

**SAFETY DATA SHEET**

Quantum Technical Services Ltd.

**Section 1. Product and Company Identification**

Product Name                    **PRECIDIUM™ ECST™ 645D GEN II Resin**

Manufacturer                    Quantum Technical Services Ltd. (Dba Quantum Chemical)  
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Chemical Emergencies        For 24-Hour Emergency call Canutec at 613.996.6666

**Section 2. Hazards Identification**

**OSHA/HCS Status:**            This material is considered hazardous by OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Classification of the Substance or Mixture:**

<b>Acute Toxicity: Oral</b>	<b>Category 4</b>
<b>Acute Toxicity: Dermal</b>	<b>Category 4</b>
<b>Skin Corrosion/Irritation</b>	<b>Category 1C</b>
<b>Serious Eye Damage/Eye Irritation</b>	<b>Category 1</b>
<b>Specific Target Organ Toxicity (repeated exposure)</b>	<b>Category 2</b>
<b>Acute Aquatic Toxicity</b>	<b>Category 3</b>
<b>Chronic Aquatic Toxicity</b>	<b>Category 2</b>

**GHS Label Elements:****Pictograms:**

**Signal Word:**                    **Danger**

**Hazard Statements:**        **H312** Harmful in contact with skin.  
**H302** Harmful if swallowed.  
**H314** Causes severe skin burns and eye damage.  
**H410** Very toxic to aquatic life with long lasting effects.  
**H373** May cause damage to organs through prolonged or repeated exposure.

**Precautionary Statements:** **P280** Wear protective gloves/protective clothing/eye protection/face protection.  
**P264** Wash with plenty of soap and water thoroughly after handling.  
**P261** Avoid breathing dust/fume/gas/mist/vapours/spray.  
**P270** Do not eat, drink or smoke when using this product.  
**P273** Avoid release to the environment.

<b>Response:</b>	<p><b>P303+P361+P350</b> IF ON SKIN (or hair): Take off immediately all contaminated clothing. Gently wash with plenty of soap and water.</p> <p><b>P333+P313</b> If skin irritation or rash occurs: Get medical advice/attention.</p> <p><b>P305+P351+P338</b> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.</p> <p><b>P337+P313</b> If eye irritation persists: Get medical advice/attention.</p> <p><b>P304+P340</b> IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p><b>P301+P330+P331</b> IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p><b>P312</b> Call a POISON CENTER/doctor if you feel unwell.</p>
<b>Storage:</b>	<p><b>P403+P233</b> Store in a well-ventilated place. Keep container tightly closed.</p> <p><b>P405</b> Store locked up.</p>
<b>Disposal:</b>	<b>P501</b> Dispose of contents/containers in accordance with local/regional/national/ international regulations.

#### Hazards not otherwise classified.

<b>Emergency Overview:</b>	<p>Danger.</p> <p>Corrosive liquid.</p> <p>Toxic if swallowed.</p> <p>Prolonged or repeated contact may result in dermatitis.</p> <p>Causes skin burns.</p> <p>Causes eye burns.</p> <p>May cause respiratory tract irritation.</p> <p>Ingestion may cause gastric disturbances.</p> <p>Use with local exhaust ventilation.</p> <p>Wear NIOSH-certified (or equivalent) organic vapour/particulate respirator.</p> <p>Wear NIOSH-certified chemical goggles.</p> <p>Wear protective clothing.</p> <p>Eye wash fountains must be easily accessible.</p> <p>Wear full face shield if splashing hazard exists.</p>
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### Section 3. Composition and Ingredient Information

Hazardous Ingredients	%	ACGHI TLV	C.A.S. #	LD <sub>50</sub>	LC <sub>50</sub>
Alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)-poly(oxy(methyl-1,2 ethanediyl))	65-85	n/a	9046-10-0	Oral, Rat 2885 mg/kg	Inhalation , Rat >0.74 mg/l 8 hrs, no mortality
Benzenediamine,ar,ar—diethyl-Ar-methyl-	10-30	n/a	68479-98-1	Oral, Rat 738 mg/kg Dermal, Rabbit >2000 mg/kg	n/a
Titanium Dioxide	1-5	n/a	13463-67-7	n/a	n/a

Note: Concentration ranges are given to protect proprietary information.

### Section 4. First Aid Measures

<b>Eye Contact:</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Obtain immediate medical attention.
<b>Skin Contact:</b>	In case of contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing. Wash clothing before reuse. Obtain immediate medical attention.

Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.
Ingestion:	If ingested, dilute with water. Consult a physician. <b>Do not induce vomiting.</b> Never give anything by mouth to an unconscious person.

## Section 5. Fire Fighting Measures

Flash Point:	234°C. (CC).
Auto Ignition Temperature (C):	230°C.
Upper Explosive Limit:	Not available.
Lower Explosive Limit:	Not available.
Extinguishing Media:	Water fog. Use flooding amounts of water in early stages of fire.
Unusual Hazards:	Not applicable.
Sensitivity to Mechanical Impact:	Not expected to be sensitive to mechanical impact.
Sensitivity to Static Discharge:	Not expected to be sensitive to static discharge.
Special Fire Fighting Procedures:	Cool fire-exposed containers with water spray. Heat will cause pressure buildup and may cause explosive rupture. Firefighter should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

## Section 6. Accidental Release Measures

Leak/Spill:	Spills should be contained, solidified, and placed in suitable containers for disposal in a licensed facility. Wear respiratory protection and protective clothing. Provide adequate ventilation. This product is an alkaline. Before discharging sewage into treatment plants neutralization is generally required. It can be mechanically removed from water due to insolubility.
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## Section 7. Handling and Storage

Handling Procedures:	Avoid skin and eye contact. Avoid breathing fumes. Remove contaminated clothing before reuse. Maintain good personal hygiene.
Storage Needs:	Store in a cool and dry place, for product integrity. Store in tightly sealed container and protect from moisture and foreign materials. Keep container closed when not in use.

