

## Safety Data Sheet

acc. to OSHA HCS

Printing date 09/16/2022

Reviewed on 09/16/2022

### 1 Identification

- **Product identifier**
- **Trade name:** *EP-600 Two Part Conductive Epoxy - B-SIDE*
- **Application of the substance / the mixture** *Functional electronic epoxy curing agent*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
*Kayaku Advanced Materials, Inc.*  
*200 Flanders Road*  
*Westborough, MA 01581*  
*Tel: (617) 965-5511*  
*Fax: (617) 965-5818*
- **Information department:**  
*Product Safety*  
*Email: productsafety@kayakuAM.com*
- **Emergency telephone number:**  
*Kayaku Advanced Materials : 617-965-5511*  
*Chemtrec USA Emergency : 800-424-9300*  
*Chemtrec International Emergency : 703-527-3887*

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corrosion 1B

Eye Damage 1

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.



GHS07

Sensitization - Skin 1

Specific Target Organ Toxicity - Single Exposure 3

Aquatic Chronic 3

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.

- **Label elements**

- **GHS label elements** *The product is classified and labeled according to the Globally Harmonized System (GHS).*

- **Hazard pictograms**



GHS05



GHS07

- **Signal word** *Danger*

- **Hazard-determining components of labeling:**

*Fatty acids, tall-oil, reaction products with tetraethylenepentamine*
*Tetraethylenepentamine*

- **Hazard statements**

*H314 Causes severe skin burns and eye damage.*

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H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 If swallowed: Immediately call a poison center/doctor.

P302+P352 If on skin: Wash with plenty of water.

P304+P341 If inhaled: If breathing is difficult, 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.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**
**NFPA ratings (scale 0 - 4)**


Health = 3

Fire = 1

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**


Health = 3

Fire = 1

Reactivity = 0

**Other hazards**
**Results of PBT and vPvB assessment**

 • **PBT:** Not applicable.

 • **vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Mixtures**

 • **Description:** Mixture of the substances listed below with nonhazardous additions.

**Dangerous components:**

68953-36-6	Fatty acids, tall-oil, reaction products with tetraethylenepentamine ⚠ Skin Irritation 2, H315; Eye Irritation 2A, H319; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - Single Exposure 3, H335	75-100%
112-57-2	Tetraethylenepentamine ⚠ Skin Corrosion 1B, H314; ⚠ Aquatic Chronic 2, H411; ⚠ Acute Toxicity - Oral 4, H302; Acute Toxicity - Dermal 4, H312; Sensitization - Skin 1, H317	10-25%

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### 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Wash eyes immediately with a large amount of water or normal saline, occasionally lifting upper and lower eye lids until no evidence of chemical remains (about 20 minutes). Remove contact lenses if present and easy to remove. Seek immediate medical attention.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Alcohol resistant foam  
Fire-extinguishing powder  
ABC powder
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear SCBA.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Keep away from ignition sources
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

#### · PAC-I:

112-57-2 Tetraethylenepentamine

 15 mg/m<sup>3</sup>

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<b>· PAC-2:</b>		
112-57-2	Tetraethylenepentamine	130 mg/m <sup>3</sup>
<b>· PAC-3:</b>		
112-57-2	Tetraethylenepentamine	790 mg/m <sup>3</sup>

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
 Ensure good ventilation/exhaust at the workplace.  
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
 Keep ignition sources away - Do not smoke.  
 Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:**  
 Do not store together with alkalis (caustic solutions).  
 Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**  
 Keep container well-sealed in cool, dry location.  
 Protect from heat and direct sunlight.  
 Store receptacle in a well ventilated area.
- **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
 The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.  
 At this time, the remaining constituent has no known exposure limits.

<b>112-57-2 Tetraethylenepentamine</b>	
WEEL	Long-term value: 5 mg/m <sup>3</sup> Skin; DSEN

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
 Keep away from food and beverages.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.  
 Avoid contact with the eyes and skin.
- **Respiratory equipment:**  
 In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.

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**· Protection of hands:**


Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

**· Material of gloves** Nitrile rubber, NBR

**· Penetration time of glove material** Contact glove manufacture for break-through time.

**· Eye protection:**


Tightly sealed goggles

### 9 Physical and chemical properties

**· Information on basic physical and chemical properties**
**· General Information**
**· Appearance:**

<b>Form:</b>	Liquid
<b>Color:</b>	Amber colored
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined.

