MATERIAL SAFETY DATA SHEET
West System Inc.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ..... WEST SYSTEM® 105™ Epoxy Resin.
PRODUCT CODE: 105
CHEMICAL FAMILY: ..... Epoxy Resin.
CHEMICAL NAME: ..... Bisphenol A based epoxy resin.
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

INGREDIENT NAME	CAS #	CONCENTRATION
Bisphenol-A type epoxy resin	25085-99-8	> 50%
Benzyl alcohol	100-51-6	< 20%
Bisphenol-F type epoxy resin	28064-14-4	< 20%
Ethylene glycol monobutyl ether	111-76-2	< 0.3%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

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

WARNING! May cause allergic skin response in certain individuals. May cause moderate irritation to the skin. Light yellow liquid with mild odor.

PRIMARY ROUTE(S) OF ENTRY: ..... Skin contact.

POTENTIAL HEALTH EFFECTS:

ACUTE INHALATION: ..... Not likely to cause acute effects unless heated to high temperatures. If product is heated, vapors generated can cause headache, nausea, dizziness and possible respiratory irritation if inhaled in high concentrations.

CHRONIC INHALATION: ..... Not likely to cause chronic effects. Repeated exposure to high vapor concentrations may cause irritation of pre-existing lung allergies and increase the chance of developing allergy symptoms to this product.

ACUTE SKIN CONTACT: ..... May cause allergic skin response in certain individuals. May cause moderate irritation to the skin such as redness and itching.

CHRONIC SKIN CONTACT: ..... May cause sensitization in susceptible individuals. May cause moderate irritation to the skin.

EYE CONTACT: ..... May cause irritation.

INGESTION: ..... Low acute oral toxicity.

SYMPTOMS OF OVEREXPOSURE: ..... Possible sensitization and subsequent allergic reactions usually seen as redness and rashes. Repeated exposure is not likely to cause other adverse health effects.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
Pre-existing skin and respiratory disorders may be aggravated by exposure to this product. Pre-existing lung and skin allergies may increase the chance of developing allergic symptoms to this product.

4. FIRST AID MEASURES:

FIRST AID FOR EYES ..... Flush immediately with water for at least 15 minutes. Consult a physician.

FIRST AID FOR SKIN ..... Remove contaminated clothing. Wipe excess from skin. Remove with waterless skin cleaner and then wash with soap and water. Consult a physician if effects occur.

FIRST AID FOR INHALATION..... Remove to fresh air if effects occur.

FIRST AID FOR INGESTION ..... No adverse health effects expected from amounts ingested under normal conditions of use. Seek medical attention if a significant amount is ingested.

5. FIRE FIGHTING MEASURES:

FLASH POINT:..... >200°F (Tag Closed Cup)

EXTINGUISHING MEDIA:..... Foam, carbon dioxide (CO_2), dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES:
Wear a self-contained breathing apparatus and complete full-body personal protective equipment. Closed containers may rupture (due to buildup of pressure) when exposed to extreme heat.

FIRE AND EXPLOSION HAZARDS: HAZARDOUS DECOMPOSITION PRODUCTS: During a fire, smoke may contain the original materials in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include, but are not limited to: phenolics, carbon monoxide, carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES Soak up in absorbent material or scrape up. Residual can be removed with non-flammable solvent, but solvent should be used sparingly and with appropriate precautions.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE (min./max.):..... 40°F (4°C) / 120°F (49°C)

STORAGE: ..... Store in cool, dry place. Store in tightly sealed containers to prevent moisture absorption and loss of volatiles. Excessive heat over long periods of time will degrade the resin.

HANDLING PRECAUTIONS:..... Avoid prolonged or repeated skin contact. Wash thoroughly after handling. Launder contaminated clothing before reuse. Avoid inhalation of vapors from heated product. Precautionary steps should be taken when curing product in large quantities. When mixed with epoxy curing agents this product causes an exothermic, 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: ..... 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 GUIDELINES:
Good room ventilation is usually adequate for most operations. Wear a NIOSH/MSHA approved respirator with an organic vapor cartridge whenever exposure to vapor in concentrations above applicable limits is likely.

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 (epichlorohydrin, benzyl alcohol, ethylene glycol monobutyl ether) were either so low that they were not detected at all or they were well below OSHA's permissible exposure levels.

