

Section 1. Product and Company Identification

Product Name	ILLUSTRIMUM™ M1155 FSI 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 www.quantumchemical.com
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:



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.

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.
- P272** Contaminated work clothing should not be allowed out of the workplace.
- P260** Do not breathe dust or mist.

Response:	<p>P303+P361+P352 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of soap and water.</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.</p> <p>P337+P313 If eye irritation persists: Get medical advice/attention.</p> <p>P304+P340+P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.</p> <p>P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P312 Call a POISON CENTER/doctor if you feel unwell.</p>
Storage:	P405 Store locked up.
Disposal:	P501: Dispose of contents/containers in accordance with local/regional/national/international regulations.
Hazards not otherwise classified.	
Emergency Overview:	<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>

Section 3. Composition and Ingredient Information

Ingredients	%	ACGHI TLV	C.A.S. #	LD ₅₀	LC ₅₀
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 hours, 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 ³	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. Do not induce vomiting. 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.
-------------	---

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 ₂ , 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 TiO₂ are for respirable dust, in this product all TiO₂ 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 ₂ 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:	Fish	Daphnia	Algae
Alpha-(2-Aminomethylethyl)	LC 50 (96 h) >15 mg/l	EC50 (48 h) 80 mg/l	
-omega-(2-aminomethylethoxy)	Oncorhynchus mykiss		
-poly(oxy(methyl-1,2 ethanediyl))			
Modified Isophoronediamine	No data	No data	
Titanium Dioxide	LC 50 (96-hour) >1000 mg/L; EC50 (48-hour) >1000 mg/L; EC50(72 h) 61 mg/l Fathead minnow		
Biodegradability:			
Alpha-(2-Aminomethylethyl)	Not readily biodegradable (by OECD criteria).		
-omega-(2-aminomethylethoxy)			
-poly(oxy(methyl-1,2 ethanediyl))			
Bioaccumulative Potential:			
Alpha-(2-Aminomethylethyl)	No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).		
-omega-(2-aminomethylethoxy)			
-poly(oxy(methyl-1,2 ethanediyl))			
Mobility in Soil:			
Alpha-(2-Aminomethylethyl)	Adsorption to solid phase is not expected.		
-omega-(2-aminomethylethoxy)			
-poly(oxy(methyl-1,2 ethanediyl))			

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).

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

Section 15. Regulatory Information

TSCA: All components listed or exempt.

Section 16. Other Information

Revision Date: May 4, 2023

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

Product Name	ILLUSTRIMUM™ M1155 FSI ISO
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 www.quantumchemical.com
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:	H317 May cause an allergic skin reaction. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H335 May cause respiratory irritation. H373 May cause damage to organs (lungs) through prolonged or repeated exposure.
Precautionary Statements:	P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection /face protection. P285 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:	<p>P370+P378 In case of fire: Use water spray, carbon dioxide, dry chemical, or foam to extinguish.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].</p> <p>P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P331 Do NOT induce vomiting.</p> <p>P332+P313 If skin irritation occurs: Get medical advice/attention.</p> <p>P362+P364 Take off contaminated clothing and wash before reuse.</p>
Storage:	<p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P235 Keep cool.</p>
Disposal:	<p>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.</p>

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/m ³

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:	Do not induce vomiting. Dilute with water and seek medical attention immediately.

Section 5. Fire Fighting Measures

Flash Point:	158°C.
Auto Ignition Temperature (°C):	N/A
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%).

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. 5.2×10^{-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.	
Mutagenicity:	Not available.	
Reproductive Effects:	Not available.	
Synergistic Materials:	None known.	

Section 12. Ecological Information

Aquatic Toxicity:	Zebra Fish:	LC50 (96-hour)	>100 mg/L
	Water Flea:	EC50 (48-hour)	>100 mg/L
	Aquatic Plants:	EC50 (Green Algae, 72-hour)	>1,000 mg/L
	Microorganisms:	EC50 (Activated Sludge microorganisms, 3-hour)	> 1,000 mg/L
Persistence/Degradability:	Not readily biodegradable.		
Bioaccumulation:	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.
-----------------	--

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
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.

Section 16. Other Information

Revision Date: May 4, 2023
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.