

SAFETY DATA SHEET (SDS)

SECTION 1 – IDENTIFICATION

INITIAL SUPPLIER IDENTIFIER

Technical Construction Infrastructure Inc. 4181 Sladeview Cres. Unit #32 Mississauga, ON,

Canada, L5L 5R2

Telephone: (905) 997-5800

EMERGENCY TELEPHONE NUMBER

24hr Emergency Transportation Telephone Number CANUTEC (613) 996-6666 (COLLECT)

PRODUCT IDENTIFIER

Product No: TCI200B Hardener

OTHER MEANS OF IDENTIFICATION

RECOMMENDED USE AND RESTRICTIONS ON USE N/A

SECTION 2 – HAZARD INDENTIFICATION

CLASSIFICATION

ACUTE TOXICITY ORAL (Category 4)
ACUTE TOXICITY DERMAL (Category 4)
SKIN IRRITANT (Category 1B)
SKIN SENSITIZER (Category 1)
EYE IRRITANT (Category 1)
REPRODUCTIVE TOXICITY (Category 1B)
SIGNAL WORD: DANGER



HAZARD	H302+H312	Harmful if swallowed or in contact with skin	
STATEMENTS	H314	Causes severe skin burns and eye damage	
	H317	May cause an allergic skin reaction	
	H360	May damage fertility or the unborn child	
	H362	May cause harm to breast-fed children	
	H318	Causes serious eye damage	
PRECAUTIONARY	P260	Do not breathe dust/fumes/gas/mist/vapours/spray	
STATEMENTS	P263	Avoid contact during pregnancy and while nursing	
	P264	Wash hands thoroughly after handling	
	P280	Wear protective gloves/protective clothing/ eye protection/ face protection	
	P272	Contaminated work clothing should not be allowed out of the workplace	
	P273	Avoid release to the environment	

RESPONSE	P301+P330+P331	I IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF SWALLOWED	P312	Call a POISON CENTER or Doctor/Physician if you feel unwell
IF ON SKIN	P302+P352	IF ON SKIN: Wash with plenty of water
	P361+P364	Take off immediately all contaminated clothing and wash it before reuse
	P353	Rinse skin with water/shower
	P312	Call a POISON CENTER or Doctor/Physician if you feel unwell
	P333+P313	If skin irritation or rash occurs: get medical advice/attention as appropriate
IF INHALED	P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
	P310	Immediately call a POISON CENTER or Doctor/Physician
	P305+P351+P338	3
IF IN EYES		IF IN EYES: Rinse cautiously with water for several minutes; Remove contact
		lenses, if present and easy to do. Continue rinsing
	P310	Immediately call a POISON CENTER or Doctor/Physician
STORAGE &	P405	Store locked up
DISPOSAL	P501	Dispose of contents/container in accordance to Federal rules, laws and
		regulations.

SECTION 3 – COMPOSITION INFORMATION

INGREDIENT	#CAS	%
Trimethylolpropane poly(oxypropylene)triamine	39423-51-3	80-100
Tetraethylenenpentamine	112-57-2	10-30

SECTION 4 – FIRST AID MEASURES

Eye contact Flush eyes with plenty of water for at least 15 minutes while holding eyelids apart.

Consult a physician. Do not use eye ointment.

Skin contact Wash off in flowing water or shower with soap and rinse thoroughly. Remove

contaminated clothing and discard. If irritation persists, consult a physician.

Inhalation Remove to fresh air. If breathing is laboured, administer oxygen. If not

breathing, administer artificial respiration. Consult a physician.

Ingestion If swallowed, seek medical attention immediately. Do not induce vomiting unless

directed to do so by medical personnel. Do not give anything by mouth to an

unconscious person

SECTION 5 - FIRE-FIGHTING MEASURES

Explosion data - sensitivity to

Mechanical impact Stable
 Static discharge Stable

Unusual Fire and Explosion Hazards During a fire, oxides of nitrogen may be evolved. Burning can produce carbon

monoxide and/or carbon dioxide.

Means of extinguishingWater spray, carbon dioxide, dry chemical, foam to extinguish flames. Use water

spray to cool fire-exposed containers. Water or foam may cause frothing.

