

MATERIAL SAFETY DATA SHEET

West System Inc.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: G/flex® 650 Epoxy Hardener
 PRODUCT CODE: 650
 CHEMICAL FAMILY: Amine.
 CHEMICAL NAME: Modified polyamine.
 FORMULA: Not applicable.

MANUFACTURER:
 West System Inc.
 102 Patterson Ave.
 Bay City, MI 48706, U.S.A.
 Phone: 866-937-8797 or 989-684-7286
 www.westsystem.com

EMERGENCY TELEPHONE NUMBERS:
 Transportation
 CHEMTREC: 800-424-9300 (U.S.)
 703-527-3887 (International)
 Non-transportation
 Poison Hotline: 800-222-1222

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS Hazard Rating: Health - 2 Flammability - 1 Physical Hazards - 0

WARNING! Skin and eye irritant. Respiratory irritant. Can cause allergic reaction. Amber colored viscous liquid with slight ammonia odor.

PRIMARY ROUTE(S) OF ENTRY: Skin contact, eye contact, inhalation.

POTENTIAL HEALTH EFFECTS:

ACUTE INHALATION: Exposure to high concentrations of vapor causes irritation to the respiratory tract.

CHRONIC INHALATION: Prolonged or repeated exposure to high concentrations of vapors may cause irritation.

ACUTE SKIN CONTACT: Moderate irritant to skin tissue. Can cause allergic reaction and possible sensitization.

CHRONIC SKIN CONTACT: May cause persistent irritation, dermatitis and sensitization

EYE CONTACT: Moderate to severe irritation. Causes severe irritation, pain and possible permanent injury.

INGESTION: Severely irritating to gastrointestinal system. May be an aspiration hazard.

SYMPTOMS OF OVEREXPOSURE: Development of allergic reaction or sensitization. Skin irritation and redness.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Chronic respiratory disease (e.g., bronchitis, asthma). Skin conditions and skin allergies such as to poison ivy, poison oak, etc.

3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

INGREDIENT NAME	CAS #	CONCENTRATION
Amine terminated copolymer	68683-29-4	< 50%
Phenalkamine	868765-93-9	< 30%
2-hydroxyethyl ethers	232268-65-4	< 15%
Tris-2,4,6-(dimethylaminomethyl)phenol reaction products with triethylenetetramine		< 10%
Triethylenetetramine	112-24-3	< 10%
Tris-2,4,6-(dimethylaminomethyl)phenol	90-72-2	< 10%
Aminoethylpiperazine	140-31-8	< 10%
1,3-benzenedimethaneamine	1477-55-0	< 10%

4. FIRST AID MEASURES

FIRST AID FOR EYES: Immediately flush with water for at least 15 minutes. Get prompt medical attention.

FIRST AID FOR SKIN: Remove contaminated clothing. Immediately wash skin with soap and water. Do not apply greases or ointments. Get medical attention if wide spread exposure.

FIRST AID FOR INHALATION: If symptoms occur as noted in Section 3, remove to fresh air. Get medical attention if symptoms persist or worsen.

FIRST AID FOR INGESTION: Give conscious person at least 2 glasses of water. Do not induce vomiting. May be an aspiration hazard. If vomiting should occur spontaneously, keep airway clear. Get medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: > 200°F (PMCC)

EXTINGUISHING MEDIA: Water spray, dry chemical, alcohol foam and carbon dioxide (CO₂).

FIRE AND EXPLOSION HAZARDS: Burning will generate toxic fumes, including but not limited to: ammonia, oxides of nitrogen, carbon monoxide, carbon dioxide. When mixed with sawdust, wood chips, or other cellulosic material, spontaneous combustion can occur under certain conditions. If hardener is spilled into or mixed with sawdust, heat is generated as the air oxidizes the amine. If the heat is not dissipated quickly enough, it can ignite the sawdust.

SPECIAL FIRE FIGHTING PROCEDURES: Use full-body protective gear and a self-contained breathing apparatus. If spill has ignited, use water spray to disperse vapors and protect personnel attempting to stop leak. Use water to cool fire-exposed containers. Use of water may generate toxic aqueous solutions. Do not allow water run-off from fighting fire to enter drains or other water courses.

6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES: Stop leak without causing additional risk. Wear proper personal protective equipment. Contain spill and ventilate area. Large or small spill - scoop bulk into appropriate container for recovery. Use inert, non-combustible absorbent material (e.g., sand) and shovel remainder into suitable container for disposal. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Wash spill residue with warm, soapy water if necessary.

7. HANDLING AND STORAGE

STORAGE TEMPERATURE (min./max.): 40°F (4°C) / 90°F (32°C)

SHELF LIFE: Reference product label.

STORAGE: Minimum feasible handling temperatures should be maintained. If stored above 100°F, nitrogen atmosphere is recommended. Keep containers tightly closed.

HANDLING PRECAUTIONS: Use with adequate ventilation. Do not breathe vapors or mists from heated material. Avoid contact with skin and eyes. Wash thoroughly after handling. When mixed with epoxy resin this product causes an exothermic reaction, which in large masses, can produce enough heat to damage or ignite surrounding materials and emit fumes and vapors that vary widely in composition and toxicity.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION GUIDELINES: A minimum of safety glasses with side shields.

