

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	ECU-4000 A
Other means of identification:	None
Recommended use:	Hardener
Manufactured by:	Elite Coatings Canada Inc. 9805 Horton Road SW Calgary, AB T2V 2X5 Canada
Email:	info@elitecoatings.ca
Prepared by:	The Health, Safety and Environmental Department of Elite Coatings Canada Inc.
Telephone number of preparer:	+1 (403) 397 6355
Emergency telephone number:	24-Hour Emergency Telephone Number Canada (CANUTEC): +1 (613) 996-6666

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification of hazardous product

- Acute Toxicity, Inhalation-mist (Category 4)
- Skin Sensitization (Category 1)
- Serious eye damage/irritation (Category 2)
- Respiratory sensitization (Category 1)
- Specific target organ toxicity-single exposure (Category 3- respiratory system)

GHS Label Elements

Hazard Pictograms/symbols



Signal Word: DANGER

Hazard and Precautionary Statements:

- **H332** Harmful if inhaled
- **H317** May cause an allergic skin reaction
- **H319** Causes serious eye irritation
- **H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled

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- **H335** May cause respiratory irritation

P264 Wash hands thoroughly after handling. **P280** Wear protective gloves/protective clothing/eye protection/face protection. **P271** Use only outdoors or in a well-ventilated area. **P260** Do not breathe dust/fume/gas/mist/vapours/spray. **P261** Avoid breathing mist. **P284** In case of inadequate ventilation wear respiratory protection. **P272** Contaminated work clothing should not be allowed out of the workplace. **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. **P337 + P313** If eye irritation persists: Get medical advice/attention. **P304 + P340 IF INHALED:** Remove person to fresh air and keep comfortable for breathing. **P312** Call a POISON CENTER/doctor if you feel unwell. **P342 + P311** If experiencing respiratory symptoms: Call a poison center/doctor. **P303 + P352 IF ON SKIN:** Wash with plenty of soap and water. **P333 + P313** If skin irritation or rash occurs: Get medical advice/attention. **P363** Wash contaminated clothing before reuse. **P403 + P233** Store in a well-ventilated place. Keep container tightly closed. **P405** Store locked up. **P501** Dispose of contents/container into safe container in accordance with local, regional or national regulations.

Other Hazards Known: None known

GHS Special Labeling: EUH204 – Contains isocyanates. May produce an allergic reaction.

Inhalation of isocyanate mists or vapors may cause respiratory irritation, breathlessness, chest discomfort and reduced pulmonary function. Overexposure well above the pel may result in bronchitis, bronchial spasms and pulmonary edema. Long-term exposure to isocyanates has been reported to cause lung damage, including reduced lung function which may be permanent. Acute or chronic overexposure to isocyanates may cause sensitization in some individuals, resulting in allergic respiratory reactions including wheezing, shortness of breath and difficulty breathing. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Concentration (%)
Hexamethylene diisocyanate oligomers, isocyanurate	28182-81-2	80 - 100 %
Hexamethylene-di-isocyanate	822-06-0	< 0.5 %
Propylene carbonate	108-32-7	10 - 20 %

SECTION 4. FIRST AID MEASURES

Ingestion	IF SWALLOWED: Call a POISON Center/doctor/... if you feel unwell.
Skin Contact	IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention.
Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. If eye irritation persists: Get medical advice/attention

Most important symptoms and effects (acute and delayed)

The most important known symptoms and effects are described in the labelling (section 2) and/or in section 11. Eye irritation, skin irritation, allergic symptoms. Symptoms may be delayed.

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Information on isocyanates:

Hazards: Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breathe and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposure.

Indication of any immediate medical attention and special treatment needed

Specific antidotes or neutralizers to isocyanates do not exist. Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

General Information

IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure the medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: In case of fire: dry chemical, dry powder, carbon dioxide, foam

Unsuitable extinguishing media: Water

Specific hazards arising from the hazardous product: During fire, nitrous gases, fumes/smoke, isocyanates and vapour may be formed. During combustion toxic vapors are released. Reacts with water releasing large amounts of carbon dioxide which may cause pressure build-up in confined spaces.

