



WEAVER CONSTRUCTION MANAGEMENT, INC.

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Englewood, CO 80110

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SUBMITTAL TRANSMITTAL

August 24, 2011

WGC Submittal No: 03300-018

PROJECT: Harold Thompson Regional WRF
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: GMS, Inc.
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: Lower Fountain Metropolitan
Sewage Disposal District
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: Garney Companies Inc.
7911 Shaffer Parkway
Littleton, CO 80127
303-791-3600 Dennis Van Auken

SUBJECT: Concrete Clarifier - Simpson Strong-Tie Crack Repair

SPEC SECTION: 03300

PREVIOUS SUBMISSION DATES: None

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver General Construction and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto:

Contractor's Stamp:

Date: 8/24/11

Reviewed by: H.C. Myers

(X) Reviewed Without Comments

() Reviewed With Comments

Engineer's Stamp:

**ENGINEER'S
COMMENTS:** _____

Submittal / Substitution Request



SUBMITTED TO:

To: _____

Firm: _____

Project: _____

Submitted Product: **SIMPSON STRONG-TIE® ETI CRACK-REPAIR EPOXY**

Specified Product: _____

Section: _____ Page: _____ Detail/Sheet No.: _____

Description of Application: _____

Attached information includes product description, installation instructions and pertinent technical data needed for evaluation of the submittal request.

SUBMITTED BY:

Name: _____ Signature: _____

Firm: _____

Address: _____

Phone: _____ Fax: _____

E-Mail: _____

Date of Submittal: _____

FOR ARCHITECT/ENGINEER USE:

Approved: _____ Approved As Noted: _____ Not Approved: _____

(Please briefly explain why not approved)

By: _____ Date: _____

Remarks: _____



Table of Contents

Simpson Strong-Tie® ETI Technical Information

Certificate of NSF 61 approval for potable water applications.

ETI-LV Material Safety Data Sheet

ETI-GV Material Safety Data Sheet

ETI Injection Epoxy

ETI injection epoxies are specially designed formulations for the injection of cracks in concrete. ETI epoxies are two-component, 1:1 ratio, high solids formulations. They are available in 22 ounce side-by-side cartridges and are dispensed through a static mixing nozzle using a manual, battery or pneumatic dispensing tool. ETI is available in two viscosities: ETI-LV (low viscosity) and ETI-GV (gel viscosity) to handle a wide range of crack widths. Properly installed, they provide a repair that is both waterproof and high strength (structural).

FEATURES:

- Chemically bonds with the concrete to provide a structural repair (meets the requirements of ASTM C-881 as a structural repair epoxy)
- Seals the crack from moisture, protecting rebar in the concrete from corrosion and flooring from moisture damage
- Both viscosities formulated for maximum penetration under pressure
- Side-by-side cartridge dispensing provides reliable mixing and ratio control when used with the New Simpson Strong-Tie® Opti-Mix® static mixing nozzle
- Eliminates the need for expensive bulk dispensing equipment. Either formulation can be dispensed using a manual or pneumatic dispensing tool (ETI-LV requires the use of the Opti-Mix® nozzle, model EMN022, which is included with the cartridge)
- Black and white components allow easier verification of mixing than systems utilizing same color components. The mixed epoxy is gray for a better color match with the concrete for exposed conditions
- Suitable for pressure injection or gravity-feed applications.
- Non-shrink material resistant to oils, salts and mild chemicals

ETI-LV Low Viscosity Injection Epoxy

- Low viscosity epoxy (1790 cps) for repair of fine to medium width cracks 1/64" - 1/4" in width
- Low surface tension allows the material to effectively penetrate narrow cracks
- Suitable for structural repairs

ETI-GV Gel Viscosity Injection Epoxy

- Gel viscosity epoxy for repair of medium cracks 3/32" - 1/4" in width.
- Decreases in viscosity under pressure for increased flowability.
- Suitable for structural repairs.

APPLICATION: Epoxy-Tie® injection epoxies are suitable for repairing non-moving cracks in concrete walls, floors, slabs, columns and beams. They can be used to inject cracks in damp or wet conditions with excellent results. Apply to concrete 40°F or above. For best results, warm material to 60°F or above prior to application.

SHELF LIFE: 2 years in unopened cartridge

STORAGE CONDITIONS: For best results, store between 45°-90°F

COLOR: Resin- white, hardener- black. When properly mixed the adhesive will be a uniform gray color.

CLEAN UP: Removal of cured adhesive – Chip or grind off surface. Uncured Adhesive – Wipe up with cotton cloths. If desired, scrub area with abrasive, waterbased cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc.), lacquer thinner, or adhesive remover can be used. DO NOT USE SOLVENTS TO CLEAN ADHESIVE FROM SKIN. Take appropriate precautions when handling flammable solvents. Solvents may damage surface to which they are applied.

