M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1 – PRODUCT IDENTIFICATION

PRODUCT NAME :Encore Rail Systems, Inc.
IDENTIFICATION NUMBER: 12000LV HARDENER/ 50096
PRODUCT USE/CLASS : Epoxy Activator

SUPPLIER:
Encore Rail Systems, Inc.
2350 West Midway Blvd.
Broomfield, CO 80020
EMERGENCY: 800-424-9300 CHEMTREC
INFORMATION: 1-866-712-7622
DATE GENERATED: 07/10/2015

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: DANGER! Can burn skin and eyes. Vapors are irritating to the eyes and respiratory tract. May cause allergic skin reaction. May be absorbed through skin in harmful amounts. Toxic to the aquatic environment. Harmful if swallowed.

PRIMARY ROUTES OF ENTRY: SKIN CONTACT EYE CONTACT

GHS LABEL INFORMATION:
PICTOGRAM: 70-Hrmfl+Chronic+Env+Corr

SIGNAL WORD: **DANGER!**

HAZARD LABEL STATEMENTS:
H302 + H312 Harmful if swallowed and in contact with skin
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H361 Suspected of damaging fertility or the unborn child
H373 May cause damage to organs through prolonged or repeated exposure
H410 Very 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.
P273 Avoid release to the environment.
P405 Store locked up.
P264 Wash all contact areas thoroughly after handling.
P272 + P363 Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.
P280 Wear protective gloves/eye protection/face protection.
P285 In case of inadequate ventilation or if heated, wear respiratory protection.
P303 + P361 + P353 + P313 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention.
P305 + P351 + P338 + P313 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
P304 + P341 + P342 + P311 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P301 + P310 + P330 + P331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER	CHEMICAL NAME	WT %
84852-15-3	Nonyl phenol	20 - 50%
TRADE SECRET	Polyamidoamine resin	20 - 50%
100-51-6	Benzyl Alcohol	10 - 20%
140-31-8	Aminoethylpiperazine	10 - 20%
TRADE SECRET	Cycloaliphatic amine	10 - 20%
90-72-2	2,4,6-Tri(dimethylaminomethyl) phenol	5 - 10%
112-24-3	Triethylenetetramine	1 - 5%

SECTION 4 - FIRST AID MEASURES

EYE CONTACT: Flush eye with water for 15 minutes. Get immediate medical attention.

SKIN CONTACT: Immediately wash skin with plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. Dispose of contaminated leather articles in accordance with regulations.

INHALATION: If symptoms occur, remove to fresh air. Medical personnel may administer oxygen if breathing is difficult. Seek medical attention if symptoms persist.

INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN: Treat symptomatically.

SECTION 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: ALCOHOL FOAM, CO2, DRY CHEMICAL, FOAM, WATER FOG

UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers may rupture or explode (due to pressure build-up) when exposed to extreme heat. Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion.

SPECIAL FIREFIGHTING PROCEDURES: Use NIOSH-approved self-contained breathing apparatus and full protective clothing. Use water to cool exposed containers. Water stream directed into fire may cause frothing with subsequent spread of flame.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: SMALL SPILL –Wear gloves and goggles. See Section 8 for type. Wipe up with rags or wipes. Dispose of in separate closed bags. LARGE SPILL- Wear gloves, boot covers, synthetic apron, and goggles. See Section 8 for type.

ENVIRONMENTAL PRECAUTIONS: Prevent entry into drains and/or waterways. Keep off of soil.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Mark area and keep unnecessary personnel away from spill area. Reclaim clean material. Absorb with inert material, such as clay. Sweep or shovel into loosely-covered waste container and remove to appropriate waste area. Dispose of in accordance with federal, state, and local regulations. Wash spill area with detergent solution or wipe with alcohol-soaked rags. Dispose of all washings and contaminated items in accordance with waste regulations. Contact manufacturer for further instruction if needed.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Contaminated leather articles should be disposed of. If product is heated, process with local ventilation. Follow all MSDS/label precautions even after container is emptied because

it may retain product residues. DO NOT reuse empty container without commercial clean or recondition. FOR INDUSTRIAL USE ONLY.

