Dualox Hardener - Part B

SECTION 1. IDENTIFICATION

Product Identifier	Dualox Hardener - Part B
Other Means of Identification	N/A
Product Family	Epoxy Hardeners
Recommended Use	Industrial concrete coating.
Restrictions on Use	This product is designed as part of a system in 2 parts and must be mixed, according to manufacturer's instructions, with the appropriate partner product before use.
Manufacturer/Supplier Identifier	R&D Technical Solutions Ltd., 7000 Davand Drive, Mississauga, ON, L5T 1J5, 905-795-9900, www.rdsolutions.ca
Emergency Phone No.	CANUTEC, 1-613-996-6666, 24 HR

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015).

Classification

Skin corrosion - Category 1B; Serious eye damage - Category 1; Skin sensitization - Category 1

Label Elements

Danger

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H402 Harmful to aquatic life.

Precautionary Statement(s):

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 Wash contaminated clothing before reuse.
P308 + P311 If exposed or concerned: Call a POISON CENTRE or doctor.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTRE or doctor.

Storage:

P402 + P404 Store in a dry place. Store in a closed container.
P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:

P501 Dispose of contents and container in accordance with local, regional, national and international

regulations.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	20-25	
Titanium dioxide	13463-67-7	6-10	
2-(Dimethylamino)ethanol	108-01-0	1-5	
Benzyl alcohol	100-51-6	1-5	
Triethylenetetramine	112-24-3	1-4	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Call a Poison Centre or doctor if you feel unwell.

Skin Contact

Avoid direct contact. Wear chemical protective clothing if necessary. Take off immediately contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 15-20 minutes.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Remove contact lenses, if present, after the initial 1-2 minutes and continue flushing for several additional minutes. Immediately call a Poison Centre or doctor.

Ingestion

Immediately call a Poison Centre or doctor. Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting.

Most Important Symptoms and Effects, Acute and Delayed

Symptoms may develop hours after exposure and are made worse by physical effort. Can cause effects as described for skin contact. Can cause effects as described for inhalation.

Immediate Medical Attention and Special Treatment

Target Organs

Eyes, skin.

Special Instructions

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder or appropriate foam. Special "alcohol resistant fire-fighting foams". Use water to keep non-leaking, fire-exposed containers cool. Large fire: Use flooding quantities of water spray or fog. Use foam or other suitable extinguishing agent.

Unsuitable Extinguishing Media

None known. Do not use direct water stream - may cause fire to spread.

Specific Hazards Arising from the Product

Contain fire water runoff if possible - may cause environmental damage.
In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

Special Protective Equipment and Precautions for Fire-fighters

No special precautions are necessary. Evacuate area. Review Section 6 (Accidental Release Measures) for important information on responding to leaks/spills.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas. Minimize the use of water to prevent environmental contamination.

Methods and Materials for Containment and Cleaning Up

Review Section 7 (Handling) of this safety data sheet before proceeding with clean-up. Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Contaminated absorbent poses the same hazard as the spilled product. Large spills or leaks: dike spilled product to prevent runoff. Store recovered product in suitable containers that are: tightly-covered, corrosion-resistant. Review Section 13 (Disposal Considerations) of this safety data sheet.

Other Information

Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Prevent all skin contact. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Avoid generating vapours or mists. Avoid release to the environment. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). Get medical advice or attention for all exposures. Symptoms can be delayed. Prevent contamination of surfaces that unprotected personnel may use. General hygiene considerations: do NOT eat, drink or store food in work areas. Wash hands thoroughly after handling this material. Immediately remove any clothing which becomes wet or heavily contaminated. See Section 13 (Disposal Considerations) of this safety data sheet.

Conditions for Safe Storage

Store in an area that is: well-ventilated. Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Empty containers may contain hazardous residue. Store separately. Keep closed. Follow all precautions given on this safety data sheet.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Not available.

Consult local authorities for provincial or state exposure limits.

Appropriate Engineering Controls

General ventilation is usually adequate. For large scale use of this product: use local exhaust ventilation, if general ventilation is not adequate to control amount in the air. Provide eyewash and safety shower if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles. Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots. Chemical-resistant, impervious gloves which comply with an approved standard should be worn at all times when handling.
Suitable materials are: nitrile rubber, Viton®/butyl rubber.

Respiratory Protection

Not normally required if product is used as directed. For non-routine or emergency situations: wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless - off-white viscous liquid. Particle Size: Not available
Odour	Ammonia-like
Odour Threshold	Not available
pH	> 7
Melting Point/Freezing Point	Not available (melting); Not available (freezing)
Initial Boiling Point/Range	Not available
Flash Point	>= 94 ºC (201 ºF)
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable (liquid).
Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	Not available
Relative Density (water = 1)	1.06
Solubility	Moderately soluble (1-10%) in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); Not available (dynamic)

Other Information

Physical State	Liquid
Molecular Formula	Not available
Molecular Weight	Not available
Electrical Conductivity	Not available
Saturated Vapour Concentration	Not available
VOC	2.1 %

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

Prolonged exposure to high temperatures. Freezing.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid), strong acids (e.g. hydrochloric acid). Isocyanates organic acids (e.g.

acetic acid).

