

# MATERIAL SAFETY DATA SHEET

## West System Inc.

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** ..... G/flex® 655 Epoxy Hardener  
**PRODUCT CODE:** ..... 655  
**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. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS #</u>	<u>CONCENTRATION</u>
Amine terminated copolymer	68683-29-4	< 50%
Phenalkamine	868765-93-9	< 25%
2-hydroxyethyl ethers	232268-65-4	< 15%
Tris-2,4,6-(dimethylaminomethyl)phenol reaction products with triethylenetetramine		< 10%
Triethylenetetramine (TETA)	112-24-3	< 5%
Tris-2,4,6-(dimethylaminomethyl)phenol	90-72-2	< 5%
Aminoethylpiperazine	140-31-8	< 3%
1,3-benzenedimethanamine	1477-55-0	< 3%

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

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

**WARNING!** Irritant. Eye irritant. Skin irritant. Respiratory irritant when heated. May cause skin sensitization. Caramel colored gel with ammonia odor.

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

#### POTENTIAL HEALTH EFFECTS:

**ACUTE INHALATION:**..... Exposure to high concentrations of vapor from heated product can cause irritation to the respiratory tract or lightheadedness.

**CHRONIC INHALATION:** ..... Can cause respiratory tract irritation or central nervous system symptoms, such as lightheadedness or headaches.

**ACUTE SKIN CONTACT:**..... Moderate irritant to skin tissue. Contact may cause skin irritation and possible allergic reaction.

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

**EYE CONTACT:**..... Moderate to severe irritant to eye tissues. Vapors may cause blurred vision when absorbed into eye tissue.

**INGESTION:** ..... May cause irritation of the mouth and throat. May pose an aspiration hazard. No additional effects due to ingestion are known.

**SYMPTOMS OF OVEREXPOSURE:** ..... Persistent skin irritation or dermatitis, sensitization or allergic reaction. Irritation to the respiratory tract, headache, nausea. Redness and irritation of the eye.

#### **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**

Existing skin and respiratory conditions (allergies, dermatitis, asthma, bronchitis).

**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 waterless hand cleaner.

**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. If vomiting should occur spontaneously, keep airway clear. Treat symptomatically.

**5. FIRE FIGHTING MEASURES:**

**FLASH POINT:** .....> 300°F.

**EXTINGUISHING MEDIA:**.....Water spray, dry chemical, foam and carbon dioxide (CO<sub>2</sub>).

**FIRE AND EXPLOSION HAZARDS:**.....Burning will generate toxic fumes. Hot vapor or mists may be susceptible to spontaneous combustion when mixed with air. Ignition temperatures decrease with increasing vapor volume and vapor/air contact time and are influenced by pressure changes. Therefore, ignition may occur below published ignition temperatures. Use of this product in processes involving elevated temperatures, vacuum if subject to sudden ingress of air, sudden escape of vapor or mist, etc., must be thoroughly evaluated to assure safe operation.

**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.

**6. ACCIDENTAL RELEASE MEASURES:**

**SPILL OR LEAK PROCEDURES:** Stop leak without additional risk. Wear proper personal protective equipment. Dike and contain spill. Ventilate area. Large spill - dike and pump into appropriate container for recovery. Small spill - dilute with water and recover or use inert, non-combustible absorbent material (e.g., sand) and shovel into suitable container. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Residue from spill area can leave surface slippery. 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).

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

**HANDLING PRECAUTIONS:**.....Use only with adequate ventilation. Do not breath 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 REQUIREMENTS:** .....A minimum of safety glasses with side shields or chemical splash goggles.

**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 REQUIREMENTS:**

General mechanical or local exhaust ventilation. In the absence of adequate ventilation controls, 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 (phenol, formaldehyde and 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:** ..... Provide proper wash/cleanup facilities for proper hygiene. 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** ..... Gel.  
**COLOR** ..... Amber.  
**ODOR** ..... Slight amine.  
**BOILING POINT** ..... > 480°F.  
**MELTING POINT/FREEZE POINT** ..... No data.  
**pH** ..... No data.  
**SOLUBILITY IN WATER** ..... Appreciable.  
**SPECIFIC GRAVITY** ..... 0.99.  
**BULK DENSITY** ..... 8.31 pounds/gallon.  
**VAPOR PRESSURE** ..... < 1 mmHg @ 20°C.  
**VAPOR DENSITY** ..... Heavier than air.  
**VISCOSITY** ..... 237,000 cP.  
**% VOLATILE BY WEIGHT** ..... ASTM D 2369-07 was used to determine the Volatile Content of mixed epoxy resin and hardener. 655 Resin and 655 Hardener, mixed together at 1.2:1 by weight, has a density of 1077 g/L (8.99 lbs/gal). The combined VOC content for 655 Resin/655 Hardener is 7.6 g/L (0.06 lbs/gal).

**10. REACTIVITY:**

**STABILITY:** ..... Stable.

**HAZARDOUS POLYMERIZATION:** ..... Will not occur.

**INCOMPATIBILITIES:** ..... Strong oxidants, acids and reducing agents.

**DECOMPOSITION PRODUCTS:** ..... Very toxic fumes and gases when burned. Decomposition products may include, but not limited to: oxides of nitrogen, volatile amines, ammonia when heated.

**11. TOXICOLOGICAL INFORMATION:**

Oral: ..... No specific data.

Inhalation: ..... No specific data.

Dermal: ..... No specific data.

Little, if any, vapor can be produced from this product at room temperature.

**CARCINOGENICITY:**

NTP ..... No.

IARC ..... No.

OSHA ..... No.

This product contains no known carcinogens in concentrations greater than 0.1%.

**12. ECOLOGICAL INFORMATION:**

Wastes from this product may present long term environmental hazards. Do not allow into sewers, on the ground or in any body of water.

**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:**

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.

15. **REGULATORY INFORMATION:**

OSHA STATUS: ..... Irritant; sensitizer.  
 TSCA STATUS: ..... All components are listed on TSCA inventory or are in compliance with TSCA regulations.  
 SARA TITLE III:  
 SECTION 313 TOXIC CHEMICALS: ..... None.

**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.

<b><u>COMPONENT NAME</u></b>	<b><u>CONCENTRATION</u></b>	<b><u>STATE CODE</u></b>
None known.		

16. **OTHER INFORMATION:**

REASON FOR ISSUE: ..... Changes made in Sections 2.  
 PREPARED BY: ..... Glenn House  
 APPROVED BY: ..... Glenn House  
 TITLE: ..... E,H&S Manager  
 APPROVAL DATE: ..... September 9, 2009  
 SUPERSEDES DATE: ..... January 3, 2008  
 MSDS NUMBER: ..... 655B-09a

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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