Safety Data Sheet

1. Product and Company Identification

Product Name: **EP-27HVB**
Material Uses: Encapsulating, bonding, sealing, and coating hardener
(M)SDS#: 27HVB-20181109
Validation Date: Nov-09-2018
Supplier/Manufacturer: Specialty Polymers & Services, Inc. (SP&S, Inc.)
27822 Fremont Court
Valencia, California (CA) 91355, U.S.A.
Non-emergency phone number: (661) 294-1790 (7AM – 5PM PST)
E-mail: msds@spolymers.com

In case of emergency: Chemtrec (800) 424-9300 or (703) 527-3887

2. Hazards Identification

GHS CLASSIFICATION OF SUBSTANCE OR MIXTURE:

Skin corrosion/irritation:	Category 1, H314	Eye damage/irritation:	Category 1, H318
Skin sensitization:	Category 1, H317	Acute toxicity (Oral):	Category 4, H302
Acute toxicity (Dermal):	Category 4, H312	Aquatic Toxicity, Acute:	Category 3, H402
Aquatic Toxicity, Chronic:	Category 2, H411		

GHS LABEL ELEMENTS:

HAZARD SYMBOLS:

SIGNAL WORDS: Danger

HAZARD STATEMENTS:

H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H312 Harmful in contact with skin
H411 Toxic to aquatic life with long lasting effects.
H318 Cause serious eye damage.
H302 Harmful if swallowed.
H402 Harmful to aquatic life.

PRECAUTIONARY STATEMENTS:

PREVENTION:
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/fume/gas/mist/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, clothing, and eye/face protection.

RESPONSE:
P301+P330+P331+P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call POISON CENTER and/or physician.

P303+P361+P364+P353+P352 IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash before reuse. Rinse skin with water/shower. Wash with plenty of soap and water.
P312 Call a POISON CENTER and/or physician if you feel unwell.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call POISON CENTER and/or physician.
P305+P351+P338+P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call POISON CENTER and/or physician.
P391 Collect spillage.

STORAGE: P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

DISPOSAL: P501 Dispose of contents and containers in accordance with local, regional and international regulations.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – Annex III

See toxicological information (section 11)
General Information: Read entire MSDS for a more thorough evaluation of the hazards

3. Composition / Information on Ingredients

Name	CAS Number	%
Polyoxypropylenediamine	9046-10-0	79 - 99
Polypropylene glycol	25322-69-4	< 5
N-[3-(trimethoxysilyl) propyl] ethylenediamine	1760-24-3	< 1
N, N'-bis [trimethoxysilyl) propyl] ethylenediamine	68845-16-9	< 0.1
1,2-Ethanediamine, N,N-Bis (3-Trimethoxysilyl) propyl)-	74956-86-8	< 0.1
Methanol	67-56-1	< 0.01

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

4. First Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention.

Skin Contact: In case of contact, wash affected areas with plenty of water, and soap, if available, for several minutes. Remove and clean contaminated clothing and shoes before re-use. Get immediate medical attention.

Inhalation: Move exposed person to fresh air. If not breathing, give artificial respiration or oxygen. If breathing is difficult, transport to medical care and, if available, give supplemental oxygen. Loosen tight clothing such as a collar, tie, belt, or waistband. Get immediate medical attention.

Ingestion: Wash out mouth with water. If swallowed dilute by giving two (2) glasses water to drink. Do not induce vomiting until direct to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Note to physician: No specific treatment. Treat symptomatically. Call poison control center if large quantities were ingested. Liberation of reaction products (Methanol) can lead to poisoning. Possible signs of poisoning are daze, dizziness, nausea, colicky abdominal pain, respiratory disturbance. Symptoms upon increasing intoxication are dystopia and loss of eyesight. Detection of methanol possible in blood. Antidote treatment is ethanol.

5. Fire-Fighting Measures

Flash point: >128°C (>262.4°F) closed cup

Hazardous Thermal Decomposition Products: Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds, methanol, nitrogen oxides and other oxides.

Extinguishing Media: Carbon dioxide, foam, dry chemical, water spray as suitable for the surrounding fire.