TECHNICAL SPECIFICATIONS:

- **ETI-LV:** Meets the requirements of ASTM C-881 Type I, II, IV and V, Grade 1, Classes B & C. Approved under NSF/ANSI Standard 61 (22 in²/1000 gal).
- **ETI-GV:** Meets the requirements of ASTM C-881 Type I, II, IV and V, Grade 3, Classes B & C.

CHEMICAL RESISTANCE: Very good to excellent against distilled water, inorganic acids and alkalis. Fair to good against organic acids and alkalis, and many organic solvents. Poor against ketones.

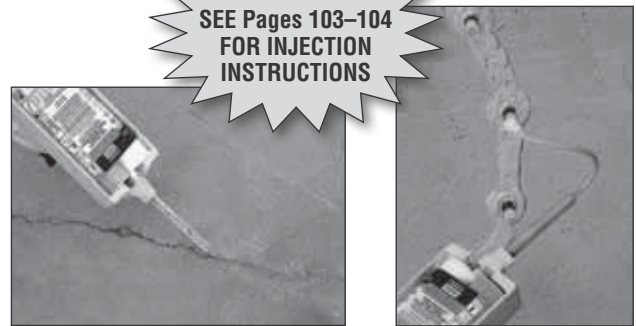
ACCESSORIES: See page 109 for information on mixing nozzles, parts, fittings and paste over material.



ETI-LV

ETI-GV

- IMPORTANT -
SEE Pages 103-104
FOR INJECTION
INSTRUCTIONS



Caution – The ETI-LV must be used with the Opti-Mix® nozzle (EMN022) for proper mixing. ETI-GV may also be used with the EMN22 mixing nozzle for gravity feed applications in large cracks.

ETI Cartridge System

Model No.	Capacity ounces (cubic inches)	Cartridge Type	Carton Quantity	Dispensing Tool	Mixing ¹ Nozzle
ETILV22	22	side-by-side	10	EDT22B, EDT22AP, or EDT22CKT	EMN022 (included)
ETIGV22	(39.7)				

1. Bulk containers also available, call Simpson Strong-Tie for details.
2. Use only appropriate Simpson Strong-Tie® mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair epoxy performance.

PROPERTY

Viscosity (75°F)
Bond strength (moist cure)

Tensile strength
Tensile elongation at break
Compressive yield strength
Compressive modulus
Deflection temperature
Water absorption (24 hours)
Linear coefficient of shrinkage
Gel time (60 gram mass)
Initial cure (72°F)

TEST METHOD

ASTM D 2393
ASTM C 882

ASTM D 638
ASTM D 638
ASTM D 695
ASTM D 695
ASTM D 648
ASTM D 570
ASTM D 2566
ASTM C 881
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ETI-LV RESULTS

1,790 cps
2,500 psi (2 days)
2,530 psi (14 days)
7,470 psi (7 days)
9.4%
12,480 psi (7 days)
342,000 psi
130°F
0.76%
0.004
120 min.
24 hours

ETI-GV RESULTS

Non-sag gel
1,109 psi (2 days)
3,994 psi (14 days)
•
•
11,564 psi (7 days)
403,200 psi
131°F
0.58%
0.000
135 min.
24 hours



Important: These instructions are intended as recommended guidelines. Due to the variability of field conditions, selection of the proper material for the intended application and installation are the sole responsibility of the applicator.

Epoxy injection is an economical method of repairing non-moving cracks in concrete walls, slabs, columns and piers and is capable of restoring the concrete to its pre-cracked strength. Prior to doing any injection it is necessary to determine the cause of the crack. If the source of cracking has not been determined and remedied, the concrete may crack again.

Materials

- ETI-LV for repair of fine to medium-width cracks (Suggested width range: 1/64"–1/4").
- ETI-GV for repair of medium-width cracks (Suggested width range: 3/32"–1/4")
- Crack-Pac® injection epoxy for repair of fine to medium non-structural cracks (Suggested width range: 1/64"–1/4")
- CIP, CIP-F and ETR are recommended for paste-over of crack surface and installation of injection ports. ET, EDOT™, ETR or SET adhesives may also be used as a substitute. (SET is the only paste-over epoxy approved for NSF/ANSI Standard 61.)
- E-Z-Click™ injection ports, fittings and other suitable accessories.

Preparation of the Crack for Injection

Clean the crack and the surface surrounding it to allow the epoxy to bond to sound concrete. At a minimum, the surface to receive paste-over should be brushed with a wire brush. Oil, grease or other surface contaminants must be removed in order to allow the paste-over to bond properly. Take care not to impact any debris into the crack during cleaning. Using clean, oil free compressed air, blow out the crack to remove any dust, debris or standing water. Best results will be obtained if the crack is dry at the time of injection. If water is continually seeping from the crack, the flow must be stopped in order for epoxy injection to yield a suitable repair. Other materials such as polyurethane resins may be required to repair an actively leaking crack.

For many applications, additional preparation is necessary in order to seal the crack. Where a surfacing material has been removed using an acid or chemical solvent, prepare the crack as follows:

1. Using clean, compressed air, blow out any remaining debris and liquid.
2. Remove residue by high-pressure washing or steam cleaning.
3. Blow any remaining water from the crack with clean compressed air.