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; corrosive, oxidizing nitrogen oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Information presented below is for the entire product, unless otherwise specified.

Likely Routes of Exposure

Skin contact; eye contact; skin absorption.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Titanium dioxide	> 6.82 mg/L (rat) (4-hour exposure)	> 5000 mg/kg (rat)	Not available
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines		4673 mg/kg (rat)	
2-(Dimethylamino)ethanol	6.1 mg/L (rat) (4-hour exposure) (vapour)	1183 mg/kg (rat)	1219 mg/kg (rabbit)
Benzyl alcohol	> 4.168 mg/L (rat) (4-hour exposure) (vapour)	1230 mg/kg (rat)	2000 mg/kg (rabbit)

Inhalation ATEmix = 40.58 mg/L (4-hour exposure) (dust/mist)
21% of the mixture consists of an ingredient or ingredients of unknown acute toxicity (inhalation)

Oral ATEmix = 10853.87 mg/kg

Dermal ATEmix = 29974.38 mg/kg
30% of the mixture consists of an ingredient or ingredients of unknown acute toxicity (dermal))

Skin Corrosion/Irritation

There is limited evidence of moderate or severe irritation. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines) animal tests show moderate or severe irritation.

Serious Eye Damage/Irritation

Causes serious eye damage based on skin corrosion information. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines) animal tests show serious eye irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause nose and throat irritation. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines)

Skin Absorption

May be harmful based on limited evidence. (Benzyl alcohol). (2-(Dimethylamino)ethanol)

Ingestion

May cause severe irritation or burns to the mouth, throat and stomach. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines)

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

May cause irritation of the respiratory system. Respiratory tract injury has been observed. (2-(Dimethylamino)ethanol)

Respiratory and/or Skin Sensitization

May cause sensitization through inhalation. May cause sensitization by skin contact. May cause an allergic reaction (skin sensitization) based on limited evidence. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines)

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
2-(Dimethylamino)ethanol	Not evaluated	Not Listed	Not Listed	
Benzyl alcohol	Not evaluated	Not Listed	Not Listed	

Not known to cause cancer.

Key to Abbreviations

ACGIH® = American Conference of Governmental Industrial Hygienists. IARC = International Agency for Research on Cancer. NTP = National Toxicology Program. OSHA = US Occupational Safety and Health Administration.

Reproductive Toxicity

Development of Offspring

May cause effects on the unborn child based on limited evidence. (Benzyl alcohol) however, these effects are only seen with significant toxicity in the mothers.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

Not known to cause effects on or via lactation.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This product has not been tested. The toxicity value statements have been derived from the properties of individual components.

Ecotoxicity

May be harmful to aquatic life. fish,. (Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines)

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Titanium dioxide	> 1000 mg/L (Pimephales promelas (fathead minnow); 96-hour)	> 1000 mg/L (Daphnia magna (water flea); 48-hour)		61 mg/L (Pseudokirchneriella subcapitata (algae); 72-hour)
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	1-10 mg/L		10-100 mg/L (Bacteria)	
2-(Dimethylamino)ethanol	146.6 mg/L (96-hour; static)	98.4 mg/L (Daphnia magna (water flea); 48-hour; static)	66.1 mg/L (Desmodesmus subspicatus (algae); 72-hour; static)	
Benzyl alcohol	460 mg/L (Pimephales promelas (fathead minnow); 96-hour)	230 mg/L (Daphnia magna (water flea); 48-hour)		700 mg/L (Pseudokirchneriella subcapitata (algae); 72-hour; static)

Chronic Aquatic Toxicity

Chemical Name	NOEC Fish	EC50 Fish	NOEC Crustacea	EC50 Crustacea
Benzyl alcohol	51 mg/L (Daphnia magna (water flea);			

	21-day)			

Persistence and Degradability

No information was located.

Bioaccumulative Potential

No information was located.

Mobility in Soil

No information was located. Studies are not available.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

This product and its container must be disposed of as hazardous waste. Do NOT dump into any sewers, on the ground or into any body of water. Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN2735	Amines, Liquid, Corrosive N.O.S. (Fatty Acid Polyamides)	8	III
US DOT	UN2735	Amines, Liquid, Corrosive N.O.S. (Fatty Acid Polyamides)	8	III
	UN2735	Amines, Liquid, Corrosive N.O.S. (Fatty Acid Polyamides, Marine Pollutant)	*	III

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL or are not required to be listed.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.

SECTION 16. OTHER INFORMATION

SDS Prepared By	Compliance & Documentation Coordinator
Phone No.	905-795-9900
Date of Preparation	June 16, 2016
Date of Last Revision	June 17, 2016
Revision Indicators	The following SDS content was changed on June 16, 2016: Section 11 - Toxicological Information; LC50/LD50 values.
Key to Abbreviations	ACGIH® = American Conference of Governmental Industrial Hygienists IARC = International Agency for Research on Cancer

NIOSH = National Institute for Occupational Safety and Health
OSHA = US Occupational Safety and Health Administration

References

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).
Registry of Toxic Effects of Chemical Substances (RTECS®) database. Accelrys, Inc. Available from Canadian Centre for Occupational Health and Safety (CCOHS).

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