2

Flash point 148°C [PMCC]

Conditions of flammability Non-flammable

Upper flammable limitNot availableLower flammable limitNot availableAuto ignition temperatureNot available

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Wear appropriate protective equipment. Avoid contact with liquid and vapours.

Environmental Precautionary Measures

Prevent entry into sewers and streams, dike if needed. Consult local authorities.

Leak and spill procedures

Avoid contact with material. Evacuate all non-essential personnel. Keep spark producing equipment away. Dike area to prevent spill spreading and soak up with absorbent material such as sand, or polypropylene or polyethylene fiber products and collect in suitable containers. Residual resin may be removed using steam or hot soapy water. Dispose of absorbent material in accordance with regulations.

SECTION 7 - HANDLING AND STORAGE

Handling

Maintain Emergency eye wash stations and showers near working area. Practice good caution and personal cleanliness to avoid skin, eye contact and direct inhalation.

Storage

Keep containers tightly sealed when not in use. Store away from heat, ignition sources; and store away from incompatible materials. Store in a cool, dry and well-ventilated area.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection Splash proof goggles with side shields.

Skin protection Protective clothing such as coveralls or lab coats must be worn. Gloves resistant

to chemicals and petroleum distillates required. When handling large quantities, impervious suits, gloves, and rubber boots must be worn. Launder or dry-clean

clothes when soiled.

Respiratory protection Airborne concentrations should be kept to lowest levels possible. If vapour, mist

> or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH/MSHA approved

respirators.

Engineering controls Good general ventilation is sufficient for most conditions. Avoid breathing mists if

general ventilation or local exhausts is inadequate; persons exposed to mists

should wear appropriate NIOSH/MSHA approved breathing devices.

Exposure limits Not available

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical state

Odour and appearance Ammonia-like odour Odour threshold (p.p.m.) Not available

Specific gravity (gm/cm³) 1.0

Vapour pressure < 0.01 kPa at 20°C

Vapour density (Air = 1) > 1

Evaporation rate (n butyl acetate = 1) Not available Boiling point (°C) 220.6°C Freezing point (°C) Not available рΗ 11.7

Coefficient of water/oil distribution Not available

Solubility in water (%) > 10

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability. Stable [x] Unstable []

If no, under which conditions Avoid excessive heat, strong oxidizers, acids and bases.

Incompatibility to other substances.

Yes[x] No[] If so, which ones

Bases, acids, amines and oxidizing materials, plastics other than Teflon or polypropylene, and aluminum at high temperatures. Sodium or Calcium Hypochlorite. Reaction with peroxides may result in violent decomposition of

peroxide possibly creating an explosion.

Materials to avoid CAUTION! N-Nitrosamines, many of which are known to be potent carcinogens,

may be formed when the product comes in contact with nitrous acid, nitrites or

atmospheres with high nitrous oxide concentrations.

Conditions of ReactivityAvoid heating up the product. Hazardous polymerization will not occur by itself,

but masses of more than 1 lb of epoxy resin combined with this product will cause

irreversible polymerization with considerable heat buildup.

Explosion data - sensitivity to

Mechanical impact Stable
 Static discharge Stable

Unusual Explosion Hazards Extinguish all nearby sources of ignition since vapours decompose to toxic

products at high temperatures. When exposed to heat, closed containers may

explode. Contact with strong oxidizers may cause fire or explosion.

SECTION 11 – TOXICOLOGICAL INFORMATION

Route of entry Eye contact

Causes irritation, experienced as pain, with excess blinking and tear production,

and seen as extreme redness and swelling of the eye and chemical burns of the

eye. Severe eye damage may cause blindness.

Skin contactCauses severe irritation with pain, severe excess redness and swelling with

chemical burns, blister formation, and possible tissue destruction.

Inhalation Vapour is irritating and may cause excessive tear formation, burning sensation of

the nose and throat, coughing, wheezing, shortness of breath, nausea, and vomiting. Extremely high vapor concentrations may cause lung damage. Some

individuals may develop asthma.