STORAGE: Store indoors in a cool dry place under ambient conditions. Keep container closed when not in use.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

	ACGIH		OSHA		
CAS NUMBER	**TLV-TWA**	**TLV-STEL**	**PEL-TWA**	**PEL-CEILING**	**SKIN**
84852-15-3	N.E.	N.E.	N.E.	N.E.	NO
TRADE SECRET	N.E.	N.E.	N.E.	N.E.	NO
100-51-6	N.E.	N.E.	N.E.	N.E.	NO
140-31-8	N.E.	N.E.	N.E.	N.E.	NO
TRADE SECRET	N.E.	N.E.	N.E.	N.E.	NO
90-72-2	N.E.	N.E.	N.E.	N.E.	NO
112-24-3	N.E.	N.E.	N.E.	N.E.	NO

*(TD) = Total Dust *(RD) = Respirable Dust

	OEL			
CAS NUMBER	**8 HR**	**15 MIN**	**IDLH**	**OTHER LIMIT (SOURCE)**
84852-15-3	N.E.	N.E.	N.E.	
TRADE SECRET	N.E.	N.E.	N.E.	
100-51-6	N.E.	N.E.	N.E.	
140-31-8	N.E.	N.E.	N.E.	
TRADE SECRET	N.E.	N.E.	N.E.	
90-72-2	N.E.	N.E.	N.E.	
112-24-3	N.E.	N.E.	N.E.	

*(TD) = Total Dust *(RD) = Respirable Dust

ENGINEERING CONTROLS: Local exhaust as needed to control vapor or dust levels to below lowest component safe exposure limit.

PERSONAL PROTECTIVE EQUIPMENT: Clean clothing to cover skin. Eye wash and safety shower.

RESPIRATORY PROTECTION: If TLV/PEL is exceeded, if use is performed in a poorly-ventilated space, or if inhalation effects occur, use approved vapor cartridge respirator in accordance with applicable health and safety regulations and manufacturer's recommendations.
SKIN PROTECTION: Butyl rubber gloves. Nitrile gloves. Supported PVA gloves. Thermal barrier if material is handled while hot.
EYE PROTECTION: Chemical splash goggles. Face shield.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

FLASH POINT (DEG C): 101
AUTOIGNITION TEMPERATURE : No Data
LOWER FLAMMABILITY/EXPLOSION LIMIT : No Data
UPPER FLAMMABILITY/EXPLOSION LIMIT : No Data

PHYSICAL STATE : Liquid
SPECIFIC GRAVITY : 0.981
APPEARANCE : clear yellow to amber
ODOR : Acrid fishy
ODOR THRESHOLD : No data
SOLUBILITY IN H_2O : Slight
pH @ 100 % : no data not aqueous

BOILING POINT : 100
MELTING/FREEZE POINT: No Data
VAPOR DENSITY : Heavier than Air
VAPOR PRESSURE : No Data
EVAPORATION RATE : Is slower than n-Butyl Acetate
PARTITION COEFFICIENT (log Pow): No Data

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: This product is stable under normal conditions.

INCOMPATIBILITY/MATERIALS TO AVOID: Strong bases or oxidants. Strong Lewis or mineral acids. N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations. Reaction with epoxy resins or isocyanates in very large amounts or under uncontrolled conditions may produce extreme heat with noxious smoke and fumes. Reaction with epoxy resins in large amounts or under uncontrolled conditions releases considerable heat and may release acrid fumes.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon. Toxic nitrogenous oxides.

HAZARDOUS REACTIONS: Will not occur under normal conditions.