Special Exposure Hazards:	Promptly isolate the scene by removing all persons from the vicinity of the fire. No actions shall be taken involving any personal risk or without suitable training.
Special Protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Personal Precautions:	No actions shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering area. Do not touch or walk through spilled material. Avoid breathing vapor or mist and provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff that leads to contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution.
Methods of Clean Up:	Stop leak if without risk. Move containers from spill area. Approach spill from up wind if possible. Prevent spill from entering sewers, rivers and other water courses, basements, or confined areas. Wash into effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material (e.g. sand, earth, vermiculite, or diatomaceous earth) and place in container for disposal according to local regulations. Dispose of only using a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information.

7. Handling and Storage

Handling:	Wear appropriate personal protective equipment (see Section 8) when handling. Eating, drinking, and smoking should be prohibited in areas where chemicals are handled, stored, or processed. Workers should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in processes where this material is used. Keep in the original container or a suitable alternate made from a compatible material. Keep all containers tightly closed when not in use. Empty containers retain product residue and should be disposed of properly. Do not reuse empty containers for other purposes or to hold other materials.
Storage:	Store in accordance with local regulations. Store in original containers, at 20°C - 35°C. Keep away from incompatible materials (see Section 10) and food and drink. Keep all containers tightly closed when not in use and tightly re-seal after use. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls / Personal Protection

Ingredient	Exposure Limits
Methanol	Occupational Exposure Limits (OSHA): Table Z-1 - TWA: 200 ppm / 260 mg/m^3 ACGIH TLV – TWA: 200 ppm ACGIH TLV – STEL: 250 ppm NIOSH REL – TWA: 200 ppm / 260 mg/m^3 NIOSH REL – STEL: 250 ppm / 325 mg/m^3

Recommended Monitoring Procedures:	If this product contains ingredients with exposure limits, personal, workplace, atmospheric, or biological monitoring may be required to determine the effectiveness of the ventilation system or other control measures and/or to determine whether it is necessary to use respiratory protective equipment. Consider European Standard EN 689 or similar industry or governmental guidelines for appropriate methods for the assessment of exposure by inhalation to chemical agents and/or hazardous substances.
Engineering measures:	No special ventilation requirements are necessary for this product. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure below the recommended or statutory limits
Hygiene measures:	Wash hands, forearms, and face thoroughly after handling any chemical products, before eating, smoking, and using the lavatory and at the end of the work period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Respiratory:	A respiratory protection program in compliance with 29CFR1910.134, or other applicable regulatory standard must be followed whenever exposure limits may be exceeded. If engineering controls are not feasible, or if inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands:	Wear neoprene, nitrile rubber or other suitable impervious gloves; consider European Standard EN374 or similar industry or governmental guidelines. Consider the parameters specified by the glove manufacture and check gloves during use to ensure they are retaining their protective properties. Gloves selected must have a breakthrough rating appropriate for the work shift. If a risk assessment indicates that it is necessary, gloves should always be worn when handling chemical products.
Eyes:	When a risk assessment indicates, safety eyewear complying with an approved standard, such as OSHA Standard 29CFR1910.133 or European Standard EN166, should be used to avoid exposure to liquid splashes, mists, or dusts. If contact is possible, at a minimum use chemical splash googles. If significant splash hazard may occur, consider using a full-face shield.
Skin:	Personal Protective equipment for the body should be selected based on the task being performed and the risks involved. Typical protective equipment includes non-absorbent lab coats, disposable protective sleeves, coats, or whole-body suits. Consider CFR1910.132 and CFR1910.136 for OSHA approved standards on protective clothing and footwear. Consider seeing a safety specialist to determine the appropriate level of protection for your task.
Environmental Exposure Controls:	Emissions from ventilation or work processes should be checked to ensure they comply with the requirements of environmental regulations. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and Chemical Properties

Appearance:	Yellow to amber liquid	Odor	Ammoniacal
Boiling Point:	> 232°C (449.6°F) initial	Freezing Point:	Not determined
Flash Point:	>128°C (>262.4°F) closed cup	pH:	~11 (1:1 in water)
Auto-ignition Temperature:	>240°C (>464°F)	Flammable Limits:	Not determined
Vapor Pressure:	< 1 mm Hg at 20°C (68 °F)	Water Solubility:	Partly soluble
Specific Gravity:	0.98	Vapor Density:	>1 (Air = 1)
Evaporation Rate:	<1 (butyl acetate =1)	VOC:	<1 g/ L (estimated)
Viscosity:	~150 cps		

10. Stability and Reactivity

Chemical Stability:	This product is stable, under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous Polymerization:	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to Avoid:	High temperatures and exposure to strong oxidizing agents, isocyanates, acids, and bases
Hazardous Decomposition:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds, methanol, nitrogen oxides and other oxides.