Ingestion Causes burning of mouth, throat, and stomach with abdominal and chest pain,

nausea, vomiting, diarrhea, thirst, weakness, and collapse. Aspiration may occur

during swallowing or vomiting, resulting in lung damage.

Skin absorption Prolonged or widespread contact may result in the absorption of potentially

harmful amounts of material.

Effects of acute exposure to product Skin contact may cause sensitization and an allergic skin reaction and may

aggravate an existing dermatitis. Cross-sensitization may occur by skin contact

with this material and other amines.

Effects of chronic exposure to product

Repeated skin contact may cause a persistent irritation or dermatitis. Repeated inhalation may cause lung damage. Overexposure to vapour, dust or mist may

aggravate existing respiratory conditions, such as asthma, bronchitis, and inflammatory or fibrotic respiratory disease. Repeated oral exposures may

cause kidney and liver changes.

Mutagenicity In vitro genetic toxicity studies were negative in some cases and positive in other

cases. Animal genetic toxicity studies were negative.

Toxicity Data Trimethylolpropane poly(oxypropylene)triamine- Oral LD50(rat): 550

mg/kg*Dermal LD50(rat): >1,000 mg/kg

Tetraethylenenpentamine- Oral LD50(rat): 2,140 kg/kg*Dermal LD50(rat): >660

mg/kg

Teratogenicity Laboratory animals that were fed exaggerated doses of

CarcinogenicityNot availableReproductive toxicityNot availableToxicologically synergistic productsNot available

SECTION 12 - ECOLOGICAL INFORMATION

Material not readily biodegradable

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste disposal

Any disposal practice must be in accordance with Municipal, Provincial and Federal regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate, or otherwise inappropriate. Do not allow into any sewers, on the ground or into any body of water. Dispose of any unused, uncontaminated, as well as contaminated product, by a properly licensed company.

SECTION 14 – TRANSPORTATION INFORMATION

TDG (Canada)

TDG Proper Shipping Name Corrosive Liquid, N.O.S. (Amine)

Hazard Class 8
UN Number 1760
Packing Group III

Note No additional remark

Marine Pollutant No

SECTION 15 – REGULATORY INFORMATION

TSCA All ingredients are on the TSCA Chemical Substance Inventory, or are not

required to be listed on the TSCA inventory.

DSLThe substance(s) in this product is/are on the Canadian Domestic Substances

List.

WHMIS D1B, D2B, E

NFPA Health: 3, Flammability: 1, Reactivity: 0

SARA 311 Immediate (acute) health hazard * Delayed (chronic) health hazard

312 Immediate (acute) health hazard * Delayed (chronic) health hazard

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313 Not Listed

SECTION 16 – OTHER INFORMATION

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Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to our Technical Data Sheet and/or Certificate of Analysis (Compliance).

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, TCI makes no representations as to its accuracy or sufficiency. Conditions of use are beyond TCI's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

END OF SDS



SAFETY DATA SHEET (SDS)

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Telephone: (905) 997-5800

EMERGENCY TELEPHONE NUMBER

24hr Emergency Transportation Telephone Number CANUTEC (613) 996-6666 (COLLECT)

PRODUCT IDENTIFIER

Product No: TCI200B Resin

OTHER MEANS OF IDENTIFICATION

RECOMMENDED USE AND RESTRICTIONS ON USE

SECTION 2 – HAZARD INDENTIFICATION

CLASSIFICATION

SKIN IRRITANT (Category 2)
SKIN SENSITIZER (Category 1)
EYE IRRITANT (Category 2A)
AQUATIC CHRONIC (Category 2)
SIGNAL WORD: WARNING