Special protective equipment and precautions for fire-fighting: Self-contained breathing apparatus and turn-out gear must be worn in case of fire.

Further Information: Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Methods and materials for containment and cleaning up

For small amounts: Absorb isocyanates with suitable absorbent material. Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90% water, 8% concentrated ammonia, 2% detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide.

For large amounts: If temporary control of isocyanates vapor is required, a blanket of protein foam or other suitable foam may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

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For residues: The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes. Dike spillage.

Environmental Precautions

Do not discharge into drains/surface waters/groundwater.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. If bulging of drum occurs, transfer to well-ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases. Segregate from bases.

Formation of CO₂ and build-up of pressure possible. Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture.

Storage stability: Storage temperature: 16-27°C. Protect against moisture.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters (biological limit values or exposure limit values and source of those values)

Exposure limits:	
CAS 28182-81-2	No exposure limits noted for the ingredient(s)
CAS 822-06-0	REL: Short-term value: C 0.14* mg/m ³ , C 0.02* ppm Long-term value:0.035 mg/m ³ , 0.005 ppm C= ceiling limit; * = 10 minutes TLV: 0.034 mg/m ³ , 0.005ppm
CAS 108-32-7	No exposure limits noted for the ingredient(s)

Engineering Controls

Provide good local exhaust ventilation to control vapour/mist. Eye wash facilities and emergency showers must be available when handling this product. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

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Personal Protective Equipment

Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator. Wear appropriate chemical resistant protective gloves. Wear tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists. Wear appropriate protective clothing. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Eyewash fountains and safety showers are recommended in the work area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State/ Appearance/ Color:	Liquid, Light yellow	Vapour Pressure:	Not available
Odour:	Not available	Vapour Density:	Not applicable
Odour threshold:	Not applicable	Relative Density:	1.14 (g/ml)
pH:	Not applicable	Solubility in water:	Reacts with water
Melting/freezing point:	Not available	Partition coefficient-n-octanol/water:	Not applicable
Initial boiling point/range:	>220°C (>428°F)	Auto-ignition temperature:	>250°C
Flash point (closed cup):	116°C (240.8°F)	Thermal decomposition temperature:	Not available
Evaporation rate:	Not available	Viscosity:	300-500 cps
Flammability (solids and gases):	Not flammable	VOC:	Not available
Upper and lower flammability/explosive limits	21 vol.% @ 200°C 4.7 vol.% @ 200°C	Other:	None known

SECTION 10. STABILITY AND REACTIVITY

Reactivity: This product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical Stability: This product is stable under normal conditions.

Possibility of hazardous reactions: Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalies. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of substance/product with subsequent loss in strength.

Conditions to Avoid: Avoid moisture.

Incompatible materials: Acids, amines, alcohols, water, alkalines, strong bases, substances/products that react with isocyanates.

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide, aromatic isocyanates, gases/vapours.

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SECTION 11. TOXICOLOGICAL INFORMATION

Likely routes of exposure (inhalation, ingestion, skin and eye contact):

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Symptoms related to the physical, chemical and toxicological characteristics:

Assessment of acute toxicity: Inhalation of vapour may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation. Headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed. Irritating to eyes, respiratory system and skin. Skin contact may result in dermatitis, either irritative or allergic.

Assessment of chronic toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. The substance may cause damage to the lung after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Delayed and immediate effects (chronic effects from short- term and long-term exposure):

- **Skin Sensitization** – Sensitization after skin contact possible;
- **Respiratory Sensitization** – The substance may cause sensitization of the respiratory tract;
- **Germ Cell Mutagenicity** – Results could not be confirmed in tests with mammals;
- **Carcinogenicity** – A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure;
- **Reproductive Toxicity** – Repeated inhalative uptake of the substance did not cause damage to the reproductive organs;
- **Specific Target Organ Toxicity – Single Exposure** – Causes temporary irritation of the respiratory tract;
- **Specific Target Organ Toxicity – Repeated Exposure** – The substance may cause damage to the olfactory epithelium after repeated inhalation; effect are not relevant to humans at occupational levels of exposure;
- **Aspiration Hazard** – No aspiration hazard expected;
- **Health Hazards Not Otherwise Classified** – No data available.

