

### Safety Data Sheet

### **EPOXY HARDENER**

Page 1 of 7

### Section 1 – Identification of the Substance/Preparation and of the Company/Undertaking

Product Name: EPOXY HARDENER

Chemical Name: NA

Family: Phenolic Modified Polyamine

MSDS Initial Approval Date: July 2002 MSDS Prepared by: JRR

Manufacturer: KEYSTONE INDUSTRIES 52 W King St

Myerstown PA 17067

Product Use: Curing Agent

Product #: -- 5920550, 5920555, 5920560, 5920565

**Emergency Phone Numbers:** (800) 535 - 5053 **Information Contacts:** (856) 663 - 4700

### Section 2 - Composition/Information on Ingredients

Chemical Identity	CAS	EINECS#	INCI Name	Exposure	Limits	Carcinogen	%
	Numbers			OSHA TWA/STEL	ACGIH TWA/STEL	IARC/NTP/OSHA	
Modified Polyamine	32610-77-8			NE/NE	NE/NE	NR/NR/NR	87 - 89%
Phenol	108-95-2		Phenol	5ppm/NE	5ppm/NE	NR/NR/NR	9 - 11%
Formaldehyde	50-00-0		Formaldehyde	.75ppm/2ppm	NE/0.3ppm	Yes/Yes/Yes	< 2%
NT/E NT E (11'1 1							

N/E - None Established

N/R - Not Reviewed

N/DA - No Data Available N/A - Not Applicable

Hazard Symbols: T, C Risk Phrases: R10, R23/24/25, R26, R27, R28, R34, R40, R41, R43, R48/20/21/22, R68 Safety Phrases: S1/2, S24/25, S26, S28, S36/37/39, S45, S51

#### Section 3 - Hazards Identification

#### **EMERGENCY OVERVIEW**

This information is based on findings from related or similar materials.

• Appearance: Light straw colored liquid, ammonia or amine odor

• Corrosive to skin and eyes

- Toxic by skin absorption, inhalation and ingestion
- May cause skin and respiratory sensitization

#### **Potential Health Effects, Signs and Symptoms of Exposure:**

Primary Route of Entry Eye contact, ingestion, inhalation, and skin contact. Skin absorption.

Eye	CORROSIVE. Direct contact with eyes will cause severe burns and may cause permanent damage, including blindness.
Skin	CORROSIVE. Contact causes skin burning and may cause permanent skin damage (scarring). Contact may cause skin sensitization, and allergic reaction which becomes evident on re-exposure to this material. Toxic if absorbed through skin
Ingestion	TOXIC. This material may be fatal if swallowed. Corrosive and may cause severe and permanent damage to mouth, throat and stomach.
Inhalation	Harmful if inhaled. Inhalation of vapor or aerosol may cause severe irritation to the respiratory tract (nose, throat, and lungs). Exposure to high concentrations could result in severe respiratory irritation, liver and kidney damage, and even death. May cay/use respiratory sensitization in susceptible individuals.
Sub-Chronic Effects	Chronic phenol poisoning in industry is rare. Symptoms, however, have included vomiting, difficulty swallowing, loss of appetite, dermatitis, dark urine, discolored skin, general weakness, loss of body weight, enlarged liver and kidney damage.
Carcinogenicity	This material contains formaldehyde which is listed by the International Agency for Research on Cancer (IARC) as a group 1 cancer-causing agent (carcinogenic to humans). Formaldehyde is listed by the National Toxicology Program (NTP) as reasonably anticipated to be a carcinogen. It is also listed by the American Conference of Governmental Industrial Hygienists (ACGIH) as a suspected human carcinogen (Group A2). The US Occupational Safety and health Administration (OSHA), in its formaldehyde standard (29CFR 1910.1048), considers formaldehyde a carcinogen.

