

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:..... WEST SYSTEM® 205 Fast Hardener
APPLICABLE PRODUCT CODES: 205, 205-A, 205-B, 205-C, 205-E, C 205-A, C 205-B, C 205-C, C 205-E
CHEMICAL FAMILY:..... Polyamine mixture
INTENDED PRODUCT USES:..... Curing agent for epoxy resin.
PRODUCT RESTRICTIONS: None identified.
SDS VERSION: 205-2016a

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

EMERGENCY TELEPHONE NUMBERS (24 HRS):
Transportation
CHEMTREC: 800-424-9300 (U.S.)
703-527-3887 (International)
Non-transportation
Poison Hotline: 800-222-1222

2. HAZARDS IDENTIFICATION

Classification of Substance or Mixture

Acute toxicity, Oral, Category 4
Acute toxicity, Dermal, Category 4
Acute toxicity, Inhalation, Category 5
Skin corrosion/irritation, Category 1C
Skin sensitizer, Category 1
Germ cell mutagenicity, Category 2
Specific target organ toxicity (repeated exposure), Category 2
Acute aquatic toxicity, Category 2
Chronic aquatic toxicity, Category 2

Label Elements

Hazard Pictogram(s):



Signal Word:
DANGER

Hazard Statements:

H302 Harmful if swallowed
H312 Harmful in contact with skin
H333 May be harmful if inhaled
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H341 Suspected of causing genetic defects
H371 May cause damage to organs through prolonged or repeated exposure
H401 Toxic to aquatic life
H411 Toxic to aquatic life with long lasting effects

Precautionary Statements:

P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P260 Do not breathe dust/fume/mist/gas/vapors/spray
P264 Wash hands thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P272 Contaminated work clothing should not be allowed out of the workplace
P273 Avoid release to the environment
P280 Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P303 + P352 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse or wash skin with soap and water (or shower)
P313 + P333 If irritation or rash occurs: Get medical attention/advice
P363 Wash contaminated clothing before reuse
P304 + P340 IN INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P308 + P313 IF exposed or concerned: Get medical advice/attention
P310 Immediately call a POISON CENTER or doctor for advice
P391 Collect spillage
P405 Store locked up
P501 Dispose of contents and container according to local, state, national and International regulations

3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

INGREDIENT NAME	CAS #	CONCENTRATION (%)
Reaction products of triethylenetetramine with phenol and formaldehyde	32610-77-8	40-70
Polyethylenepolyamines	68131-73-7	10-30
Triethylenetetramine	112-24-3	5-20
Triethylenetetramine, reaction products with propylene oxide	26950-63-0	1-10
Tetraethylenepentamine	112-57-2	1-10
Hydroxybenzene	108-95-2	1-10

The exact chemical identity and/or exact percentage (concentration) of each ingredient has been held as confidential business information (CBI). Refer to Section 15 for additional information regarding this CBI claim.

4. FIRST AID MEASURES

FIRST AID FOR EYES:..... SYMPTOMS: Causes eye burns and eye damage. RESPONSE: Flush immediately with water for at least 15 minutes. Remove contact lenses if present and easy to do. Immediately call a POISON CONTROL CENTER or doctor.

FIRST AID FOR SKIN:..... SYMPTOMS: Causes skin burns, redness and irritation. May cause allergic skin reaction and sensitization. RESPONSE: Immediately wash skin with soap and water. Immediately call a POISON CONTROL CENTER or doctor.

FIRST AID FOR INHALATION:..... SYMPTOMS: Can cause respiratory irritation, shortness of breath or cough. RESPONSE: Remove to fresh air if effects occur and keep comfortable for breathing. Immediately consult with a physician if symptoms develop and persist.

FIRST AID FOR INGESTION:..... SYMPTOMS: May cause gastrointestinal irritation or ulceration. May cause burns of the mouth and throat. RESPONSE: Rinse mouth with water. DO NOT induce vomiting. If vomiting should occur, keep airway clear. Immediately call POISON CONTROL CENTER or doctor.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:..... SUITABLE: Foam, carbon dioxide (CO₂), dry chemical, sand, limestone powder. NON-SUITABLE: Direct water stream.

FIRE AND EXPLOSION HAZARDS:..... 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: oxides of nitrogen, carbon monoxide, carbon dioxide, volatile amines, ammonia, nitric acid, aldehydes, nitrosamines. When mixed with sawdust, wood chips, or other cellulosic material, spontaneous combustion can occur under certain conditions. 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. 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

PERSONAL PRECAUTIONS AND PROTECTIVE EQUIPMENT:..... Keep unnecessary and unprotected personnel from entering area. Use appropriate safety and personal protective equipment as indicated in Section 8.