HAZARD	H302	Harmful if swallowed.		
STATEMENTS	H315	May be harmful in contact with skin.		
	H317	May cause an allergic skin reaction.		
	H319	Causes serious eye irritation.		
	H401	Toxic to aquatic life.		
	H411	Toxic to aquatic life with long lasting effects.		
PRECAUTIONARY	P261	Avoid breathing dust/fume/gas/mist/vapours/spray.		
STATEMENTS	P264	Wash thoroughly after handling.		
	P270	Do not eat, drink, or smoke when using this product.		
	P280	Wear protective gloves/protective clothing/ eye protection/ face protection.		
	P272	Contaminated work clothing should not be allowed out of the workplace.		
	P273	Avoid release to the environment.		
RESPONSE	P302+P352	IF ON SKIN: Wash with plenty of water.		
IF ON SKIN	P362+P364	Take off contaminated clothing and wash it before reuse.		
	P333+P313	If skin irritation or rash occurs: get medical advice/attention.		
	P305+P351+P33	38		
IF IN EYES		IF IN EYES: Rinse cautiously with water for several minutes; Remove		
		contact lenses, if present and easy to do. Continue rinsing.		
	P337+P313	If eye irritation persists: Get medical advice/attention.		
DISPOSAL	P501	Dispose of contents/container in accordance to Federal rules, laws and		
		regulations.		

SECTION 3 – COMPOSITION INFORMATION

INGREDIENT	#CAS	%
Diglycidyl-Ether of Bisphenol-A	25068-38-6	30-60
Reaction product: Bisphenol F-(epichlorohydrin); epoxy resin	9003-36-5	10-30

SECTION 4 – FIRST AID MEASURES

Eye contact Flush eyes with plenty of water for at least 15 minutes while holding eyelids apart.

Consult a physician. Do not use eye ointment.

Skin contact Wash off in flowing water or shower with soap and rinse thoroughly. Remove

contaminated clothing and discard. If irritation persists, consult a physician.

Inhalation Remove to fresh air. If breathing is laboured, administer oxygen. If not breathing

administer artificial respiration. Consult a physician.

Ingestion If swallowed, seek medical attention immediately. Do not induce vomiting unless

directed to do so by medical personnel. Do not give anything by mouth to an

unconscious person

SECTION 5 - FIRE-FIGHTING MEASURES

Hazardous combustion products

The by-products expected in incomplete pyrolysis or combustion of epoxy

resins are mainly phenolics, carbon monoxide and water. The thermal

decomposition products of epoxy resins therefore should be treated as potentially hazardous substances, and appropriate precautions should be taken. May

liberate carbon monoxide or carbon dioxide.

Means of extinguishing Foam, CO2, dry chemical, water spray. DO NOT use a direct water stream.

Flash point >150°C (closed cup)

Conditions of flammability Combustible

Upper flammable limitNot availableLower flammable limitNot availableAuto ignition temperatureNot available

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Wear appropriate protective equipment and clothing.

Environmental Precautionary Measures

Prevent entry into sewers and streams, dike if needed. Consult local authorities.

Leak and spill procedures

Avoid contact with material. Evacuate all non-essential personnel. Keep spark producing equipment away. Dike area to prevent spill spreading and soak up with absorbent material such as sand, or polypropylene or polyethylene fibre products and collect in suitable containers. Residual resin may be removed using steam or hot soapy water. Solvents are not recommended for cleanup unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent MSDS for handling information and exposure guidelines.

SECTION 7 – HANDLING AND STORAGE

Handling

Maintain Emergency eye wash stations and showers near working area. Practice good caution and personal cleanliness to avoid skin, eye contact and direct inhalation. Recommended pumping and storage temperature is 15-25°C.

Storage

Keep containers tightly sealed when not in use. Store away from heat, ignition sources; and store away from incompatible materials. Store the material in a cool,

dry, and well-ventilated area.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection Safety glasses with side shields. Splash proof goggles.

Skin protection Use protective clothing impervious to this product. Selection of specific items

> such as face shield, gloves, boots, apron or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin with soap and

water; and launder clothing before reuse.

Respiratory Protection No respiratory protection should be needed at room temperature. Avoid

breathing vapours of heated material. NOTE: If grinding or sanding cured

material, use NIOSH or OSHA approved respiratory protection.

Good general ventilation is sufficient for most conditions. **Engineering controls**

NOTE: If grinding or sanding cured product use NIOSH/MSHA approved

respiratory protection at all times.