NOTE: Refer to Section 11, Toxicological Information for details



# **EPOXY HARDENER**

# Section 4 - First Aid Measures

First Aid for Eye	Move individual away from exposure. Immediately flush eyes with large quantities of clean water for at least 15
	minutes. Get immediate medical attention
First Aid for Skin	Immediately flush skin with water for at least 15 minutes while removing contaminated clothing. Get immediate
	medial\cal attention. Wash contaminated clothing before reuse or discard the contaminated clothing (See Section
	13 for Disposal Considerations)
First Aid for Inhalation	Remove victim to fresh air. Keep warm and quiet. If not breathing, give artificial respiration. If breathing is
	difficult, give oxygen by trained personnel. GET IMMEDIATE MEDICAL ATTENTION.
First Aid for Ingestion	DO NOT INDUCE VOMITING. CORROSIVE HAZARD: This material may cause further damage if vomiting
	is induced. Immediately give the victim one or two glasses of water or milk to drink. Never give anything by
	mouth to an unconscious person. GET IMMEDITE MEDICAL ATTENTION.

### Section 5 - Fire Fighting Measures

Flash Point	Flammable Limit	Auto-ignition Temperature
>200°F/>93.3° SetaFlash Closed	C LEL: N/A cup UEL:.N/A	N/A
Method:		
Extinguishing Media:	Foam Carbon Dioxide, dry chemical or water fog	
Fire Fighting Instructions:	Wear self-contained breathing apparatus (SCBA) and full fire decontaminate all protective equipment after use.	e-fighting protective clothing. Thoroughly
Unusual Hazards:	Combustion may produce carbon monoxide, carbon dioxide nitrogen. Formaldehyde.	and irritating or toxic vapors and gases. Oxides of
Section 6 - Accidenta	l Release Measures	
Spill or Release Procedures	Ventilate area. Absorb spill with inert material (e.g., dry san container. Prevent spilled material from 1) contaminating so drainage systems, and 3) entering bodies of water or ditches	d or earth), then place in a chemical waste il, 2) entering sanitary sewers, storm sewers, and that lead to waterways.
Section 7 - Handling	and Storage	
Handling	Avoid inhalation and contact with eyes, skin and clothing. W eating or drinking. Remove and was contaminated clothing l Empty drums should be completely drained, properly bunged properly disposed.	Vash hands thoroughly after handling and before before reuse. Use with adequate ventilation. I, and promptly returned to a drum reconditioner or
Storage	Keep container closed when not in use. Store in cool, well-v	entilated space away from incompatible materials.
Explosion Hazard		
Section 8 – Exposure	e Controls / Personal Protective Equipment	
Exposure Guidelines	The Occupational Safety and Health Administration (OSHA) Exposure Limit (PEL) of 0.75 ppm for an 8 hour Time Weig Refer to 29 CFR 1910.1048 for more information. The Ame Hygienists (ACGIH) has established, for formaldehyde, a Sh Concentration for a 15 minute exposure of 0.3 ppm. The Occupational Safety and Health Administration (OSHA) Exposure Limit (PEL) of 5 ppm with a skin notation an 8 hour Conference of governmental hygienists (ACGIH) has establi 5 ppm Time Weighted Average (TWA) with a skin notation	), has established, for formaldehyde, a Permissible hted Average (TWA) and a 0.5 ppm action level. rican Conference of Governmental Industrial ort Term Exposure Limit (STEL)/Ceiling ), has established, for phenol, a Permissible ur Time Weighted Average (TWA). The American shed, for phenol, a Threshold limit Value (TLV) of for an 8-hour workday and a 40-hour workweek.
Engineering Controls	Use general ventilation to maintain airborne concentrations to occupational exposure limits. See occupation exposure limit during certain operations to maintain concentrations below re	o levels that are below regulatory and recommended s in Section 2. Local ventilation may be required ecommended exposure limits.