MITIGATION AND CLEAN UP PROCEDURES:..... Stop leak without additional risk. Isolate area. Dike and absorb with inert material (e.g., sand) and collect in a suitable, closed container. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Warm, soapy water may be used to clean residual.

ENVIRONMENTAL PRECAUTIONS:..... Prevent from entering into soil, ditches, sewers, waterways and groundwater. See Section 12 for environmental impact information.

7. HANDLING AND STORAGE

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

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STORAGE: Store in cool, dry place away from high temperatures and moisture. Keep container tightly closed. Store in a secure location with restricted access or store locked up. Store away from incompatible materials listed in Section 10.

HANDLING PRECAUTIONS: Use with adequate ventilation. Do not breathe vapors or mists from heated material. Do not breathe concentrated vapors. Avoid all skin and eye contact. 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: Chemical splash-proof goggles or face shield.

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: Use with adequate general ventilation and/or local ventilation to keep exposures below established limits. When ventilation cannot be made adequate enough to keep exposures below established limits, use a NIOSH approved respirator with an organic vapor cartridge, organic vapor cartridge + P100, or a multi-contaminant cartridge, depending on specific workplace conditions. Consult with your respirator and cartridge supplier to ensure proper selection of respirator and cartridge based on ingredients listed in Section 3 and specific workplace conditions. Use and select a respirator according to the guidelines established in OSHA 1910.134 or other applicable respiratory protection standard.

ADDITIONAL PROTECTIVE MEASURES: Use where there is immediate access to safety shower and emergency eye wash. Wash thoroughly after use. 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: Exposure limits may not be established for this product as a whole. For established exposure limits of specific ingredients in this product, or other available exposure limit information, refer to the table below.

Ingredient Name	CAS#	Exposure Limit Information
Reaction products of triethylenetetramine with phenol and formaldehyde	32610-77-8	No data available
Polyethylenepolyamines	68131-73-7	AIHA WEEL: (refer to exposure limits for triethylenetetramine, tetraethylenepentamine)
Triethylenetetramine	112-24-3	AIHA WEEL: 1 ppm ; 6 mg/ m ³ ; Absorbed via skin
Triethylenetetramine, reaction products with propylene oxide	26950-63-0	No data available
Tetraethylenepentamine	112-57-2	AIHA WEEL: 1 ppm; 5 mg/kg; SKIN, DSEN
Hydroxybenzene	108-95-2	ACGIH TWA: 5 ppm; 19 mg m ⁻³ ; BEI® Index Substance NIOSH REL: 5 ppm; 19 mg/ m ³ OSHA PEL: 5 ppm; 19 mg m ³ ; Table Z-1 NIOSH CEILING: 15.6 ppm; 60 mg/m ³ ; Danger of cutaneous absorption

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM: Liquid.
COLOR: Amber
ODOR: Ammonia-like
ODOR THRESHOLD: No data available
pH: 10.3
MELTING POINT / FREEZING POINT No data.
BOILING POINT (760mm/Hg): > 400°F (204°C)
FLASH POINT: Estimated > 200°F (93°C) estimated based on ingredient data.
AUTO IGNITION TEMPERATURE No data.
LOWER EXPLOSIVE LIMIT (LEL) No data.
UPPER EXPLOSIVE LIMIT (UEL) No data.
VAPOR PRESSURE No data.
SPECIFIC GRAVITY/DENSITY (water = 1) 1.05
BULK DENSITY 8.85 lbs./gal. (1.06 kg/L)
VAPOR DENSITY (air = 1) No data.
EVAPORATION RATE (Butyl Acetate = 1) No data.
WATER SOLUBILITY (% BY WT.) No data.
PARTITION COEFFICIENT, n-OCTANOL/WATER (log Pow) No data.
KINEMATIC VISCOSITY: 952 mm²/s @ 40°C
DECOMPOSITION TEMPERATURE: No data available.
% VOLATILE BY WEIGHT: ASTM 2369-07 was used to determine the Volatile Matter Content of mixed epoxy resin and hardener. The combined VOC content for the resin and hardener system is listed below.

<u>Resin/Hardener</u>	<u>VOC Content</u>	
	<u>(g/L)</u>	<u>(lb/gal)</u>
105 / 205	7.91	0.07

10. STABILITY AND REACTIVITY

STABILITY:..... Product is stable at normal temperatures and pressures.