CONDITIONS TO AVOID: This product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL PROPERTIES

COMPONENT TOXICOLOGICAL INFORMATION

CHEMICAL NAME	**TEST DATA**
Nonyl phenol	Oral- LD50 (Rat): 1604 mg/kg
	Dermal- LD50 (Rat): 2031 mg/kg
Polyamidoamine resin	No Information
Benzyl Alcohol	Oral- LD50 (Rat): 1,620 mg/kg
	Inhalation- LC50 (Rat): >4,178 mg/m3 (4h)
Aminoethylpiperazine	Oral- LD50 (Rat) 2,108 mg/kg
	Dermal- LD50 (Rabbit) >880 mg/kg (est.)
Cycloaliphatic amine	No Information
2,4,6-Tri(dimethylaminomethyl)phenol	Oral- LD50 (Rat): 2,169 mg/kg
Triethylenetetramine	Oral- LD50 (Rat) 1,716 mg/kg
	Dermal- LD50 (Rabbit) 1,465 mg/kg

ACUTE EFFECTS – EYE:
CORROSIVE. Can cause eye burns and permanent tissue damage.
Product vapor can cause lacrimation, conjuctivitis, and corneal edema when absorbed into the tissue of the eye. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effects.

ACUTE EFFECTS – SKIN:
CORROSIVE. Contact may cause chemical burns and blistering.
May be absorbed through skin in toxic amounts.
Repeated or prolonged contact may cause sensitization.

ACUTE EFFECTS – INHALATION:
Can cause severe respiratory irritation.
Prolonged or repeated inhalation may cause lung damage.

ACUTE EFFECTS – INGESTION:
CORROSIVE; may cause severe and permanent damage to mouth, throat, and stomach.
This material may be harmful or fatal if swallowed.

CHRONIC OVEREXPOSURE/OTHER INFORMATION: *Preexisting pulmonary and dermatological conditions may be aggravated by exposure to hazardous components.
*NONYL PHENOL - Ingestion studies involving rats at toxic doses caused secondary changes to the liver and hemorrhage. Suspected human reproductive toxicant. Pregnant rats fed Nonyl phenol experienced fetal malformations and reduced weight gain.
No Information
*BENZYL ALCOHOL - Prolonged exposure to vapors from heated product may affect the nervous system. Repeated or prolonged overexposure to benzyl alcohol has been reported to cause respiratory tract damage, central nervous system effects, and damage to following organs: blood, kidneys, lungs, liver in laboratory animals. When fed to pregnant mice, benzyl alcohol produced intermittent fetal effects. A 2008 OECD study classified benzyl alcohol as a "noncytotoxic, nonmutagenic, noncarcinogenic chemical."

*2,4,6-(tridimethylaminomethyl) phenol - subchronic testing of 2,4,6-tridimethylphenol in animals caused abnormalities in the central nervous system.
*Triethylenetetramine (TETA) caused embryofetal toxicity and fetal malformations when fed to pregnant rats. Similar effects were not seen in studies in which this material was applied to the skin of rabbits, a more relevant route of industrial exposure. These effects are believed to be secondary to copper deficiency, resulting from the chelating activity of the amine.

SECTION 12 - ECOLOGICAL INFORMATION

COMPONENT ECOLOGICAL INFORMATION:

-------- CHEMICAL NAME ---------	------------ TEST DATA ---------------
Nonyl phenol	LC50 (Pimephales promelas): 0.14mg/L (96hr)
	LC50 (Algae): 0.056mg/L (72hr)
	EC50 (Daphnia): 0.035mg/L (48hr)
Polyamidoamine resin	No Information
Benzyl Alcohol	EC50: 390 mg/l, 24h Species: Bacteria
	EC50: 230 mg/l, 48h Species: Daphnia magna
	IC50: 770 mg/l, 72h Species: Algae
	LC50: 460 mg/l, 96h Species: Fish
	NOEC: 310 mg/l, 72h Species: Algae
	NOEC: 51 mg/l, 21d Species: Daphnia magna
Aminoethylpiperazine	No Information
Cycloaliphatic amine	No Information
2,4,6-Tri(dimethylaminomethyl)	LC50 (24 h): 222 mg/l Species: Rainbow trout
	LC100 (96 h): 240 mg/l Species: Rainbow trout
	LC0 (96 h): 180 mg/l Species: Rainbow trout
	LC50 (24 h): 249 mg/l Species: Carp
	LC50 (96 h): 175 mg/l Species: Carp
	EC50 (96 h): 718 mg/l Species: Grass shrimp
	EC100 (96 h): 1,000 mg/l Species: Mud crab
	EC50 (72 h): 84 mg/l Species: Scenedesmus subspicatus
	NOEC (72 h): 6.25mg/l Species: Scenedesmus subspicatus
Triethylenetetramine	No Information