**· pH-value:** Alkaline

**· Change in condition**

<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	Undetermined.

**· Flash point:** 195 °C (383 °F)

**· Flammability (solid, gaseous):** Not applicable.

**· Decomposition temperature:** Not determined.

**· Auto igniting:** Product is not selfigniting.

**· Danger of explosion:** Product does not present an explosion hazard.

**· Explosion limits:**

<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.

**· Vapor pressure:** Not determined.

**· Density:** See other information

**· Relative density** Not determined.

**· Vapor density** Not determined.

**· Solubility in / Miscibility with**
**Water:** Water miscible No

**· Partition coefficient (n-octanol/water):** Not determined.

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· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Solids content:</b>	100.0 %
· <b>Other information</b>	
No further relevant information available.	

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid**  
Heat, flames and sparks. Extremes of temperature and direct sunlight.  
Contact with incompatible materials.
- **Incompatible materials:** Strong Oxidizing Agents, Strong Acids, Strong Bases
- **Hazardous decomposition products:**  
Carbon monoxide and carbon dioxide  
Nitrogen oxides (NO<sub>x</sub>)  
Ammonia

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

 · **LD/LC50 values that are relevant for classification:**
**112-57-2 Tetraethylenepentamine**

Dermal	LD50	660 mg/kg (rabbit)
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- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Corrosive  
Irritant  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

 · **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

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**· NTP (National Toxicology Program)**

None of the ingredients are listed.

**· OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

### 12 Ecological information

**· Toxicity**
**· Aquatic toxicity:** No further relevant information available.

**· Persistence and degradability** No further relevant information available.

**· Behavior in environmental systems:**
**· Bioaccumulative potential** No further relevant information available.

**· Mobility in soil** No further relevant information available.

**· Ecotoxicological effects:**
**· Remark:** Harmful to fish

**· Additional ecological information:**
**· General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

Harmful to aquatic organisms

**· Results of PBT and vPvB assessment**
**· PBT:** Not applicable.

**· vPvB:** Not applicable.

**· Other adverse effects** No further relevant information available.

### 13 Disposal considerations

**· Waste treatment methods**
**· Recommendation:**

Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.

Disposal must be made in accordance with Federal, State, and Local regulations.

**· Uncleaned packagings:**
**· Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

### 14 Transport information

**· UN-Number**
**· DOT, ADR, ADN, IMDG, IATA** Not Regulated

**· UN proper shipping name**
**· ADR, ADN, IMDG, IATA** Not Regulated

**· Transport hazard class(es)**
**· DOT, ADR, ADN, IMDG, IATA**
**· Class** Not Regulated

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- |  |                 |
|--|-----------------|
| · <b>Packing group</b>   | Not Regulated   |
| · <b>DOT, ADR, IMDG, IATA</b>  | Not Regulated   |
| · <b>Environmental hazards:</b>  | Not applicable. |
| · <b>Special precautions for user</b>  | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>  | Not Regulated   |

### 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

- **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act):** All ingredients are listed or comply with TSCA regulations.

- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

- **TLV (Threshold Limit Value)**

None of the ingredients are listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

- **Massachusetts State Right To Know List**

112-57-2 | Tetraethylenepentamine

- **New Jersey State Right To Know List**

112-57-2 | Tetraethylenepentamine

- **Pennsylvania Hazardous Substances List**

112-57-2 | Tetraethylenepentamine

- **California SCAQMD Rule 443.1 VOC's:** No information available.

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- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Fatty acids, tall-oil, reaction products with tetraethylenepentamine  
Tetraethylenepentamine
- **Hazard statements**  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 If swallowed: Immediately call a poison center/doctor.  
P302+P352 If on skin: Wash with plenty of water.  
P304+P341 If inhaled: If breathing is difficult, 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.  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Product safety department
- **Contact:** Tom Cole, EHS Manager (tcole@kayakuAM.com)
- **Revision History:**  
The manufacturer's information in Section 1, the product hazard information in Section 2 and the component hazard information in Section 3 have been updated.
- **Date of preparation / last revision** 09/16/2022
- **Abbreviations and acronyms:**  
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances

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CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety &amp; Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Skin Corrosion 1B: Skin corrosion/irritation – Category 1B

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Sensitization - Skin 1: Skin sensitisation – Category 1

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3