If a coating, sealant or paint has been applied to the concrete it must be removed before placing the paste-over epoxy. Under the pressure of injection these materials may lift and cause a leak. If the surface coating is covering the crack, it may be necessary to route out the opening of the crack in a "V"

shape using a grinder in order to get past the surface contamination.

Sealing of the Crack and Attachment of E-Z-Click™ injection ports

1. To adhere the port to the concrete, apply a small amount of epoxy around the bottom of the port base. Place the port at one end of the crack and repeat until the entire crack is ported. As a rule of thumb, injection ports should be placed 8" apart along the length of the crack. *Important: Do not allow epoxy to block the port or the crack under it, this is where epoxy must enter the crack.*

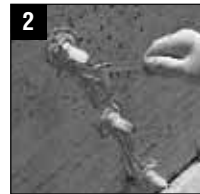


2. Using a putty knife or other paste-over tool, generously work epoxy along the entire length of the crack. Take care to mound the epoxy around the base of the port to approximately 1/4" thick extending 1" out from the base of the port and to work out any holes in the material. It is recommended that the paste-over should be a minimum of 3/16" thick and 1" wide along the crack. Insufficient paste-over will result in leaks under the pressure of injection. If the crack passes completely through the concrete element, seal the back of the crack, if possible. If not, epoxy may be able to run out the back side of the crack, resulting in an ineffective repair.



3. Allow the paste-over to harden before beginning injection.

Note: CIP, CIP-F and ETR epoxies are fast cure, manually mixed materials and may harden prematurely if left in a mixed mass on the mixing surface while installing ports. Spreading paste-over into a thin film (approximately 1/8") on the mixing surface will slow curing by allowing the heat from the reaction to dissipate.



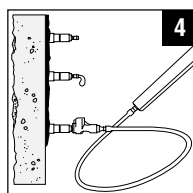
Injection Procedure for ETI-LV, ETI-GV and Crack-Pac® Injection Epoxy

1. Follow cartridge preparation instructions on the cartridge label. Verify that the material flowing from the Opti-Mix® mixing nozzle is a uniform gray color for ETI-LV and ETI-GV. For Crack-Pac® injection epoxy verify that the mixed material in the cartridge is a light amber color.
2. Attach the E-Z-Click™ fitting to the end of the nozzle by pushing the tubing over the barbs at the end of the nozzle. Make sure that all ports are pushed in to the open position.

3. Attach the E-Z-Click™ injection fitting to the first E-Z-Click™ port until it clicks into place. Make sure that the heads of all the ports are pushed in to the open position. In vertical applications, begin injection at the lowest port and work your way up. In a horizontal application start at one end of the crack and work your way to the other end.



4. Inject epoxy into the first port until it will no longer flow into the crack. If epoxy shows at the next port and the first port still accepts material, close the second port and continue to inject into the first port until it accepts no more epoxy. Continue closing ports where epoxy appears until the first port refuses epoxy. When the first port reaches the point of refusal, brace the base of the port and pull out gently on the head of the port to close it.



Pulling too hard may dislodge the port from the surface of the concrete, causing a leak. Depress the metal tab on the head of the E-Z-Click fitting and remove it from the port.

5. Go to the last port where epoxy appeared while injecting the first port, open it, and continue injection at this port. If the epoxy has set up and the port is bonded closed, move to the next clean port and repeat the process until every portion of the crack has refused epoxy.

While this method may appear to leave some ports uninjected, it provides maximum pressure to force the epoxy into the smaller areas of the crack. Moving to the next port as soon as epoxy appears will allow the epoxy to travel along the wider parts of the crack to the next ports rather than force it into the crack before it travels to the next ports.

Injection Tips

- If using a pneumatic dispensing tool, set the tool at a low setting when beginning injection and increase pressure if necessary to get the epoxy to flow.
- For narrow cracks it may be necessary to increase the pressure gradually until the epoxy begins to flow. It may also be necessary to wait a few minutes for the epoxy to fill the crack and travel to the next port.
- If desired, once the injection epoxy has cured, remove the injection ports and paste-over epoxy. The epoxy can be removed with a chisel, scraper, or grinder. The paste-over can be simply peeled off if CIP-F is used. Using a heat gun to soften the epoxy is recommended when using a chisel or scraper.
- Mixing nozzles can be used for multiple cartridges as long as the epoxy does not harden in the nozzle.

Troubleshooting

Epoxy is flowing into the crack, but not showing up at the next port.

This can indicate that either the crack expands and/or branches off under the surface of the concrete. Continue to inject and fill these voids. In situations where the crack penetrates completely through the concrete element and the backside of the concrete element cannot be sealed (e.g. basement walls, or footings with backfill) longer injection time may not force the epoxy to the next port. This most likely indicates that epoxy is running out of the unsealed back side of the crack. In this case the application may not be suitable for epoxy injection repair without excavation and sealing of the back side of the crack.