## Section 8. Exposure Controls and Personal Protection

<b>TiO<sub>2</sub>:</b>	This product contains a small amount of titanium dioxide (TiO <sub>2</sub> ). Exposure limits set for TiO <sub>2</sub> are for dust exposure which causes a respiration hazard. IARC considers TiO <sub>2</sub> to be in group 2B “possibly carcinogenic in humans”, again based on exposure to respirable dust. This finding is disputed by groups such as Dupont scientists who do not consider TiO <sub>2</sub> to cause lung cancer or chronic respiratory diseases in humans in concentrations experienced in the work place. In this product all TiO <sub>2</sub> is fully dispersed in liquid and in our opinion does not pose any respiratory hazard, making the hazard from respirable dust irrelevant to this product.
	No components of this product have established workplace exposure limits, with the exception of TiO <sub>2</sub> (see above).
Protective Equipment:	
Eye/Type:	Liquid chemical goggles. Contact lenses should not be worn.
Respiratory/Type:	At least an air-purifying respirator equipped with an organic vapor cartridge and particulate pre-filters must be worn.
Gloves/Type:	Rubber or plastic gloves. Butyl rubber gloves. Nitrile rubber. A barrier cream.
Clothing/Type:	Practice good hygiene; wash thoroughly before handling any food. Wear adequate protective clothes.
Other/Type:	Eyewash fountain. Emergency shower should be in close proximity.
Ventilation Requirements:	Ventilate adequately.

## Section 9. Physical and Chemical Properties

Physical State:	Liquid.
Odor:	Amine.
Specific Gravity:	Approximately 1.1.
Odor Threshold (ppm):	Not applicable.
Vapor Pressure (mm Hg):	0.9 @ 234°C.
Vapor Density (Air=1):	>1.
Evaporation Rate:	Non-volatile.
Boiling Point:	250°C.
pH:	10-11.
Solubility in Water:	1 %.
Freezing Point (°C):	-29°C.

## Section 10. Stability and Reactivity

Incompatibility:	Acids, isocyanates and oxidizing agents.
Reactivity Conditions:	See “incompatibility”.
Hazardous Products of Decomposition:	Carbon Monoxide/Dioxide. NOx.

## Section 11. Toxicological Information

No data exists for product itself.

### Component Acute Toxicity:

Alpha-(2-Aminomethylethyl) -omega-(2-aminomethylethoxy) -poly(oxy(methyl-1,2 ethanediyl))	Oral, Rat LD50 2885 mg/kg	Inhalation , Rat LC50 >0.74 mg/l 8 hours, no mortality	Dermal, Rabbit LD50 2980 mg/kg
Benzenediamine,ar,ar—diethyl- Ar-methyl-	Oral, Rat LD50 738 mg/kg	n/a	Dermal, Rabbit LD50 >2000 mg/kg

### Mutagenicity:

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

Negative in mammalian cells or bacteria.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

In Vitro: positive and negative results in bacterial and mammalian cells in the presence of metabolic activation. In Vivo: Mouse micronucleus test: negative.  
Dominant lethal test: rat, negative.

### Carcinogenicity:

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

No data available.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

Not listed as carcinogenic by ACGIH, IARC, NTP, OSHA.

Titanium Dioxide

See Section 8.

**Reproductive Toxicity:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

No indication of a fertility impairing effect.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

No effect on reproductive organs in repeated dose studies in rats.

**Teratogenicity:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

No indications of a developmental toxic/teratogenic were seen in animal studies.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

No data available.

**Sensitization:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

No data available.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

Not sensitizing (guinea pig).

**Section 12. Ecological Information**

No data available for product itself.

**Toxicity:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

**Fish**

LC 50 (96 h) >15 mg/l  
Oncorhynchus mykiss

**Daphnia**

EC50 (48 h) 80 mg/l

**Algae**

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

LC50 (48 h) 200 mg/l      LC50 (48 h) 0.5 mg/l      EC10 (72 h) 54 mg/l

**Biodegradability:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

Not readily biodegradable (by OECD criteria).

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

Not readily biodegradable.

**Bioaccumulative Potential:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

No information available.

**Mobility in Soil:**

Alpha-(2-Aminomethylethyl)  
-omega-(2-aminomethylethoxy)  
-poly(oxy(methyl-1,2 ethanediyl))

Adsorption to solid phase is not expected.

Benzenediamine,ar,ar—diethyl-  
Ar-methyl-

The substance is expected to partition primarily to soil and water.  
Koc = 0.32-551 l/kg (QSAR estimate) Henrys law constant =

## Section 13. Disposal Considerations

Waste Disposal: In accordance with municipal, provincial and federal regulations. Empty containers must be handled with care due to product residue. Do not heat or cut empty containers with electric or gas torch.

## Section 14. Transport Information

T.D.G. Classification: Amine, liquid, corrosive, N.O.S., Class 8, UN2735, Packing Group III.

US DOT:

Hazard Class: 8.

Packing Group: III

ID Number: UN 2735.

Hazard Label: 8.

Proper Shipping Name: Amines, Liquid, Corrosive, N.O.S. (contains polyetherdiamine).

This product is classified as Class 8 because a major component is Class 8.

## Section 15. Regulatory Information

WHMIS Classification: Class D, Division 1, Subdivision B (Toxic), Class E (corrosive).

Canadian DSL: All components are listed or exempted.

US TSCA: Released/listed.

## Section 16. Other Information

Revision Date: February 27, 2023

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