

## Section 1. Product and Company Identification

Product Name	ILLUSTRIMUM™ M1155 Resin
Manufacturer	Quantum Technical Services Ltd. (Dba Quantum Chemical) 15 Riel Drive St. Albert, AB, Canada T8N 3Z2 Tel: (780) 458-3355 (non-emergency phone number) Fax: (780) 458-2852 <a href="http://www.quantumchemical.com">www.quantumchemical.com</a>
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.

Acute Toxicity: Oral – Category 4  
Acute Toxicity: Dermal – Category 4  
Skin Corrosion/Irritation – Category 1B  
Serious Eye Damage/Eye Irritation - Category 1  
Specific Target Organ Toxicity (repeated exposure) – Category 2  
Acute Aquatic Toxicity – Category 3  
Chronic Aquatic Toxicity – Category 3  
Skin Sensitization - Category 1

GHS Label Elements

Pictograms:



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Signal Word **DANGER**

**Hazard Statements:**

**H312** Harmful in contact with skin.  
**H302** Harmful if swallowed.  
**H314** Causes severe skin burns and eye damage.  
**H317** May cause an allergic skin reaction.  
**H320** Causes eye irritation.  
**H402** Harmful to aquatic life.  
**H412** Harmful to aquatic life with long-lasting effects.

<b>Precautionary Statements:</b>	<p><b>P280</b> Wear protective gloves/protective clothing/eye protection/face protection.</p> <p><b>P264</b> Wash with plenty of soap and water thoroughly after handling.</p> <p><b>P261</b> Avoid breathing dust/fume/gas/mist/vapours/spray.</p> <p><b>P270</b> Do not eat, drink or smoke when using this product.</p> <p><b>P273</b> Avoid release to the environment.</p> <p><b>P272</b> Contaminated work clothing should not be allowed out of the workplace.</p> <p><b>P260</b> Do not breathe dust or mist.</p>
<b>Response:</b>	<p><b>P303+P361+P352</b> IF ON SKIN (or hair): Take off immediately all contaminated clothing. 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+P312</b> IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.</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>	<b>P405</b> Store locked up.
<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 absorbed through skin.</p> <p>Prolonged or repeated contact may result in dermatitis.</p> <p>Causes skin burns.</p> <p>Causes eye burns.</p> <p>May be harmful if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract.</p> <p>Harmful if swallowed.</p>
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### Section 3. Composition and Ingredient Information

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))	30 - 60	n/a	9046-10-0	Oral, Rat 2885 mg/kg	Inhalation, Rat >0.74 mg/l 8 hrs, no mortality
Modified Isophoronediamine	30 - 60	N/D	90530-15-7	Oral, Rat <2000 mg/kg	N/D
Titanium Dioxide	10 - 30	10 mg/m <sup>3</sup>	13463-67-7	Oral, Rat >5000 mg/kg	Inhalation, Rat 6.82 mg/l (dust)

Note: Ingredient content ranges are given to protect intellectual property.

## Section 4. First Aid Measures

Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Obtain immediate medical attention.
Skin Contact	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

Extinguishing Media	Water spray, dry powder, alcohol resistant foam, carbon dioxide.
Unusual Hazards	Toxic gasses, vapours.
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. Protect from acids and acid forming substances.

## Section 8. Exposure Controls and Personal Protection

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. Practice good hygiene; wash thoroughly before handling any food.

Clothing/Type	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	N/D.
Odor Threshold(ppm)	Not applicable.
Vapor Pressure (mm Hg)	N/D.
Vapor Density (Air=1)	N/D.
Evaporation Rate	N/D.
Boiling Point	N/D.
pH	>9
Solubility in water	N/D.
Freezing Point (° C)	N/D.

## Section 10. Stability and Reactivity

Incompatibility	Acids, isocyanates and oxidizing agents.
Reactivity Conditions	See "incompatibility".
Hazardous Products of Decomposition	Possible decomposition products, toxic gases/fumes, CO, CO <sub>2</sub> , and nitrous oxides.

## 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 hrs, no mortality	Dermal, Rabbit LD50 2980 mg/kg
Modified Isophoronediamine	Oral, Rat <2000 mg/kg	N/D	N/D
Titanium Dioxide	Oral, Rat >5000 mg/kg	Inhalation, Rat LC50 6.82 mg/l (dust)*	N/D

\*Toxicity levels of TiO<sub>2</sub> are for respirable dust, in this product all TiO<sub>2</sub> powder is fully dispersed in liquid and does not pose any respiratory risk.

### Mutagenicity

Alpha-(2-Aminomethylethyl) -omega-(2-aminomethylethoxy) -poly(oxy(methyl-1,2 ethanediyl))	Negative in mammalian cells or bacteria.
Modified Isophoronediamine	Not Available
Titanium Dioxide	Negative in mammalian cells or bacteria

**Carcinogenicity**

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

No data available.

Modified Isophoronediamine

Not available.