Back pressure is preventing epoxy from flowing.

This can indicate several situations:

- The crack is not continuous and the portion being injected is full (see above instructions about injection after the port has reached refusal).
- The port is not aligned over the crack properly.
- The crack is blocked by debris.
- If the mixing nozzle has been allowed to sit for a few minutes full of epoxy, the material may have hardened in the nozzle. Attach the E-Z-Click™ fitting to a port at another uninjected location on the crack and attempt to inject. If the epoxy still won't flow, chances are the epoxy has hardened in the nozzle.

Epoxy is leaking from the pasted-over crack or around injection ports.

Stop injecting. If using a fast cure paste-over material (ETR or CIP), wipe off the leaking injection epoxy with a cotton cloth and re-apply the paste over material. Wait approximately 10–15 minutes to allow the epoxy to begin to harden. If the leak is large (e.g. the port broke off of the concrete surface) it is a good idea to wait approximately 30 minutes, or longer as necessary, to allow the paste over to cure more completely. Check to see that the epoxy is hard before reinjecting or the paste-over or ports may leak. Another option for small leaks is to clean off the injection epoxy and use paraffin or crayon to seal the holes.

More epoxy is being used than estimated.

This may indicate that the crack either expands or branches off below the surface. Continue to inject and fill these voids. This may also indicate that epoxy is running out of the back side of the crack. If the crack penetrates completely through the concrete element and cannot be sealed, the application may not be suitable for injection repair.

Less epoxy is being used than estimated.

This may indicate that the crack is shallower than originally thought, or the epoxy is not penetrating the crack sufficiently before moving to the next port. Reinject some ports with a lower viscosity epoxy to see if the crack will take more epoxy. Another option is to heat the epoxy to a temperature of 80–100°F which will reduce its viscosity and allow it to penetrate into small cracks easier. The epoxy should be heated uniformly, do not overheat cartridge.

Gravity-Feed Procedure

Some horizontal applications where complete penetration is not a requirement can be repaired using the gravity feed method.

1. Follow cartridge preparation instructions on the cartridge label. Verify that the material flowing from the Opti-Mix® mixing nozzle is a uniform gray color for ETI-LV and ETI-GV. For Crack-Pac® injection epoxy verify that the mixed material in the cartridge is a clear amber color.

2. Starting at one end of the crack, slowly dispense epoxy into the crack, moving along the crack as it fills. It will probably be necessary to do multiple passes in order to fill the crack. It is possible that the epoxy will take some time to run into the crack, and the crack may appear empty several hours after the initial application. Reapply the epoxy until the crack is filled. In situations where the crack completely penetrates the member (e.g. concrete slab) the material may continue to run through the crack into the subgrade. In these cases epoxy repair may not provide an effective repair.

ESTIMATING GUIDE FOR EPOXY CRACK INJECTION

Width of Crack (in.)	Concrete Thickness (in.)	Approximate Coverage per 22 oz. Cartridge (linear ft.)	Approximate Coverage per 9 oz. Crack-Pac Cartridge (linear ft.)	Width of Crack (in.)	Concrete Thickness (in.)	Approximate Coverage per 22 oz. Cartridge (linear ft.)
1/64	4	47.6	18.4	1/4	4	3.0
	6	31.8	12.3		6	2.0
	8	23.8	9.2		8	1.5
	10	19.1	7.4		10	1.2
1/32	4	23.8	9.2	5/16	4	2.4
	6	15.9	6.1		6	1.6
	8	11.9	4.6		8	1.2
	10	9.5	3.7		10	1.0
1/16	4	11.9	4.6	3/8	4	2.0
	6	7.9	3.1		6	1.3
	8	6.0	2.3		8	1.0
	10	4.8	1.9		10	0.8
1/8	4	6.0	2.3	7/16	4	1.7
	6	4.0	1.5		6	1.1
	8	3.0	1.2		8	0.9
	10	2.4	0.9		10	0.7
3/16	4	4.0	1.5	1/2	4	1.5
	6	2.6	1.0		6	1.0
	8	2.0	0.8		8	0.7
	10	1.6	0.6		10	0.6

Coverage listed is approximate and will vary depending on waste and condition of concrete.

Tip: For narrow cracks, run a bead of caulk along each side of the crack approximately 1/8" from the edge of the crack. This will form a reservoir into which epoxy can be dispensed. Alternatively, use a grinder to route the crack opening into a "V" shape. Take care to clean the crack with compressed air afterwards as grinding can impact dust and debris into the crack and prevent proper flow of the epoxy.



Simpson Strong-Tie does not recommend repair of cracks larger than 1/4" wide without consulting a qualified engineer.