### **EPOXY HARDENER**

### Personal Protective Equipment

Eye/ Face Protection

Skin Protection

General

**Respiratory Protection** 

Wear 1) safety glasses with side shields and a face shield or 2) goggles and a face shield. Facilities storing or utilizing this material should be equipped with an eyewash station and safety shower. Wear chemical resistant gloves. If splashing is likely, wear impervious clothing and boots to prevent prolonged

skin contact. Consult your supplier of personal protective equipment for additional instructions on proper usage. A NIOSH/MSHA approve air-purifying respirator with organic vapor cartridges or canister may be necessary under certain circumstances where airborne concentrations are expected to exceed exposure limits. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z288.2 requirements must be followed whenever workplace conditioners warrant a respirator's use. Protection provided by air purifying respirators is limited. Use a positive air-supplied respirator if 1) there is any potential for an uncontrolled release, 2) exposure levels are not known, or 3) during other circumstances where air-purifying respirators may not provide adequate protection.

### Section 9 - Physical and Chemical Properties

Appearance Odor & Odor		lor Threshold	l	PH Specific Grav (H <sub>2</sub> O = 1)		Gravity = 1)	Viscosity	7	% Volatile	
Light straw co liquid	lored	Amine			N/A	A 1.08 at 25°C (7		4500 cps 25°C/77°I	at 1 F)	2% by weigh
Boiling Point/ Freezing Point	Decomposi Temperat	sition Oct ture H	anol/Water artitioning Coefficient Log Po/w	Vapo Pressi (mm H	or sure Hg):	Vapor Density (AIR = 1)	Evapo Ra (Butyl Ao	oration ate cetate = 1)	Ignition	Solubility In Water
N/A	N/DA	L	N/DA	N/A	A	>1	Slower Butyl	than N- Acetate	N/DA	N/A
Flash Point			Flammable Limit			Auto-	ignition Temp	erature		
200°F/93.3°C			$\frac{(V0170)}{LEL - N/A}$ $UEL - N/A$				N/A			

### Section 10 - Stability and Reactivity

Stability: Stable

**Incompatibility (Materials to Avoid):** Phenol attacks copper, aluminum, magnesium, lead, zinc, iron and their alloys. It can form dangerous exothermic reactions and possible explosive reactions with strong oxidizers, peroxymonosulfuric acid, sodium nitrate, calcium hypochlorite, 1,3-butadiene and boron trifluoride diethyl ether.

**Hazardous Decomposition Products:** Thermal decomposition may form: carbon monoxide, carbon monoxide, carbon dioxide, and various hydrocarbons. Nitrogen oxides. Phenols.

Hazardous Polymerization: Will not occur

Conditions to Avoid: Ignition sources. Contamination by those materials referred to under Incompatibility.

### Section 11 - Toxicological Information

Acute Oral Toxicity	Acute Dermal Toxicity	Acute Inhalation Toxicity	Irritation - skin	Irritation - Eye
Phenol LD50 (rat) 317mg/kg Formaldehyde LD50 (rat) 100 mg/kg	Phenol LD50 (rabbit), 850mg/kg Formaldehyde LD50 (rabbit) 270mg/kg	Phenol LC50 (rat), 316 mg/cu m Formaldehyde LC50 (rat), 250 – 590 mg/cu m		Phenol: Causes severe irritation, burns and possible corneal damage. Formaldehyde
				causes severe eye irritation.

Sensitization	Mutagenicity	Sub-chronic Toxicity
Overexposure to formaldehyde has been suggested as a cause of skin and respiratory sensitization in		
humans.		



## **EPOXY HARDENER**

Chronic Carcinogenicity: Phenol meets the registry of toxic effects of chemical Substances (TRECS) criteria as carcinogenic and neoplastic.

The American Conference of Governmental Industrial Hygienists (ACGIH) has adopted the listing of Phenol as "A4-Not Classifiable as a Human Carcinogen." There is inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

The International Agency for Research on Cancer (IARC) has classified Phenol in Group 3, not classifiable as to its carcinogenicity to humans.

Phenols have been implicated in the formation of Heinz bodies in many animal species. Inhalation of phenol was related to simulation of the central nervous system, followed by severe depression. Exposure of animals to phenol resulted in paralysis in some animal species, but not others.

Formaldehyde is classified as a 2A (probable human carcinogen) by the international Agency for Research on Cancer (IARC).

The National Toxicology Program (NTP) has listed formaldehyde as a substance that may reasonably be anticipated to be a human carcinogen.