Titanium Dioxide

IARC lists titanium dioxide powder as Group 2B (possibly carcinogenic to humans). This reflects exposure to respirable dust. As all TiO<sub>2</sub> in this product is fully dispersed in liquid it is our opinion that it poses no carcinogenic risk.

**Reproductive Toxicity**

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

No indication of a fertility impairing effect.

**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.

**Sensitization**

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

No data available.

Modified Isophoronediamine

Caused skin sensitization in animal studies.

## 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**

Modified Isophoronediamine

No data

No data

Titanium Dioxide

LC 50 (96 h) >1000 mg/l EC50 (48 h) >1000 mg/l EC50(72 h) 61 mg/l  
 Fathead minnow

**Biodegradability**

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

Not readily biodegradable (by OECD criteria).

**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).

**Mobility in Soil**

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

Adsorption to solid phase is not expected.

### 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

II.

ID Number

UN 2735.

Hazard Label

8.

Proper Shipping Name

Amines, Liquid, Corrosive, N.O.S. (contains polyetherdiamine).

### Section 15. Regulatory Information

TSCA

All components listed or exempt.

### Section 16. Other Information

Revision Date:

July 11, 2018

Note

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Quantum Technical Services Limited. The data on this sheet relates only to the specific material designated herein. Quantum Technical Services Ltd. assumes no legal responsibility for use or reliance upon this data.

## Section 1. Product and Company Identification

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Manufacturer	Quantum Technical Services Ltd. (Dba Quantum Chemical) 15 Riel Drive St. Albert, AB, Canada T8N 3Z2 Tel: (780) 458-3355 (non-emergency phone number) Fax: (780) 458-2852 <a href="http://www.quantumchemical.com">www.quantumchemical.com</a>
Chemical Emergencies	For 24-Hour Emergency call Canutec at 613.996.6666

## Section 2. Hazards Identification

### 2.1 Classification GHS Classification

**Acute Toxicity: Inhalation – Category 4**

**Respiratory Sensitization – Category 1**

**Skin Sensitization – Category 1**

**Specific Target Organ Toxicity (single exposure) [Respiratory Tract irritation] – Category 3**

**Specific Target Organ Toxicity – Repeated Exposure Inhalation (Lungs) – Category 2**

### 2.2 Label Elements:

#### Pictogram:



**Signal Word: DANGER**

**Emergency Overview: May cause allergic skin reaction. May cause skin, eye, and respiratory tract irritation. Harmful by inhalation and if swallowed.**

#### Hazard Statements:

<b>H317</b>	May cause an allergic skin reaction.
<b>H332</b>	Harmful if inhaled.
<b>H334</b>	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>H335</b>	May cause respiratory irritation.
<b>H373</b>	May cause damage to organs (lungs) through prolonged or repeated exposure.

#### Precautionary Statements:

<b>P261</b>	Avoid breathing dust/fume/gas/mist/vapours/spray.
<b>P271</b>	Use only outdoors or in a well-ventilated area.
<b>P280</b>	Wear protective gloves/protective clothing/eye protection /face protection.
<b>P285</b>	In case of inadequate ventilation, wear respiratory protection which meets the requirements in OSHA'S Respiratory Protection Standard (29 CFR 1910.134) or regional standards.

**Response:**

<b>P370 + P378</b>	In case of fire: Use water spray, carbon dioxide, dry chemical, or foam to extinguish.
<b>P303 + P361 + P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
<b>P304 + P340</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
<b>P301 + P310</b>	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>P331</b>	Do NOT induce vomiting.
<b>P332 + P313</b>	If skin irritation occurs: Get medical advice/attention.
<b>P362 + P364</b>	Take off contaminated clothing and wash before reuse.

**Storage:**

<b>P403 + P233</b>	Store in a well-ventilated place. Keep container tightly closed.
<b>P235</b>	Keep cool.

**Disposal**

<b>P501</b>	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.
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**Section 3. Composition and Ingredient Information**

Ingredients	ACGIH TLV	%	C.A.S. #	LD50	LC50
Hexamethylene – 1,6-diisocyanate Homopolymer	TWA 0.005 ppm	60-80	28182-81-2	Oral, Rat >2500 mg/kg	Inhalation Rat 390-450 mg/m3

Note: Ingredient content range is given to protect intellectual property.

**Section 4. First Aid Measures**

Eye Contact	Immediately flush with plenty of water for at least 15 minutes. If redness, itching, or a burning sensation develop, seek medical attention.
Skin Contact	Remove from skin immediately. Rinse with clean water for 20-30 minutes. Use soapy water if needed. If redness, itching, or a burning sensation develop, seek medical attention.
Inhalation	Move victim to fresh air immediately. Give oxygen and seek medical attention. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions may be life threatening.
Ingestion	<b>Do not induce vomiting.</b> Dilute with water and seek medical attention immediately.