OFFICIAL LISTING

NSF International Certifies that the products appearing on this Listing conform to the requirements of NSF/ANSI Standard 61 - Drinking Water System Components - Health Effects

These NSF Official Listings are current as of Thursday, March 10, 2011

SIMPSON STRONG-TIE COMPANY
5956 WEST LAS POSITAS BOULEVARD
PLEASANTON, CA 94588
800-999-5099

Facility: ADDISON, IL

Joining and Sealing Materials

Trade Designation	Size	Water Contact Temp	Water Contact Material
Adhesives			
AT08	[1]	CLD23	JSM
AT10	[1]	CLD23	JSM
AT13	[1]	CLD23	JSM
AT30	[1]	CLD23	JSM
AT5.5	[1]	CLD23	JSM
Acrylic - Tie	[1]	CLD23	JSM
ETI-LV Injection Epoxy	[3]	CLD23	EPOXY
ETILV	[3]	CLD23	EPOXY
ETILV22	[3]	CLD23	EPOXY
SET High Strength Epoxy	[2]	CLD23	EPOXY
SET-PAC	[2]	CLD23	EPOXY
SET-XP	[2]	CLD23	EPOXY
SET-XP22	[2]	CLD23	EPOXY
SET22	[2]	CLD23	EPOXY
SET56	[2]	CLD23	EPOXY
SETPAC-EZ	[2]	CLD23	EPOXY
Sealants			
SET High Strength Epoxy	[2]	CLD23	EPOXY
SET-PAC	[2]	CLD23	EPOXY
SET-XP	[2]	CLD23	EPOXY
SET-XP22	[2]	CLD23	EPOXY
SET22	[2]	CLD23	EPOXY
SET56	[2]	CLD23	EPOXY
SETPAC-EZ	[2]	CLD23	EPOXY

[1] Certified for a maximum exposed surface area of 2.2 sq. in./1000 gal.

[2] Certified for a maximum exposed surface area of 216 sq. in./1000 gal.

[3] Certified for a maximum exposed surface area of 22 sq. in./1000 gal.

Note: All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

Note: Additions shall not be made to this document without prior evaluation and acceptance by NSF International.

I. PRODUCT AND COMPANY IDENTIFICATION

Company: Simpson Strong-Tie Company, Inc.
Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588

Product Name: ETILV22, ETILV010R, ETILV020R, ETILV050R - ETILV Resin

Product Description: Low Viscosity Injection Epoxy Resin

Emergency Contact No.: 1-800-535-5053 USA
1-352-323-3500 **International**

Date Prepared or Revised: March 2008. For most current MSDS, please visit our web site at
www.simpsonanchors.com

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Names	CAS Numbers
BisPhenolA/Epichlorohydrin (Epoxy Resin)	25068-38-6
Titanium dioxide	1317-80-2

The remaining ingredients are designated as "trade secret".

III. HAZARD IDENTIFICATION**EMERGENCY OVERVIEW**

Non-corrosive.
May cause eye and skin irritation.
May cause skin sensitization.

POTENTIAL HEALTH EFFECTS**ACUTE**

Eye Contact: May cause eye irritation, swelling, tearing, redness or cornea damage.
Skin Contact: Moderate irritation. May cause skin sensitization, evidenced by rashes and hives.
Inhalation: Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by headache, dizziness, and nausea.
Ingestion: May cause irritation to the gastrointestinal tract. May cause Central Nervous System depression or other systemic effects.
Systemic Effects: Lungs, eyes, and skin.

IV. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

Skin Contact: Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

Ingestion: **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Inhalation: Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog, carbon dioxide or dry chemical, aqueous foam.
Fire And Explosion Hazard: Hazardous decomposition products may occur when materials polymerize at temperatures above 500°F. Do not allow run-off from fire fighting to enter drains or water courses.
Fire Fighting Equipment and Procedures: Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel. Use water spray to cool fire-exposed surfaces and containers.

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
Clean-up Methods: **Small spills:** Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. **Large spills:** Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
Additional Information: Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

VII. STORAGE AND HANDLING

Storage: Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
Handling: To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well-ventilated work area.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment.
Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection: Wear chemical-resistant gloves and other clothing as required to minimizing contact.
Respirator Protection: Not required for properly ventilated areas.
Exposure Limits:

COMPONENT	ACGIH (TLV)	OSHA (PEL)
BisPhenolA/Epichlorohydrin (Epoxy Resin)	N/E	N/E
Titanium dioxide	10 mg/m ³	15 mg/m ³

IX. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid
Color: White
Odor: Sweet
Vapor Pressure: Not Volatile
Boiling Point: N/E
Viscosity: 2000 cP
Flash Point: 256°F (Close Cup)
Specific Gravity: 1.21@ 72°F
Solubility In Water: Insoluble

X. REACTIVITY DATA

Stability: Stable under normal storage conditions.
Conditions To Avoid: Incompatible chemicals, heat and open flame.
Materials To Avoid: Oxidizing agents, acids, organic bases, and amines.
Hazardous Decomposition Products: Combustion may produce carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances.
Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL PROPERTIES

Acute Oral (LD₅₀, Rat): N/E
Acute Dermal (LD₅₀, Rabbit): N/E
Acute Inhalation (LC₅₀, Rat): N/E
Chronic Health Hazard The Diglycidyl Ether of Bisphenol A has shown weak carcinogenicity in 2-year mice bioassays. This material has shown activity in-vitro microbial mutagenicity screening and has produced chromosomal aberrations in cultured rat liver cells. No activity when tested by vivo mutagenicity assays.

