

Printing date 09/16/2022 Reviewed on 09/16/2022

1 Identification

- · Product identifier
- · Trade name: EP-799 Two Part Conductive Epoxy
- · Application of the substance / the mixture Functional electronic epoxy
- 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



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or

breathing difficulties if inhaled.

Germ Cell Mutagenicity 1B H340 May cause genetic defects.

Carcinogenicity 1B H350 May cause cancer.

Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure 1 H370 Causes damage to organs.

Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or

repeated exposure.



GHS05 Corrosion

Eye Damage 1 H318 Causes serious eye damage.



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



Skin Irrititation 2 H315 Causes skin irritation.

Sensitization - Skin 1 H317 May cause an allergic skin reaction.

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Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

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









GHS05 GHS08

· Signal word Danger

· Hazard-determining components of labeling:

Proprietary Curing Agent

Solvent naphtha (petroleum), light arom.

Epoxy Resin

N-(aminoethyl)piperazine

Proprietary Resin

· Hazard statements

H315 Causes skin irritation.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H340 May cause genetic defects.

H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

H370 Causes damage to organs.

H335 May cause respiratory irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

H411 Toxic 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 soap and 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



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· HMIS-ratings (scale 0 - 4)

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Health = *3Fire = 1

- · 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.

Proprietary Curing Agent	25-50
Sensitization - Respiratory 1, H334; Toxic to Reproduction 2, H361; Organ Toxicity - Single Exposure 1, H370; Specific Target Organ T Exposure 1, H372; Eye Damage 1, H318; Skin Irrititation 2, H3. Skin 1, H317	oxicity - Repeated
Proprietary Resin	25-50
Aquatic Chronic 2, H411; O Acute Toxicity - Dermal 4, H312; Skin H315; Eye Irritation 2A, H319; Sensitization - Skin 1, H317	Irrititation 2,
Epoxy Resin Specific Target Organ Toxicity - Repeated Exposure 1, H372; Sk H315; Sensitization - Skin 1, H317; Specific Target Organ Toxicity - H335; Eye Irritation 2B, H320	
140-31-8 N-(aminoethyl)piperazine Skin Corrosion 1B, H314; Eye Damage 1, H318; Acute Toxicity Acute Toxicity - Dermal 4, H312; Sensitization - Skin 1, H317; Flat H227; Aquatic Chronic 3, H412	Oral 4, H302; nmable Liquids 4,
64742-95-6 Solvent naphtha (petroleum), light arom. Flammable Liquids 3, H226; Germ Cell Mutagenicity 1B, H340;	Carcinogenicity H332

4 First-aid measures

- · Description of first aid measures
- General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

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· 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 unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.

- 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

- · For safety reasons unsuitable extinguishing agents: Water with full jet
- · 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

Ensure adequate ventilation

Wear protective equipment. Keep unprotected persons away.

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).

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

<i>PAC-1</i> :		
	Proprietary Resin	90 mg/m3
140-31-8	N-(aminoethyl)piperazine	6.4 mg/m3
108-65-6	1-Methoxy-2-propanol acetate	50 ppm
<i>PAC-2:</i>		
	Proprietary Resin	990 mg/m3
140-31-8	N-(aminoethyl)piperazine	71 mg/m3
108-65-6	1-Methoxy-2-propanol acetate	1,000 ppm
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• PAC-3:		
	Proprietary Resin	5,900 mg/m3
140-31-8	N-(aminoethyl)piperazine	420 mg/m3
108-65-6	1-Methoxy-2-propanol acetate	5000* ppm

7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaust at the workplace.

Open and handle container with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep respirator available.

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:

Store receptacle in a well ventilated area.

Keep container well-sealed in cool, dry location.

Protect from heat and direct sunlight.

· 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 product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- · 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.

Store protective clothing separately.

Avoid contact with the skin.