Numerical measures of toxicity (ATE; LD₅₀ & LC₅₀):

CAS 28182-81-2	LD ₀ , Oral- Rat – >2500 mg/kg LC ₅₀ , Inhalation – Rat – 0.390 mg/l LD ₀ , Dermal- Rabbit – >2500 mg/kg
CAS 822-06-0	LD ₅₀ , Oral- Rat – 746 mg/kg LC ₅₀ , Inhalation – Rat – 0.124 mg/l LD ₅₀ , Dermal- Rabbit – >5000 mg/kg
CAS 108-32-7	LD ₅₀ , Oral-Rat – 29000 mg/kg LD ₅₀ , Dermal- Rabbit – >3000 mg/kg

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic and terrestrial information):

There is a high probability that the product is not acutely harmful to aquatic organisms.

Product	Species	Result
CAS 28182-81-2	EC ₁₀ Desmodemus subspicatus EL ₅₀ Daphnia magna ErC ₅₀ Desmodemus subspicatus LL ₀ Brachydanio rerio	370 mg/l - 72 h 127 mg/L - 48h >1000 mg/L - 0-72 ≥ 82.8 mg/L - 96h
CAS 822-06-0	EC ₀ Daphnia magna ErC ₅₀ Desmodemus subspicatus LC ₀ Brachydanio rerio NOEC Desmodemus subspicatus	≥ 89.1 mg/L - 48h >77.4 mg/L - 0-72h ≥82.8 mg/L - 96h 11.7 mg/L - 72
CAS 108-32-7	LC ₅₀ Leuciscus idus EC ₅₀ Desmodemus subspicatus EC ₅₀ Daphnia magna EC ₅₀	5300 mg/L - 96h >500 mg/L - 72h >500 mg/L - 48h >10000 mg/L - 17h

Persistence and degradability: Poorly biodegradable. The product is unstable in water. In contact with water the substance will hydrolyse slowly.

Bioaccumulative potential: Significant accumulation in organisms is not to be expected.

Mobility in soil: The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Other adverse effects: No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

Information on safe handling for disposal/methods of disposal/contaminated packaging:

Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

SECTION 14. TRANSPORT INFORMATION

UN Number; Proper shipping name; Class(es); Packing group (PG) of the TDG Regulations:

Not classified as a dangerous good under transport regulations.

UN Number; Proper shipping name; Class(es); Packing group (PG) of the IMDG (maritime):

Not classified as a dangerous good under transport regulations.

UN Number; Proper shipping name; Class(es); Packing group (PG) of the IATA (air):

Not classified as a dangerous good under transport regulations.

Special Precautions (transport/conveyance): None.

Environmental hazards (IMDG or other): None known.

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Bulk transport (usually more than 450L in capacity): Possible.

SECTION 15. REGULATORY INFORMATION

Safety/health Canadian regulations specifics:

Refer to section 2 for the appropriate classification. This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR).

Environmental Canadian regulations specifics:

Refer to section 3 for ingredient(s) of the DSL.

Safety/health/environmental outside regulations specifics:

None

SECTION 16. OTHER INFORMATION

Disclaimer:

References: Safety Data Sheets from manufacturer/supplier & from Canadian Centre for Occupational Health and Safety, CCOHS.

Abbreviations:	
ACGIH	American Conference of Governmental Industrial Hygienists
ATE	Acute toxicity estimate
CAS	Chemical Abstract Service
DSL	Domestic Substance List
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
LC	Lethal concentration
LD	Lethal Dosage
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program (U.S.A.)
OSHA	Occupational Safety and Health Administration (U.S.A.)
PEL	Permissible Exposure Limit
STEL	Short-term Exposure Limit
TDG	Transport of dangerous goods in Canada
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

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END OF S.D.S.

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