11. Toxicological Information

Acute Toxicity

Product/Ingredient Name	Test	Endpoint	Species	Result
Polyoxypropylenediamine	OECD 403 Acute Inhalation Toxicity	LC0 Inhalation Vapor	Rat – Male & Female	>0.74 mg/kg
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rat – Male & Female	>2,900 mg/kg
	OECD 420 Acute Oral Toxicity – Fixed Dose	LD50 Oral	Rate – Female	>2,800 mg/kg

Irritation / Corrosion

Product/Ingredient Name	Test	Species	Result
Polyoxypropylenediamine	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin – Corrosive
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes – Corrosive

Sensitizer

Product/Ingredient Name	Test	Species	Result
No Data Available			

Mutagenicity

Product/Ingredient Name	Test	Result
	Experiment – invitro, bacteria, metabolic activation +/-	Negative

Polyoxypropylenediamine	Experiment – invitro, mammalian-animal, somatic cells, metabolic activation +/-	Negative
	Experiment – invivo, mammalian-animal, germ cells, metabolic activation +/-	Negative
	Experiment – invivo, mammalian-animal, somatic cells, metabolic activation +/-	Negative

Conclusion/ Summary: the weight of scientific evidence indicates that the components of this product are not genotoxic

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP or OSHA.

Reproductive Toxicity

Product/Ingredient Name	Test	Species	Maternal Toxicity	Fertility	Developmental Effects
Polyoxypropylenediamine	OECD 421 Reproduction/ Dev-elopmental Toxicity Screening Test	Rat	Negative	Negative	Negative

Teratogenicity

Product/Ingredient Name	Test	Species	Results
Polyoxypropylenediamine	OECD 414 Prenatal developmental Toxicity Study	Rat – Female	Negative – oral
	EPA CFR	Rabbit – Female	Negative – dermal
	OECD 414 Prenatal developmental Toxicity Study	Rabbit – Female	Negative – oral

Potential Acute Health Effects

Inhalation: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: May cause burns to mouth, throat and stomach. Harmful if swallowed.

Skin Contact: Causes severe burns. Harmful in contact with skin.

Eye Contact: Causes serious eye damage.

Potential Chronic Health Effects

Product/Ingredient Name	Test	Endpoint	Species	Results
Polyoxypropylenediamine	OECD 411 Subchronic Dermal Toxicity: 90-day Study	Sub-chronic NOAEL - Dermal	Rat – male, female	250mg /kg / day
	OECD 407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Sub-chronic NOAEL - Oral	Rat – male, female	239mg /kg / day

General: Once sensitized, an allergic reaction may occur when subsequently exposed to very low levels

Target Organs: No known significant effects or critical hazards

Carcinogenicity: No known significant effects or critical hazards

Mutagenicity: No known significant effects or critical hazards

Teratogenicity: No known significant effects or critical hazards

Developmental Effects: No known significant effects or critical hazards

Fertility Effects: No known significant effects or critical hazards

12. Ecological Information

Environmental Effects: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Water polluting material. May be harmful to the environment if released in large quantities.

Aquatic Ecotoxicity

Product/Ingredient Name	Test	Endpoint	Exposure	Species	Result
Polyoxypropylenediamine	-	Acute EC50	72 hours Static	Algae	15 mg/L
	OECD 202 Daphnia Sp. Acute Immobilization Test	Acute EC50	48 hours Static	Daphnia	80 mg/L
	-	Acute IC50	3 hours Static	Bacteria	>750 mg/L
	OECD 203 Fish, Acute toxicity test	Acute LC50	96 hours Static	Fish	>15 mg/L
	OECD 201 Freshwater Algae and Cyanobacteria, Growth Inhibition Test	NOEC	72 hours	Algae	0.32 mg/L