REACTIVITY/HAZARDOUS REACTIONS:..... Product will not react by itself. A mass of more than one pound of product plus an epoxy resin will cause irreversible polymerization with significant heat buildup and pressure.

INCOMPATIBILITIES:..... Avoid acids, oxidizing materials, halogenated organic compounds (e.g., methylene chloride). Avoid nitrous acid, nitrites and atmospheres with high nitrous oxide concentrations. Avoid sodium hypochlorite (bleach) and peroxides. External heating or self-heating could result in rapid temperature increase and pressure build up. If such a condition were to occur in a drum, the drum could expand and rupture violently.

CONDITIONS TO AVOID:..... Avoid excessive heat.

DECOMPOSITION PRODUCTS:..... Very toxic fumes and gases when burned or otherwise heated to decomposition. Decomposition products may include, but not limited to: oxides of nitrogen, volatile amines, ammonia, nitric acid, aldehydes, cyanides, nitrosamines.

11. TOXICOLOGICAL INFORMATION

Ingredient Name	CAS#	LD ₅₀ Oral	LD ₅₀ Dermal	LC ₅₀ Inhalation
Reaction products of triethylenetetramine with phenol and formaldehyde	32610-77-8	No data	No data	No data
Polyethylenepolyamines	68131-73-7	1716 mg/kg	> 2000 mg/kg	No data
Triethylenetetramine	112-24-3	1716 mg/kg	1465 mg/kg	No data
Triethylenetetramine, reaction products with propylene oxide	26950-63-0	> 2000 mg/kg (ATE)	> 2000 mg/kg (ATE)	No data
Tetraethylenepentamine	112-57-2	2140 - 3990 mg/kg	660-1260 mg/kg	No data
Hydroxybenzene	108-95-2	317 mg/kg	630 mg/kg (solid)	0.9 mg/l; 8h

ACUTE TOXICITY:..... No specific toxicity data exists for this mixture. Classification is based on acute toxicity estimation methods using ingredient data.

Oral:..... Category 4. Harmful if swallowed. May result in gastrointestinal tract irritation and pain.

Dermal:..... Category 4. Harmful in contact with skin. Can be readily absorbed through the skin in harmful amounts.

Inhalation:..... Category 5. May be harmful if inhaled .

SKIN CORROSION / IRRITATION:..... Category 1C. Causes severe skin burns.

SERIOUS EYE DAMAGE / IRRITATION:..... Category 1. Causes serious eye burns and damage. Vapors can be absorbed in eye tissue and cause damage.

RESPIRATORY SENSITIZATION:..... Not classified. Does not meet classification criteria.

SKIN SENSITIZATION:..... Category 1. May cause allergic skin reaction.

REPRODUCTIVE TOXICITY:..... Not classified. Does not meet classification criteria.

MUTAGENICITY:..... Category 2. A component in this product, hydroxybenzene, is suspected of causing genetic defects.

CARCINOGENICITY:..... Not classified. Does not meet classification criteria. Hydroxybenzene is classified by IARC as a Group 3 – Not classifiable as to its carcinogenicity to humans.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):..... Not classified. Does not meet classification criteria.

SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure):..... Category 2. Absorption of phenolic solutions through the skin may be very rapid and can cause damage to the liver, kidneys, pancreas, spleen, and edema of the lungs.

ASPIRATION HAZARD:..... Not classified. Does not meet classification criteria.

OTHER HEALTH HAZARD INFORMATION:..... Can cause stomach irregularities based on human evidence. This product is corrosive to skin and mucous membrane tissues and therefore vapor inhalation may cause respiratory tract irritation.

12. ECOLOGICAL INFORMATION

ACUTE AQUATIC TOXICITY:..... Category 2. Toxic to the aquatic environment. Calculated Estimate. No specific test data available for the mixture.

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CHRONIC AQUATIC TOXICITY: Category 2. Toxic to the aquatic environment with long lasting effects. Calculated Estimate. No specific test data available for the mixture.

PERSISTENCE AND BIODEGRADABILITY: No specific test data available for the mixture.

MOBILITY IN SOIL: No specific test data available for the mixture.

ADDITIONAL ECOTOXICITY INFORMATION: In the liquid, uncured state, this product may be harmful to aquatic life with long lasting effects. Prevent release to the environment, sewers and natural waters.