SUMMARY OF ECOLOGICAL INFORMATION:
BIOACCUMULATION POTENTIAL: No information indicating bioaccumulation

PERSISTENCE AND DEGRADABILITY: No information indicating persistence or degradability

AQUATIC TOXICITY: H410 Very toxic to aquatic life with long lasting effects

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Review all current federal, state, and local regulations regarding health and disposal for appropriate disposal procedures. For small amounts, mix resin and hardener according to product directions and allow to harden. When cured, product is non-hazardous, and may be placed in industrial or municipal landfill if local regulations permit. Material "as sold" is not regulated as a hazardous waste under federal RCRA regulations. DO NOT landfill free liquid. Fuels blending or incineration of free liquid recommended if permitted.

SECTION 14 - TRANSPORTATION INFORMATION

INTERNATIONAL SHIPPING NAME: Polyamines, Liquid, Corrosive, nos (Aminoethylpiperazine, Nonyl Phenol)
ID NUMBER: UN2735
PACKING GROUP: III
PRIMARY HAZARD CLASS: 8
HAZARD SUBCLASS: N/A
INTERNATIONAL EMS NO: 8L
NA EMERGENCY RESPONSE GUIDE NO: 153

SECTION 15 - REGULATORY INFORMATION

CALIFORNIA PROPOSITION 65 STATEMENT: NONE REQUIRED

SARA SECTION 311 HAZARD CATEGORY:
This product has been reviewed, and is considered, under applicable definitions, to meet the following categories:
IMMEDIATE HEALTH HAZARD DELAYED HEALTH HAZARD

SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES PRESENT ABOVE REPORTING LIMITS:
-------- CHEMICAL NAME ---------
None

SARA SECTION 313:
This product contains the following substances subject to the reporting requirements of Section 313 and 40 CFR part 372:
-------- CHEMICAL NAME ---------
Nonyl phenol

TOXIC SUBSTANCES CONTROL ACT:
COMPONENTS SUBJECT TO SECTION 4 TESTING/SNUR: None
SECTION 8 INVENTORY: The chemical substances in this product are on the TSCA Section 8 Inventory.
SECTION 12(B) EXPORT REPORTING: This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States: none

COMPONENT RCRA CODES: NONE
CERCLA RQ VALUE (MINIMUM): NONE

REACH Substance(s) of Very High Concern (SVHC): Nonyl phenol

RoHS SUBSTANCE(S): None added or known to be present.

ODS/MONTREAL PROTOCOL SUBSTANCE(S): None added or known to be present.

PRODUCT/TOTAL VOC (CALCULATED): 0 grams/ltr
COATING/REGULATORY VOC (less water and exempt solvents - calculated): 0 g/l

SECTION 16 - OTHER INFORMATION

NFPA/THIS RATINGS - HEALTH: 3 FLAMMABILITY: 1 REACTIVITY: 0

ABBREVIATIONS:
N.A. - Not Applicable
N.E. - Not Established
N.D. - Not Determined
ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = US Occupational Health and Safety Administration
TLV-TWA = Threshold Limit Value-Time Weighted Average (8 hrs)
STEL = Short-Term Exposure Limit (15 min)
C = Ceiling Value
PEL = Permissible Exposure Limit
OEL = Occupational Exposure Limit
IDLH = Immediately Dangerous to Life and Health

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