Persistence and Degradability

Product/Ingredient Name	Test	Period	Result
Polyoxypropylenediamine	OECD derived from OECD 301F (Biodegradation test)	28 days	<30%

Product/Ingredient Name	Aquatic half-life	Photolysis	Biodegradability
Polyoxypropylenediamine	Fresh water 3.58 days – 7.1 days	-	Not readily

Bioaccumulative potential

Product/Ingredient Name	Log P_{ow}	BCF	Potential
Polyoxypropylenediamine	>1.34		

Other adverse effects: No known significant effects or critical hazards

Other information: BOD5: Not determined COD: Not Determined TOC: Not determined

13. Disposal Consideration

Waste Disposal Method: Disposal of this products, solutions, and by-products should always comply with the requirements of environmental and waste disposal legislation and any regional or local authority requirements. Dispose of surplus, non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed on untreated to the sewer system unless this is complaint with all applicable laws and regulations. Incineration by an approved and licensed contractor is the most common disposal method. Packaging materials that and absorbents containing the product can typically be landfilled or incinerated. Contact local authorities to determine the proper means of disposal in your area.

14. Transport Information

DOT 49CFR/ TDG **ID Number:** UN2735 **Label:** Corrosive
Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Hazard Class: 8 **Packing Group:** PGII

IATA **ID Number:** UN2735 **Label:** Corrosive
Proper Shipping Name: AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Hazard Class: 8 **Packing Group:** PGII

15. REGULATORY INFORMATION

US Federal Regulations:

Occupational Safety and Health Act (OSHA): This product is a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SARA Title III: Section 304 - CERCLA: This product does contain one or more chemicals regulated under Section 304 as extremely hazardous substance(s) for emergency release notification ("CERCLA" List).

Ingredient	Component RQ (lbs)	Calculated Product RQ (lbs)
Methanol (CAS 67-56-1), <0.01%	5,000	> 50,000,000

SARA Title III: Section 311/312 - Hazard Communication Standard (HCS): Immediate (acute) health hazard

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does not contain a toxic chemical for routine annual Toxic Chemical Release Reporting under section 313 (40 CFR 372).

TSCA Section 8(b) - Inventory Status: All chemical(s) comprising this product are listed on the TSCA inventory.

TSCA Section 12(b) - Export Notification: This product does not contain chemicals which are subject to Section 12(b) export notification.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs): This product does contain one or more chemicals listed in CAA section 112:

Methanol (CAS 67-56-1), <0.01%

State Regulations:

California Proposition 65: ⚠ **WARNING:** This product can expose you to chemicals including Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International Regulations:

REACH Status (EC 1907/2006): This material has been registered, pre-registered, or is otherwise exempt from registration under REACH.
REACH Annex XIV (SVHC): No listed components as of validation date
Reach Annex XVIII (Restrictions on the manufacture, placing on the market & use of certain dangerous substances, mixtures, and articles): This product does contain one or more chemicals that are listed.

Methanol (CAS 67-56-1), <0.01%

WHMIS: Class D-2B: Material causing other toxic effects
Class E: Corrosive material

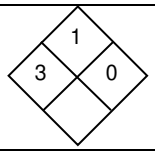
International Lists:

Australia Inventory (AICS):	all components are listed or exempt	Malaysia Inventory (EHS register):	not determined
Canadian Inventory (CEPA-DSL):	all components are listed or exempt	New Zealand Inv. of Chem. (NZIoC):	all components are listed or exempt
China Inventory (IECSC):	all components are listed or exempt	Philippines Inventory (PICCS):	all components are listed or exempt
Japan Inventory (ENCS):	all components are listed or exempt	Taiwan Inventory (CSNN):	not determined
Korea Inventory (ECL):	all components are listed or exempt		

16. OTHER INFORMATION

Hazardous Material Information System (HMIS) - USA	
Health	3
Flammability	1
Physical Hazards	0
Personal Protection	C*

National Fire Protection Association (USA):



*suggested minimum personal protection equipment. End user must determine appropriateness of these suggestions for their applications and usage conditions.

Reason Issued: update
Prepared by: Preston White **Approved by:** Chris Meyer Title: Vice President

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF PRODUCTS FOR THE USER'S PARTICULAR PURPOSE(S).

THIS PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.