Formaldehyde is classified as a carcinogen by the Occupational safety and Health Administration (OSHA).

The American Conference of Governmental Industries Hygienists (ACGIH) had adopted the listing of formaldehyde as "A2-Suspecte Human Carcinogen."

There is human data that show statistically significant associations between site-specific respiratory neoplasms and exposure to formaldehyde or formaldehyde-containing products. An increased incidence of nasal squamous cell carcinomas was observed in long-term inhalation studies in rats and mice.

### RTECS#:

### Section 12 - Ecological Information

#### **Ecotoxicological Information**

Acute Toxicity	Acute Toxicity	Acute Toxicity	Bioconcentration	Toxicity to Sewage Bacteria
To Fish	to Invertebrates	to Algae		
Phenol: LC50 (flathead minnow),				
32mg/L/96hr (rainbow trout), 32				
mg/L/96hr; (rainbow trout), 5.6 - 11.3				
mg/L/24hr.				
Formaldehyde: LC50 (rainbow trout),				
440 mmg/L/96hr				

#### **Chemical Fate Information**

Biodegradability	Phenol is considered highly toxic to aquatic life. If phenol is released to soil, it will
	rapidly biodegrade. Some of the phenol spilled will evaporate into the atmosphere.
	Released into water, phenol is not expected to significantly hydrolyze, adsorb to
	sediment or bioconcentrate in aquatic organisms. It is expected to biodegrade. Released
	to the atmosphere, phenol will predominately exist in the vapor phase. It absorbs light
	and may therefore directly photodegrade.
	Formaldehyde, when released to soil, is biodegradable under aerobic and anaerobic conditions. In water, formaldehyde will biodegrade. Little adsorption to sediment would
	be expected. When released to the atmosphere, formaldehyde will both photolyze and
	react rapidly with reactive free radicals.
Chemical Oxygen Demand	

#### Section 13 - Disposal Considerations

Follow Federal, State and Local regulations for disposal. For EU Member States, please refer to any relevant Community provisions relating to waste. In their absence, it is useful to remind the user that national or regional provisions may be in force.



## **EPOXY HARDENER**

Page 5 of 7

### Section 14 - Transport Information

DOT (49CFR 172)	
Proper Shipping Name:	UN2922 Corrosive liquid toxic N.O.S. (Polyamines Phenol) 8(6.1) PGII
Toper Shipping Runie.	
Identification Number:	UN2922
Marine Pollutant:	
Special Provisions:	B3, IB2, T7, TP2
Emergency Response Guidebook (ERG) #:	154
IATA (DGR)	
Proper Shipping Name:	UN2922, Corrosive liquid, toxic, N.O.S., (Polyamines, Phenol), 8(6.1), PGII
Identification Number:	UN2922
Marine Pollutant:	
Packaging Instructions:	None
Emergency Response Guidebook (ERG) #:	154
IMDG	
Proper Shipping Name:	UN2922, Corrosive liquid, toxic, N.O.S., (Polyamines, Phenol), 8(6.1), PGII
Identification Number:	UN2922
Marine Pollutant:	
Special Provisions and Stowage Segregation:	None
Emergency Response Guidebook (ERG) #:	154

