperatures over 160°C. |

## Section 11. Toxicological Information

**Likely routes of exposure:**
Effects on Eye: Causes eye irritation.
Effects on Skin: Causes skin irritation.
Inhalation Effects: This product presents an elevated inhalation risk when used in spray or aerosol applications.
Ingestion Effects: No data available.
Symptoms: No data available.

**Toxicity:** No data for product itself; data given for components.

**Aspartic Acid , N,N'-(methylene-4,1-cyclohexanediyl)bis-1,1',4,4' -tetraethyl ester**
C.A.S. #136210-30-5

**Acute Toxicity:**
(Toxicity data is based on a similar product)
LD50 (Oral, Rat) >2000 mg/kg (Directive 67/548/EEC, Annex V, B.1)
LC50 (Inhalation, Rat) >4.224 mg/l 4 hr OECD Guideline 403
LD50 (Dermal, Rat) >2000 mg/kg (Directive 67/548/EEC, Annex V, B.3)

| | | |
|---|---|---|
| **Skin Irritation:** | OECD Test Guideline 404 | Slight Irritant |
| **Toxicological Studies of a Comparable Product:** | Eye Irritation: OECD Test Guideline 405 (Rabbit) | Slightly Irritating |
| | Skin Sensitization: OECD Test Guideline 406 (Guinea Pig) | Positive |
| | Repeated Dose Toxicity): Subacute Oral Toxicity (Rat) | NOAEL > 1,000 mg/kg |

**Mutagenicity** (toxicological studies of a comparable product):
**Genetic Toxicity in Vitro:**
Chromosome aberration test: negative
Salmonella/microsome test (Ames test): No indication of mutagenic effects.

**Genetic Toxicity in Vivo:** Micronucleus Test: negative (mouse)

**Developmental Toxicity/ Teratogenicity:**
(toxicological studies of a comparable product): Rat, female, Oral NOAEL (Teratogenicity): 1,000 mg./kg, NOAEL (meternal): 1,000 mg./kg

**Aliphatic Amine**
**Acute Toxicity:**
LD50 (oral, rat) >500 <2000 mg/kg OECD Guideline 423
LD50 (dermal) >5000 mg/kg (the product has not been tested)
(The statement is derived from the properties of individual components.)

**Irritation/Corrosion:** Skin: (rabbit) non-irritant OECD Guideline 404
Eye: (rabbit0 Slightly irritating OECD Guideline 405

**Sensitization:** Caused skin sensitization in animal studies (testing described below)
Mouse Local Lymph Node Assay (LLNA) OECD Guideline 429 Result: Sensitizing

**Aspiration Hazard:** No Aspiration hazard expected.

**Cyclohexanemethanamine, 1,3,3 -trimethyl-N-(2-methylpropylidene -5-[(2-methylpropylidene) amino]** C.A.S. #54914-37-3

**Eye:** Slightly irritating to rabbit eye

**Skin:** Rat Dermal LD50 >5000 mg/kg (ECHA)
Corrosive to the rabbit skin

**Inhalation:** No data was available for acute inhalation toxicity.

**Ingestion:** Rat Oral LD50 4150 mg/kg (ECHA)

**Sensitization:** The allergic skin reactions observed in all experimental animals.

**Decanedioic Acid, bis(1,2,2,6,6-Pentamethyl – 4- piperdinyl) ester** C.A.S. # 41556-26-7

**Acute Toxicity:** LD50 (oral, rat) >5000 mg/kg

**Skin Irritation:** Rabbit, Non-irritant

**Eye Irritation:** Rabbit, Non-irritant

**Acute Skin Sensitization:** Guinea Pig, Sensitizer

**Poly(oxy-1,2-ethanediyl),.alpha.-[3-3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropyl]-.omega. -[3[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropoxy]** C.A.S. # 104810-47-1

**Poly(oxy-1,2-ethanediyl,.alpha.-[3-[3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4hydroxyphenyl] -1-oxopropyl]-.omega.hydroxy** C.A.S. #104810-48-2

**(Data for Above 2 Ingredients in 50/50 blend)**

**Acute Toxicity:** LD50 (oral, rat) >5000 mg/kg

**Skin Irritation:** Rabbit, Non-irritant

**Eye Irritation:** Rabbit, Non-irritant

**Acute Skin Sensitization:** Guinea Pig, Sensitizer

**Delayed and immediate effects and Chronic Effects from Short and Long Term Exposure:**
This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. May cause allergic skin reaction, eye disease, skin disorders and allergies.

## Section 12. Ecological Information

No data for product itself, data given for components.

**Aspartic Acid , N,N'-(methylene-4,1-cyclohexanediyl)bis-1,1',4,4' -tetraethyl ester** C.A.S. # 136210-30-5

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|---|---|---|
| **Toxicity to Aquatic Plants:** | IC50 (scenedesmus subspicatus, 72 h) | 113 mg/l |

Ecotoxicological reports on a comparable product.

**Aliphatic Amine**
No environmental data has been established or is available for this product.

**Cyclohexanemethanamine, 1,3,3 -trimethyl-N-(2-methylpropylidene -5-[(2-methylpropylidene) amino]** C.A.S. # 54914-37-3

| | | | |
|---|---|---|---|
| **Toxicity**: | LC50 (Zebra Fish (Danio rerio) | 96-Hour | >100 mg/l |
| | EC50 (Water Flea (Daphnia magna) | 48-Hour | 22.2 mg/l |
| | EC50 (Green Algae (Desmodesmus subspicatus) | 72-Hour | 73.6 mg/l (ECHA) |
| **Biodegradation:** | Not Readily Biodegradable (< 60% after 28 days) | | |
| **Bioaccumulation:** | High potential to bioaccumulate (Log Kow = 5.2) | | |

**Decanedioic Acid, bis(1,2,2,6,6-Pentamethyl – 4- piperdinyl) ester** C.A.S. # 41556-26-7

| | | |
|---|---|---|
| **Toxicity:** | LC50 (Zebra Fish (Danio rerio) 96 hr,) | 0.97 mg/l |

**Poly(oxy-1,2-ethanediyl),.alpha.-[3-3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropyl]-.omega. -[3[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxy phenyl]-1-oxopropoxy]** C.A.S. # 104810-47-1

**Poly(oxy-1,2-ethanediyl,.alpha.-[3-[3-(2H-benzotriazol-2-yl)-5-(1 ,1-dimethylethyl)-4hydroxyphenyl] -1-oxopropyl]-.omega.hydroxy** C.A.S. # 104810-48-2

**(Data for Above 2 Ingredients in 50/50 blend)**

| | | |
|---|---|---|
| **Toxicity** | LC50 (Zebra Fish (Danio rerio) 96 hr,) | 2.8 mg/l |

## Section 13. Disposal Considerations

Waste Disposal: Spilled material and water rinses are classified as chemical waste and must be disposed of in accordance with current local, municipal, provincial and federal regulations. Do not heat or cut empty containers with electric or gas torch.

## Section 14. Transport Information

Proper Shipping Name: Polyaspartic Polyurea.

Hazard Class: Non-regulated.

## Section 15. Regulatory Information

Inventories: Canadian DSL: Aliphatic Amine is **not** listed on the DSL.

All other components listed.

## Section 16. Other Information

Revision Date: March 16, 2023

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