SKIN PROTECTION GUIDELINES: Wear liquid-proof, chemical resistant gloves (nitrile-butyl rubber, neoprene, butyl rubber or natural rubber) and full body-covering clothing.

RESPIRATORY/VENTILATION GUIDELINES: General mechanical or local exhaust ventilation. In the absence of adequate ventilation, use a NIOSH approved air purifying respirator with an organic vapor cartridge.

Note: West System, Inc. has conducted an air sampling study using this product or similarly formulated products. The results indicate that the components sampled for (amines) were either so low that they were not detected at all or they were well below OSHA's permissible exposure levels.

ADDITIONAL PROTECTIVE MEASURES: Use where there is immediate access to safety shower and emergency eye wash. Provide proper wash/cleanup facilities for proper hygiene. Contact lens should not be worn when working with this material. Generally speaking, working cleanly and following basic precautionary measures will greatly minimize the potential for harmful exposure to this product under normal use conditions.

OCCUPATIONAL EXPOSURE LIMITS: Not established for product as whole. Refer to OSHA's Permissible Exposure Level (PEL) or the ACGIH Guidelines for information on specific ingredients.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM Liquid.
COLOR Amber.

ODOR Ammonia-like.
 BOILING POINT > 480°F.
 MELTING POINT/FREEZE POINT No data.
 VISCOSITY 19,000 cPs
 pH No data.
 SOLUBILITY IN WATER Appreciable.
 SPECIFIC GRAVITY 0.97
 BULK DENSITY 8.12 pounds/gallon.
 VAPOR PRESSURE < 1 mmHg @ 20°C.
 VAPOR DENSITY Heavier than air.
 % VOLATILE BY WEIGHT ASTM 2369-07 was used to determine the Volatile Matter Content of mixed epoxy resin and hardener. 650 Resin and 650 Hardener, mixed together at 1.2:1 by weight, has a density of 1050 g/L (8.76 lbs/gal). The combined VOC content for 650 Resin/650 Hardener is 8.6 g/L (0.07 lbs/gal).

10. STABILITY AND REACTIVITY

STABILITY: Stable.
 HAZARDOUS POLYMERIZATION: Will not occur.
 INCOMPATIBILITIES: Strong oxidizers, acids.
 DECOMPOSITION PRODUCTS: Ammonia, oxides of nitrogen, carbon monoxide, carbon dioxide.

11. TOXICOLOGICAL INFORMATION

No specific oral, inhalation or dermal toxicology data is known for this product.

Oral: No data.
 Inhalation: No data.
 Dermal: No data.

CARCINOGENICITY:

NTP No.
 IARC No.
 OSHA No.

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA, NTP or IARC.

12. ECOLOGICAL INFORMATION

No specific data. Wastes from this product may present long term environmental hazards. Do not allow into sewers, on the ground or in any body of water. Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Evaluation of this product using RCRA criteria shows that it is not a hazardous waste, either by listing or characteristics, in its purchased form. It is the responsibility of the user to determine proper disposal methods.

Incinerate, recycle (fuel blending) or reclaim may be preferred methods when conducted in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

DOT
 D.O.T. SHIPPING NAME: Not Regulated.
 TECHNICAL SHIPPING NAME: Not Applicable.
 D.O.T. HAZARD CLASS: Not Applicable.
 U.N./N.A. NUMBER: Not Applicable.
 PACKING GROUP: Not Applicable.

IATA
 SHIPPING NAME: Not Regulated.
 TECHNICAL SHIPPING NAME: Not Applicable.
 HAZARD CLASS: Not Applicable.
 U.N. NUMBER: Not Applicable.
 PACKING GROUP: Not Applicable.

15. REGULATORY INFORMATION

OSHA STATUS: Irritant, sensitizer.

TSCA STATUS: All components are listed on TSCA inventory or otherwise comply with TSCA requirements.

SARA TITLE III: SECTION 313 TOXIC CHEMICALS None known.

Canada WHIMIS Classification: D2B

STATE REGULATORY INFORMATION:

The following chemicals are specifically listed or otherwise regulated by individual states. For details on your regulatory requirements you should contact the appropriate agency in your state.

<u>COMPONENT NAME</u> <u>/CAS NUMBER</u>	<u>CONCENTRATION</u>	<u>STATE CODE</u>
Tetraethylenetriamine 112-24-3	<10%	MA, NJ, PA

16. OTHER INFORMATION

REASON FOR ISSUE: Changes made in section: 3.
 PREPARED BY: G. M. House
 APPROVED BY: G. M. House
 TITLE: Product Safety & Regulatory Compliance
 APPROVAL DATE: May 30, 2012
 SUPERSEDES DATE: February 10, 2011
 MSDS NUMBER: 650B-12a

Note: The Hazardous Material Indexing System (HMIS), cited in the Emergency Overview of Section 3, uses the following index to assess hazard rating: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; and 4 = Severe.

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