XII. DISPOSAL CONSIDERATIONS

Waste From Residues / Unused Products: This material is not a hazardous waste by RCRA criteria (40 CFR 261). Dispose of container and unused contents in accordance with federal, state, and local requirements.

XIII. TRANSPORTATION

US DOT (CFR): Not Regulated For Transport.
IATA: Not Regulated For Transport.
IMO: Not Regulated For Transport.

XIV. REGULATORY INFORMATION

Country	Regulatory List
USA	TSCA

EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:
 Acute/Chronic Health Hazard.

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:
 None.

US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Phenylglycidyl ether*	ACGIH	Trace	Carcinogenic
Epichlorohydrin*	ACGIH	Trace	Carcinogenic

* May be absorbed through skin.

XV. OTHER INFORMATION

HMIS RATING

Health	Flammability	Physical Hazard
2	1	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

I. PRODUCT AND COMPANY IDENTIFICATION

Company: Simpson Strong-Tie Company, Inc.
Address: 5956 W. Las Positas Blvd.
 Pleasanton, CA 94588

Product Name: ETILV22, ETILV010H, ETILV020H, ETILV050H - ETILV Hardener

Product Description: Low Viscosity Injection Epoxy Hardener

Emergency Contact No.: 1-800-535-5053 USA
 1-352-323-3500 **International**

Date Prepared or Revised: March 2008. For most current MSDS, please visit our web site at
 www.simpsonanchors.com

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Names	CAS Numbers
Phenol, 2,4,6- trisdimethylaminomethyl	90-72-2

The remaining ingredients are designated as "trade secret".

III. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Corrosive.
 Severe irritation to eyes and skin.
 May cause skin sensitization.
 Components of the product may affect the nervous system.

POTENTIAL HEALTH EFFECTS

ACUTE

Eye Contact: Severe irritation, swelling, tearing, redness or cornea damage. May cause burns and tissue damage.

Skin Contact: Severe irritation. May cause burns and tissue damage. May cause skin sensitization evidenced by rashes and hives.

Inhalation: Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by giddiness, headache, dizziness, and nausea.

Ingestion: May cause irritation to the gastrointestinal tract. May cause headache nausea. May cause Central Nervous System depression or other systemic effects.

Systemic Effects: Lungs, eyes, and skin.

IV. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN.**

Skin Contact: Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN.**

Ingestion: **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Inhalation: Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN.**

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water spray, fog or foam, carbon dioxide, dry chemical, limestone powder.
Fire And Explosion Hazard: Irritating and toxic fumes may be produced at high temperature. In a fire, may produce carbon monoxide, toxic nitrogen oxide, ammonia, and carbon dioxide. Use of water may result in the formation of very toxic aqueous solution. Do not allow run-off from fire fighting to enter drains or water courses.
Fire Fighting Equipment and Procedures: Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel.

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
Clean-up Methods: **Small spills:** Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. **Large spills:** Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
Additional Information: Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

VII. STORAGE AND HANDLING

Storage: Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
Handling: To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well ventilated work area.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment.
Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection: Wear chemical-resistant gloves and other clothing as required to minimize contact.
Respirator Protection: Not required for properly ventilated areas.
Exposure Limits:

Chemical Names	ACGIH (TLV)	OSHA (PEL)
Phenol, 2,4,6- trisdimethylaminomethyl	N/E	N/E

IX. PHYSICAL PROPERTIES

Form: Liquid
Color: Black
Odor: Ammonia
Boiling Point: N/E
Viscosity: 2000 cP
Vapor Pressure: N/E
Flash Point: 185°F Close cup
Specific Gravity: 1.01@ 72°F
Solubility In Water: Slight

X. REACTIVITY DATA

Stability: Stable under normal storage conditions.
Conditions To Avoid: Incompatible chemicals, heat, and open flame.
Materials To Avoid: Oxidizing agents and acids.
Hazardous Decomposition Products: Combustion may produce carbon monoxide, carbon dioxide, and nitrogen oxide, and other organic substances.
Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL PROPERTIES

Acute Oral (LD₅₀, Rat): N/E
Acute Dermal (LD₅₀, Rabbit): N/E
Acute Inhalation (LC₅₀, Rat): N/E

Chronic Health Hazard Components of this product are not listed as carcinogens in concentrations of 0.1% or greater. Repeated or prolonged exposure may cause allergic reaction and/or limited sensitization.

XII. DISPOSAL CONSIDERATIONS

Waste From Residues / Unused Products: Dispose of container and unused contents in accordance with federal, state, and local requirements.

XIII. TRANSPORTATION

US DOT(CFR): UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
IATA: UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
IMO: UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.

XIV. REGULATORY INFORMATION

Country	Regulatory List
USA	TSCA

EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:

Acute/Chronic Health Hazard.

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:

None.