Not available **Exposure limits**

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state Liquid

Odour and appearance Faint epoxy odour Odour threshold (p.p.m.) Not available

Specific gravity (gm/cm³) 1.5 Vapour pressure (Pa) 13.3

Vapour density (Air = 1) Not available Evaporation rate (n butyl acetate = 1) Not available Boiling point (°C) > 200°C

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability Stable [x] Unstable []

If no, under which conditions Avoid excessive heat, strong oxidizers, acids and bases.

Incompatibility to other substances

Yes[x] No[] If so, which ones Bases, acids, amines and oxidizing materials, plastics other than Teflon or

polypropylene, and aluminum at high temperatures. Sodium or Calcium Hypochlorite. Reaction with peroxides may result in violent decomposition of

peroxide possibly creating an explosion.

Excess heating above 60°C over long periods of time degrades the resin. Conditions of Reactivity

Hazardous polymerization will not occur by itself, but masses of more than 1 lb of

product plus an aliphatic amine will cause irreversible polymerization with

considerable heat buildup.

Explosion data - sensitivity to

1) Mechanical impact Stable 2) Static discharge Stable

Unusual Explosion Hazards Extinguish all nearby sources of ignition since vapours decompose to toxic

products at high temperatures. When exposed to heat, closed containers may

explode. Contact with strong oxidizers may cause fire or explosion.

SECTION 11 – TOXICOLOGICAL INFORMATION

Route of entry

Eye contact May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

Skin contact Prolonged or repeated contact may cause skin irritation with local redness.

Inhalation Not available

Aspiration Toxicity Not likely to present a hazard.

Ingestion Not available

Acute Toxicity Estimates (ATE) Very low toxicity if swallowed. Prolonged skin contact is unlikely to result in

absorption of harmful amounts. Vapour from heated material, mist or aerosol may

cause respiratory irritation.

Effects of acute exposure to product Not available

Effects of chronic exposure to product

Skin sensitization

Carcinogenicity Not listed as a carcinogen by NTP, IARC, OSHA and ACGIH

Germ Cell Mutagenicity Animal mutagenicity studies were negative. In vitro mutagenicity studies were

negative in some cases, and positive in others

Reproductive Toxicity

No reproductive effects

Toxicity Data Diglycidyl-Ether of Bisphenol-A Oral LD50 (rats): 30,000 mg/kg* Dermal LD50

(rabbits):> 1,200 mg/kg

Reaction product: Bisphenol F-(epichlorohydrin); epoxy resin- Oral LD50 (rats): >2,000 mg/kg Estimated*Dermal: prolonged skin contact is unlikely to result in absorption of harmful amounts. The Dermal LD50 has not been determined.

Skin Corrosion/Irritation Respiratory or Skin Sensitization

Other Information

Not available Not available Not available

SECTION 12 – ECOLOGICAL INFORMATION

Material not readily biodegradable

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal Considerations

Any disposal practice must be in accordance with Municipal, Provincial and Federal regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate, or otherwise inappropriate. Do not allow into any sewers, on the ground or into any body of water. Dispose of any unused, uncontaminated, as well as contaminated product, by a properly licensed company.

SECTION 14 – TRANSPORTATION INFORMATION

TDG (Canada)

TDG Proper Shipping NameThis product is not regulated by TDG when shipped domestically by land.

DOT Not regulated for Transport.

SEA transport (IMO-IMDG)

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID N.O.S.(EPOXY

RESIN)

U.N. Number UN 3082

Class 9
Packing Group III

Marine pollutant Epoxy resin

Transport in bulk Consult IMO regulations before transporting ocean bulk according to Annex I or II

of Marpol 73/78 and the IBC or IGC Code.

Air transport (IATA-ICAO)

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID N.O.S.(EPOXY

RESIN)

U.N. Number UN 3082

Class 9
Packing Group III

Note No additional remark

SECTION 15 – REGULATORY INFORMATION

TSCA All ingredients are on the TSCA Chemical Substance Inventory; or are not

required to be listed on the TSCA inventory.

DSL The substance(s) in this product is/are on the Canadian Domestic Substances

List.

WHMIS D2B

SECTION 16 – OTHER INFORMATION

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END OF SDS