**Section 5. Fire Fighting Measures**

Flash Point	158°C.
Auto Ignition Temperature (C)	
Extinguishing Media	Foam/carbon dioxide/dry chemical/water fog.
Protective Equipment	Safety glasses and gloves.
Unusual Hazards	Closed containers may rupture from build-up of pressure when exposed to extreme heat.
Sensitivity to Mechanical Impact	Not expected to be sensitive to mechanical impact.
Special Fire Fighting Procedures	Remove all ignition sources. Wear self-contained breathing apparatus and complete personal protective equipment when entering confined areas where potential for exposure to vapors or products exist.



## Section 6. Accidental Release Measures

Leak/Spill	Avoid contact with substance. All persons involved in clean-up must be wearing appropriate protective equipment. Stop the spill at source, pump liquid to salvage container. Remaining liquid may be taken up on clay, diatomaceous earth, or other absorbent. Treat with decontamination solutions: Nonionic surfactant Union Carbide's Tergitol TMN-10 (20%) and water (80%); concentrated ammonia (3-8%), detergent (2%) and water (90-95%).
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## Section 7. Handling and Storage

Handling Procedures	Avoid skin and eye contact. Avoid breathing fumes. Wash thoroughly before eating or drinking.
Storage Needs	Store in a cool and dry place away from ignitable sources as exothermic generation of carbon dioxide may cause dangerous pressure. Store in tightly sealed containers and protect from moisture. Re-seal partially used containers.

## Section 8. Exposure Controls and Personal Protection.

### Exposure Limits

Hexamethylene – 1,6-diisocyanate Homopolymer

US ACGIH Threshold Limit Values

Time Weighted Average (TWA) 0.005ppm

### Protective Equipment

Eye/Type	Chemical tight goggles; full face shield if possibility of splashing.
Respiratory/Type	Supplied air respiratory mask is recommended for spraying applications. In cases of adequate ventilation respiratory masks may be acceptable. A NIOSH/MSHA respirator 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. Local exhaust may be required in certain instances and mechanical exhaust is usually sufficient

## Section 9. Physical and Chemical Properties

Physical State	Liquid.
Appearance	Clear/pale yellow.
Odor	Slightly musty.
Specific Gravity	1.15 @ 25°C.
Vapor Pressure (mm Hg)	Approx. $5.2 \times 10^{-9}$ .
Vapor Density (Air=1)	No Data.
Evaporation Rate	No Data.
Boiling Point	382° F.
pH	No Data.
Solubility in water	Insoluble in water @ 68° F (20°C).
Freezing Point (°C)	N/D
Melting Point	N/D

Percent Solids by Weight	9.6 lb/gal.
Percent Volatile (g/l)	0% by weight; 0% by volume.
VOC (g/l)	0% with water; 0% without water.
Viscosity	650-750

## Section 10. Stability and Reactivity

Stability	Stable.
Conditions to Avoid	Excessive heat, open flame, sparks, and strong oxidizing agents. Protect from atmospheric moisture. Replace outage with inert dry nitrogen.
Incompatibility	Water, acid, base (alkalis, ammonia), alcohols, metal compounds.
Reactivity Conditions	See "incompatibility".
Hazardous Products of Decomposition	Isocyanate vapors or mist, carbon dioxide, carbon monoxide, nitrogen oxides.
Conditions to Avoid	Avoid incompatible reactants, especially strong bases, water or temperatures over 160°C.

## Section 11. Toxicological Information

Acute Oral Toxicity(LD50)	>2,500 mg/Kg (rat).
Acute Dermal Toxicity (LD50)	>2000 mg/Kg (rabbit).
Acute Inhalation Toxicity (LC50)	390-450 mg/m3 (rat)
Severe Irritant	Capable of inducing corneal injury (rabbit). Maximum primary eye irritant score: 54.6/110 for 24 hour skin effects: Moderate and Dermal. Primary dermal irritation score: 3.4/8.0 (rabbit).
Sensitizing Capability of Material	Pulmonary and dermal sensitizer in animals and humans.
Carcinogenicity of Material	Not classified as carcinogenic.
Teratogenicity	Not available.
Mutanagenicity	Not available.
Reproductive Effects	Not available.
Synergistic Materials	None known.

## Section 12. Ecological Information

<b>Aquatic Toxicity:</b>	Zebra Fish : LC50 (96hr) >100 mg/l. Water Flea: EC50 (48 hr) >100 mg/l. Aquatic Plants: EC50 (Green Algae, 72 hr) >1,000 mg/l Microorganisms: EC50 (Activated Sludge microorganisms, 3hr) > 1,000 mg/l
<b>Persistence/Degradability</b>	Not readily biodegradable.
<b>Bioaccumulation</b>	Accumulation is not expected.

## 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.
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## Section 14. Transport Information

Proper Shipping Name	Polyisocyanate.
TDG	Non Regulated in 55 gallon drums

## Section 15. Regulatory Information

Canadian DSL	All components of this product are on the Canadian DSLs
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TSCA (Toxic Substance Control Act)	If exported to the United States all chemical substances in this shipment comply with all applicable rules or orders under TSCA and there are no chemical substances in violation of TSCA or any applicable rule or order thereunder.
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## Section 16. Other Information

Revision Date:	Mar. 14, 2018
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