ADDITIONAL PROTECTIVE MEASURES: ..... Practice good caution and personal cleanliness to avoid skin and eye contact. Avoid skin contact when removing gloves and other protective equipment. Wash thoroughly after handling. 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: ..... Clear to pale yellow.
ODOR: ..... Mild.
BOILING POINT: ..... > 400°F.
MELTING POINT/FREEZE POINT: ..... No data.
VISCOSITY: ..... 1,000 cPs.
pH: ..... No data.
SOLUBILITY IN WATER: ..... Slight.
SPECIFIC GRAVITY: 1.15
BULK DENSITY: ..... 9.6 pounds/gallon.
VAPOR PRESSURE: ..... < 1 mmHg @ 20°C.
VAPOR DENSITY: ..... Heavier than air.
% VOLATILE BY WEIGHT: ..... ASTM D 2369-07 was used to determine the Volatile Content of mixed epoxy resin and hardener. Refer to the hardener's MSDS for information about the total volatile content of the resin/hardener system.

10. REACTIVITY:

STABILITY: ..... Stable.

HAZARDOUS POLYMERIZATION: ..... Will not occur by itself, but a mass of more than one pound of product plus an aliphatic amine will cause irreversible polymerization with significant heat buildup.

INCOMPATIBILITIES: ..... Strong acids, bases, amines and mercaptans can cause polymerization.

DECOMPOSITION PRODUCTS: ..... Carbon monoxide and carbon dioxide fumes may be produced when heated to decomposition.

11. TOXICOLOGICAL INFORMATION:

No specific oral, inhalation or dermal toxicology data is known for this product. Specific toxicology information for a bisphenol-A based epoxy resin present in this product is indicated below:

Oral: ..... LD_{50} >5000 mg/kg (rats)
Inhalation: ..... No Data.
Dermal: ..... LD_{50} = 20,000 mg/kg (skin absorption in rabbits)

TERATOLOGY: ..... ……Diglycidyl ether bisphenol-A (DGEBPA) did not cause birth defects or other adverse effects on the fetus when pregnant rabbits were exposed by skin contact, the most likely route of exposure, or when pregnant rats or rabbits were exposed orally.

Ethylene glycol monobutyl ether (present in this product at < 0.3 %) causes harm to the fetus in laboratory animal studies. Harm to the fetus occurs at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain. Note: It is unlikely that normal use of this product would result in measurable exposure concentrations to this substance.

REPRODUCTIVE EFFECTS: ..... ……DGEBPA, in animal studies, has been shown not to interfere with reproduction.

MUTAGENICITY: ..... …… DGEBPA in animal mutagenicity studies were negative. In vitro mutagenicity tests were negative in some cases and positive in others.

CARCINOGENICITY:

NTP ..... Product not listed.
IARC ..... Product not listed.
OSHA ..... Product not listed.

Many studies have been conducted to assess the potential carcinogenicity of diglycidyl ether of bisphenol-A. Although some weak evidence of carcinogenicity has been reported in animals, when all of the data are considered, the weight of evidence does not show that DGEBPA is carcinogenic. Indeed, the most recent review of the available data by the International Agency for Research on Cancer (IARC) has concluded that DGEBPA is not classified as a carcinogen.

Epichlorohydrin, an impurity in this product (<5 ppm) has been reported to produce cancer in laboratory animals and to produce mutagenic changes in bacteria and cultured human cells. It has been established by the International Agency for Research on Cancer (IARC) as a probable human carcinogen (Group 2A) based on the following conclusions: human evidence – inadequate; animal evidence – sufficient. It has been classified as an anticipated human carcinogen by the National Toxicology Program (NTP). Note: It is unlikely that normal use of this product would result in measurable exposure concentrations to this substance.

12. ECOLOGICAL INFORMATION:

Prevent entry into sewers and natural waters. May cause localized fish kill.

Movement and Partitioning:

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Kow between 3 and 5).

Degradation and Transformation:
Theoretical oxygen demand is calculated to be 2.35 p/p. 20-day biochemical oxygen demand is <2.5%.

Ecotoxicology:
Material is moderately toxic to aquatic organisms on an acute basis. LC50/EC50 between 1 and 10 mg/L in most sensitive species.

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 by DOT.
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: ..... Slight irritant; possible sensitizer.
TSCA STATUS: ..... All components are listed on TSCA inventory or otherwise comply with TSCA requirements.

SARA TITLE III:
SECTION 313 TOXIC CHEMICALS ..... None (deminimus).

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.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Epichlorohydrin 106-89-8	< 5ppm	[1]CA
Phenyl glycidyl ether 122-60-1	<5ppm	[1]CA
Ethylene glycol monobutyl ether 111-76-2	< 0.3%	NJ, PA

[1.] These substances are known to the state of California to cause cancer or reproductive harm, or both.

16. OTHER INFORMATION:

REASON FOR ISSUE: ..... Changes made in Sections 3, 5, 8, 9, 11 & 15.
PREPARED BY: ..... T. J. Atkinson
APPROVED BY: ..... G. M. House
TITLE: ..... Health, Safety & Environmental Manager
APPROVAL DATE: ..... January 3, 2008
SUPERSEDES DATE: ..... January 3, 2005
MSDS NUMBER: 105-08b

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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