Ingredient	CAS#	Ecotoxicity Classification Information
Reaction products of triethylenetetramine with phenol and formaldehyde	32610-77-8	Aquatic Chronic Cat. 3
Polyethylenepolyamines	68131-73-7	Aquatic Acute Cat. 1; Aquatic Chronic Cat. 1
Triethylenetetramine	112-24-3	Aquatic Chronic Cat. 3
Triethylenetetramine, reaction products with propylene oxide	26950-63-0	Aquatic Chronic Cat. 3
Tetraethylenepentamine	112-57-2	Aquatic Acute Cat. 2; Aquatic Chronic Cat. 2
Hydroxybenzene	108-95-2	Aquatic Acute Cat. 3; Aquatic Chronic Cat. 2

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

US DOT

UN NUMBER: UN 2735.
 SHIPPING NAME: Polyamines, liquid, corrosive, n.o.s.
 TECHNICAL SHIPPING NAME: Triethylenetetramine
 HAZARD CLASS: Class 8.
 PACKING GROUP: PG III.
 MARINE POLLUTANT: No

CANADA TDG

UN NUMBER: UN 2735.
 SHIPPING NAME: Polyamines, liquid, corrosive, n.o.s.
 TECHNICAL SHIPPING NAME: Triethylenetetramine
 HAZARD CLASS: Class 8.
 PACKING GROUP: PG III.
 MARINE POLLUTANT: No

IMDG

UN NUMBER: UN 2735.
 SHIPPING NAME: Polyamines, liquid, corrosive, n.o.s.
 TECHNICAL SHIPPING NAME: Triethylenetetramine
 HAZARD CLASS: Class 8.
 PACKING GROUP: PG III.
 EmS Number: F-A, S-B
 MARINE POLLUTANT Yes

ICAO/IATA

UN NUMBER: UN 2735.
 SHIPPING NAME: Polyamines, liquid, corrosive, n.o.s.
 TECHNICAL SHIPPING NAME: Triethylenetetramine
 HAZARD CLASS: Class 8.
 PACKING GROUP: PG III.
 MARINE POLLUTANT: Yes

15. REGULATORY INFORMATION

COUNTRY	INVENTORY LIST	STATUS
United States	TSCA	All ingredients are listed or otherwise compliant.
Europe	EINECS or ELINCS	All ingredients are listed or otherwise compliant.
Canada	CEPA (DSL/NDL)	All ingredients are listed or otherwise compliant.
Australia	AICS	All ingredients are listed or otherwise compliant.
Japan	ENCS	All ingredients are listed or otherwise compliant.
South Korea	KECI	All ingredients are listed or otherwise compliant.
China	IECSC	All ingredients are listed or otherwise compliant.

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Philippines	PICCS	No data on CAS# 26950-63-0.
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US EPA SARA TITLE III Reporting and Notification Requirements:

Subject to Section 302 (TPQ)..... Phenol = 500/1000 (lbs.). TPQ = 500 lbs. if phenol is in powder form and has a particle size of less than 100 microns or is handled in solution or molten form, or meets the criteria for a NFPA reactivity rating of 2, 3, or 4.
 Subject to Section 304 (RQ)..... Phenol RQ = 1000 lbs.
 Subject to Section 311 or 312 Immediate, Delayed.
 Subject to Section 313 This product contains hydroxybenzene (phenol) and is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Canada WHMIS Confidential Business Information (CBI):..... The HMIRA number issued for this CBI claim is #10267. The date of filing is 2016-08-08.

US Federal Clean Air Act (CAA):

Phenol is regulated as a under the Federal Clean Air Act as a Hazardous Air Pollutant (HAPs).

US STATE REGULATORY INFORMATION:

The following chemicals may be specifically regulated by individual states. For details on state regulatory requirements you should contact the appropriate state agency.

COMPONENT NAME

/CAS NUMBER

Hydroxybenzene
108-95-2
Triethylenetetramine
112-14-3
Tetraethylenepentamine
112-57-2

STATE CODE

PA, MA, NJ, IL, RI

PA, MA, NJ

PA, MA, NJ

16. OTHER INFORMATION

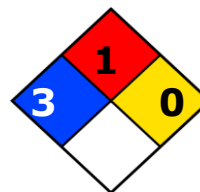
REASON FOR ISSUE:..... Updates to Section 3 and 15 regarding Canada WHMIS 2015 compliance.
PREPARED BY:..... G. M. House
APPROVED BY:..... G. M. House
TITLE:..... Health, Safety & Environmental Manager
APPROVAL DATE:..... August 15, 2016
SUPERSEDES DATE:..... June 1, 2015
SDS VERSION:..... 205-2016a

OTHER HAZARD INFORMATION AND RATING SYSTEMS:

HMIS® RATING

HEALTH:	3
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
 0 = Low or None; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe

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