US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Carbon Black	ACGIH	Trace	Carcinogenic
Toluene *	OSHA	Trace	Toxic

* May be absorbed through skin.

XV. OTHER INFORMATION

HMIS RATING

Health	Flammability	Physical Hazard
3	2	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

I. PRODUCT AND COMPANY IDENTIFICATION

Company: Simpson Strong-Tie Company, Inc.
Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588

Product Name: ETIGV22, ETIGV010R, ETIGV020R, ETIGV050R - ETIGV Resin

Product Description: Gel Viscosity Injection Epoxy Resin

Emergency Contact No.: 1-800-535-5053 USA
1-352-323-3500 International

Date Prepared or Revised: March 2008. For most current MSDS, please visit our web site at
www.simpsonanchors.com

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Names	CAS Numbers
BisPhenolA/Epichlorohydrin (Epoxy Resin)	25068-38-6
Silica, crystalline quartz	14808-60-7
Titanium dioxide	1317-80-2

The remaining ingredients are designated as "trade secret".

III. HAZARD IDENTIFICATION**EMERGENCY OVERVIEW**

Non-corrosive.
May cause eye and skin irritation.
May cause skin sensitization.

POTENTIAL HEALTH EFFECTS**ACUTE**

Eye Contact: May cause eye irritation, swelling, tearing, redness or cornea damage.
Skin Contact: Moderate irritation. May cause skin sensitization, evidenced by rashes and hives.
Inhalation: Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by headache, dizziness, and nausea.
Ingestion: May cause irritation to the gastrointestinal tract. May cause Central Nervous System depression or other systemic effects.
Systemic Effects: Lungs, eyes, and skin.

IV. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

Skin Contact: Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

Ingestion: **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Inhalation: Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN**.

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog, carbon dioxide or dry chemical, aqueous foam.
Fire And Explosion Hazard: Hazardous decomposition products may occur when materials polymerize at temperatures above 500°F. Do not allow run-off from fire fighting to enter drains or water courses.
Fire Fighting Equipment and Procedures: Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel. Use water spray to cool fire-exposed surfaces and containers.

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
Clean-up Methods: **Small spills:** Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. **Large spills:** Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
Additional Information: Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

VII. STORAGE AND HANDLING

Storage: Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
Handling: To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well-ventilated work area.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment.
Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection: Wear chemical-resistant gloves and other clothing as required to minimize contact.
Respirator Protection: Not required for properly ventilated areas.
Exposure Limits:

COMPONENT	ACGIH (TLV)	OSHA (PEL)
BisPhenolA/Epichlorohydrin (Epoxy Resin)	N/E	N/E
Silica, crystalline quartz (airborne particulates of respirable size)	0.1 mg/m ³	0.4 mg/m ³
Titanium dioxide (total dust)	10 mg/m ³	15 mg/m ³

IX. PHYSICAL AND CHEMICAL PROPERTIES

Form: Paste
Color: White
Odor: Sweet
Vapor Pressure: Not Volatile
Boiling Point: >500°F (> 260°C)
Freezing Point: N/E
Flash Point: >250°F (Open Cup)
Specific Gravity: 1.21 @ 72°F
Solubility In Water: Insoluble

X. REACTIVITY DATA

Stability: Stable under normal storage conditions.
Conditions To Avoid: Incompatible chemicals, high heat and open flame.
Materials To Avoid: Oxidizing agents, acids, organic bases, and amines.
Hazardous Decomposition Products: Combustion may produce carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances.
Hazardous Polymerization: Will not occur.

XI. TOXICOLOGICAL PROPERTIES

Acute Oral (LD₅₀, Rat): Non toxic
Acute Dermal (LD₅₀, Rabbit): N/E
Acute Inhalation (LC₅₀, Rat): N/E
Chronic Health Hazard The Diglycidyl Ether of Bisphenol A has shown weak carcinogenicity in 2-year mice bioassays. This material has shown activity in-vitro microbial mutagenicity screening and has produced chromosomal aberrations in cultured rat liver cells. No activity when tested by vivo mutagenicity assays.

XII. DISPOSAL CONSIDERATIONS

Waste From Residues / Unused Products: This material is not a hazardous waste by RCRA criteria (40 CFR 261). Dispose of container and unused contents in accordance with federal, state, and local requirements.

XIII. TRANSPORTATION

US DOT (CFR): Not Regulated For Transport.
IATA: Not Regulated For Transport.
IMO: Not Regulated For Transport.

XIV. REGULATORY INFORMATION

Country	Regulatory List
USA	TSCA

EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:
 Acute/Chronic Health Hazard.

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:
 None.

US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65):

This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Phenylglycidyl ether*	ACGIH	Trace	Carcinogenic
Epichlorohydrin*	ACGIH	Trace	Carcinogenic

* May be absorbed through skin.