### Section 15 - Regulatory Information

### **US Federal Regulations**

Class Air Ast UAD/ODC	This was durat contains the following energy depleting substances on UAD's
Clean Air Act: HAP/ODS	This product contains the following ozone depleting substances of HAP's:
	• Phenol CAS# 108-95-2
	• Formaldehyde CAS# 50-00-0
	This product does not contains any Class 1 or 2 Ozone Depleting Substances (ODS).
Clean Water Act: Priority Pollutant	The following ingredients are listed as hazardous substances or priority pollutants under the
	CWA:
	• Phenol CAS# 108-95-2
	• Formaldehyde CAS# 50-00-0
	Formaldehyde is listed as a Toxic Pollutant under the CWA.
FDA: Food Packaging Status	This product has not been cleared by the FDA for use in food packaging and / or
	other applications as an indirect food additive.
Occupational Safety and Health Act	This product is considered to be hazardous under the OSHA Hazard Communication
	Standard. Its hazard are:
	• Immediate (acute) health hazard
	Corrosive
RCRA	This product contains the following chemicals considered to be hazardous waste under
	RCRA (40 CFR 261):
	• Phenol, CAS# 108-95-2 RCRA Code: U188
	Product may demonstrate the Characteristic of Corrosivity, D002
SARA Title III: Section 302 (RQ)	This product contains the following chemicals regulated under SARA 302:
	• formaldehyde CAS# 50-00-0, RQ (Lbs) 100
	• Phenol CAS# 108-95-2, RQ (Lbs) 1000
SARA Title III: Section 302 (TPQ)	This product contains chemicals regulated under Section 304 as extremely hazardous
	chemicals for emergency release notification ("CERCLA" List):
	• formaldehyde CAS# 50-00-0, TPQ (Lbs): 500
	• phenol CAS# 108-95-2, 500 lbs TPQ (lower threshold); 10,000 lbs TPQ (upper
	threshold)



## **EPOXY HARDENER**

Page 6 of 7

SARA Title III: Section 311-312:	<ul> <li>This product is considered hazardous under the OSHA Hazard Communication Standard and is regulated under Section 311-312 (40 CFR 370). Its hazard are:</li> <li>Immediate (acute) health hazard</li> <li>Corrosive</li> </ul>
SARA Title III: Section 313:	This product contains chemicals that are 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.
	• formaldehyde CAS# 50-00-0
	• phenol CAS# 108-95-2
TSCA Section 8(b): Inventory:	This product contains chemicals listed on the TSCA inventory or otherwise complies with TSCA premanufacture potification requirements
TSCA Significant New Use Dula	None of the chemicals in this material have a SNUD under TSCA
ISCA Significant New Use Rule:	None of the chemicals in this material have a SNUK under TSCA.
State Regulations	
CA Right-to-Know Law:	Phenol CAS #108-95-2, Formaldehyde CAS #50-00-0
California No Significant Risk Level:	NONE
MA Right-to-Know Law:	Phenol CAS #108-95-2, Formaldehyde CAS #50-00-0

MA Right-to-Know Law:	Phenol CAS #108-95-2, Formaldehyde CAS #50-00-0
NJ Right-to-Know Law:	Phenol CAS #108-95-2, Formaldehyde CAS #50-00-0
PA Right-to-Know Law:	Phenol CAS #108-95-2, Formaldehyde CAS #50-00-0
FL Right-to-Know Law:	NONE
MN Right-to-Know Law:	Phenol CAS #108-95-2
RI Right To Know Law	Formaldehyde CAS #50-00-0

### **International Regulations**

International Regulations		
CDSL: Canadian Inventory (On Canadian Transitional List)	Phenol CAS #108-95-2 is on the DSL list. WHMIS = B3, D1A, E. Formaldehyde CAS #50-00-0 is on the DSL list. WHMIS = B2, D1A, D2B.	
EINECS: European Inventory:	<ul> <li>HAZARD SYMBOLS: T Toxic, C Corrosive</li> <li>RISK PHRASES: R26 Very toxic by inhalation R27 Very toxic in contact with skin R28 Very toxic if swallowed R34 Causes burns R41 Risk of serious damage to eyes R43 May cause sensitization by skin contact R48/20/21/22 Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed</li> <li>SAFETY PHRASES: S1/2 Keep locked up and out of reach of children S24/25 Avoid contact with skin and eyes S26 In case of contact with eyes, rinse with plenty of water and seek medical advice S28 After contact with skin wash immediately with plenty of soap suds S36/37/39 Wear suitable protective clothing, gloves and eye/face protection S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible) S51 Use only in well-ventilated areas.</li> </ul>	



## **EPOXY HARDENER**

### Section 16 - Other Information

Material Safety Data Sheet





Revised August 26, 2008	
Revised Sections since Last Version:	Overall format revision
12/15/11 Review Date Updated	No content changes made
07/29/2013	CAS # added in composition

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