XV. OTHER INFORMATION

HMIS RATING

Health	Flammability	Physical Hazard
2	1	0

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

I. PRODUCT AND COMPANY IDENTIFICATION

Company: Simpson Strong-Tie Company, Inc.
Address: 5956 W. Las Positas Blvd.
 Pleasanton, CA 94588

Product Name: ETIGV22, ETIGV010H, ETIGV020H, ETIGV050H - ETIGV Hardener

Product Description: Gel Viscosity Injection Epoxy Hardener

Emergency Contact No.: 1-800-535-5053 USA
 1-352-323-3500 International

Date Prepared or Revised: March 2008. For most current MSDS, please visit our web site at
 www.simpsonanchors.com

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Names	CAS Numbers
Phenol, 2,4,6- trisdimethylaminomethyl	90-72-2

The remaining ingredients are designated as "trade secret".

III. HAZARD IDENTIFICATION**EMERGENCY OVERVIEW**

Corrosive.
 Severe irritation to eyes and skin.
 May cause skin sensitization.
 Components of the product may affect the nervous system.

POTENTIAL HEALTH EFFECTS**ACUTE**

Eye Contact: Severe irritation, swelling, tearing, redness or cornea damage. May cause burns and tissue damage.

Skin Contact: Severe irritation. May cause burns and tissue damage. May cause skin sensitization evidenced by rashes and hives.

Inhalation: Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by giddiness, headache, dizziness, and nausea.

Ingestion: May cause irritation to the gastrointestinal tract. May cause headache nausea. May cause Central Nervous System depression or other systemic effects.

Systemic Effects: Lungs, eyes, and skin.

IV. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN.**

Skin Contact: Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN.**

Ingestion: **DO NOT INDUCE VOMITING.** Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. **CONSULT A PHYSICIAN** if vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Inhalation: Remove patient to fresh air. If patient continues to experience difficulty breathing, **CONSULT A PHYSICIAN.**

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water spray, fog or foam, carbon dioxide, dry chemical, limestone powder.
Fire And Explosion Hazard: Irritating and toxic fumes may be produced at high temperature. In a fire, may produce carbon monoxide, toxic nitrogen oxide, ammonia, and carbon dioxide. Use of water may result in the formation of very toxic aqueous solution. Do not allow run-off from fire fighting to enter drains or water courses.
Fire Fighting Equipment and Procedures: Wear full protective clothing and self-contained breathing apparatus for fire fighting. Isolate fuel supply from fire. Clear fire area of all non-emergency personnel.

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.
Clean-up Methods: **Small spills:** Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal. **Large spills:** Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
Additional Information: Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

VII. STORAGE AND HANDLING

Storage: Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage.
Handling: To prevent skin and eye contact under the foreseeable conditions of use, wear appropriate protective clothing and safety eyewear. When handling, do not eat, drink, or smoke. Wash thoroughly after handling. Avoid breathing fumes. Handle in a well ventilated work area.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment.
Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.
Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection: Wear chemical-resistant gloves and other clothing as required to minimize contact.
Respirator Protection: Not required for properly ventilated areas.
Exposure Limits:

Chemical Names	ACGIH (TLV)	OSHA (PEL)
Phenol, 2,4,6- trisdimethylaminomethyl	N/E	N/E

IX. PHYSICAL PROPERTIES

Form: Paste
Color: Black
Odor: Ammonia
Boiling Point: N/E
Freezing Point: N/E
Vapor Pressure: N/E
Flash Point:: 175°F Close cup
Specific Gravity: 1.02@ 72°F
Solubility In Water: Slight

X. REACTIVITY DATA

Stability:	Stable under normal storage conditions.
Conditions To Avoid:	Incompatible chemicals, high heat, and open flame.
Materials To Avoid:	Oxidizing agents and acids.
Hazardous Decomposition Products:	Combustion may produce carbon monoxide, carbon dioxide, and nitrogen oxide, and other organic substances.
Hazardous Polymerization:	Will not occur.

XI. TOXICOLOGICAL PROPERTIES

Acute Oral (LD₅₀, Rat):	N/E
Acute Dermal (LD₅₀, Rabbit):	N/E
Acute Inhalation (LC₅₀, Rat):	N/E
Chronic Health Hazard	Components of this product are not listed as carcinogens in concentrations of 0.1% or greater. Repeated or prolonged exposure may cause allergic reaction and/or limited sensitization.

XII. DISPOSAL CONSIDERATIONS

Waste From Residues / Unused Products:	Dispose of container and unused contents in accordance with federal, state, and local requirements.
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XIII. TRANSPORTATION

US DOT(CFR):	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
IATA:	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.
IMO:	UN2735, Amines, Liquid, Corrosive, n.o.s. (Aminoethylpiperazine), 8, PG III.

XIV. REGULATORY INFORMATION

Country	Regulatory List
USA	TSCA

EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification:

Acute/Chronic Health Hazard.

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:

None.

US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65): This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other harm.

Component	Regulation	Concentration	Remarks
Carbon Black	ACGIH	Trace	Carcinogenic

* May be absorbed through skin.

XV. OTHER INFORMATION**HMIS RATING**

Health	Flammability	Physical Hazard
3	2	0

N/E – Not Established

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