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:

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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

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

9 Physical and	chemical	properties
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General Information Appearance:		
Form:	Liquid	
Color:	Black	
Odor:	Weak, characteristic	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	Undetermined.	
Flash point:	100 °C (212 °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:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density:	See other information	
Relative density	Not determined.	
Vapor density	Not determined.	

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· Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
· Solvent content:		
Organic solvents:	1.8 %	
VOC content:	1.8 %	
· Other information	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 (NOx)

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50	· LD/LC50 values that are relevant for classification:		
Proprietar	Proprietary Resin		
Oral	LD50	30000 mg/kg (Rat)	
Dermal	LD50	>1200 mg/kg (Rat)	
64742-95-	64742-95-6 Solvent naphtha (petroleum), light arom.		
Oral	LD50	>6800 mg/kg (Rat)	
Dermal	LD50	>3400 mg/kg (rab)	
Inhalative	LC50/4 h	>10.2 mg/l (Rat)	

- · Primary irritant effect:
- · on the skin: Irritant to skin and mucous membranes.
- · on the eye: Strong irritant with the danger of severe eye injury.
- · Sensitization:

Sensitization possible through inhalation.

Sensitization possible through skin contact.

· Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Harmful

Irritant

Carcinogenic.

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The product can cause inheritable damage.

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

· 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.
- · Ecotoxical effects:
- · Remark: Toxic for fish
- $\cdot Additional\ ecological\ information:$
- · General notes:

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

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

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

Also poisonous for fish and plankton in water bodies.

Toxic for 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, IMDG, IATA

UN3082

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UN proper shipping name	
DOT, ADR	Environmentally hazardous substances, liquid, n.o.s. (4,2
IMDG	Isopropylidenediphenol- Epichlorohydrin Copolymer) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUI.
IMDG	N.O.S. (4,4'-Isopropylidenediphenol- Epichlorohydr
	Copolymer), MARINE POLLUTANT
IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUI
	N.O.S. (4,4'-Isopropylidenediphenol- Epichlorohydr
	Copolymer)
Transport hazard class(es)	
DOT, ADR, IMDG, IATA	
A	
All	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
*	
Class	9 Miscellaneous dangerous substances and articles
Label	9
Packing group	
DOT, ADR, IMDG, IATA	III
Environmental hazards:	Product contains environmentally hazardous substances: 4,
7.	Isopropylidenediphenol- Epichlorohydrin Copolymer
Marine pollutant:	Yes (DOT)
Special precautions for user	Warning: Miscellaneous dangerous substances and articles
Hazard identification number (Kemler code):	
EMS Number: Stowage Category	F-A,S-F A
	А
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	N. 4 mm lingle
	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: No limit
	On cargo aircraft only: No limit
ADR	
Excepted quantities (EQ)	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (EQ)	Code: El Maximum nat quantity par innar packaging: 30 ml
	Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
	(Contd. on page



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· UN "Model Regulation":

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN COPOLYMER), 9, III

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.

- · California SCAQMD Rule 443.1 VOC's: No information available.
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms









GHS09

GHS05 GHS08 GHS07

- · Signal word Danger
- · Hazard-determining components of labeling:

Proprietary Curing Agent

Solvent naphtha (petroleum), light arom.

Epoxy Resin



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N-(aminoethyl)piperazine

Proprietary Resin

· Hazard statements

H315 Causes skin irritation.

H318 Causes serious eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H340 May cause genetic defects.

H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

H370 Causes damage to organs.

H335 May cause respiratory irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

H411 Toxic 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 soap and 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 has 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

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

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

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vPvB: very Persistent and very Bioaccumulative NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value PEL: Permissible Exposure Limit REL: Recommended Exposure Limit

Flammable Liquids 3: Flammable liquids – Category 3

Flammable Liquids 4: Flammable liquids – Category 4

Acute Toxicity - Dermal 4: Acute toxicity - Category 4 Skin Corrosion 1B: Skin corrosion/irritation - Category 1B

Skin Irrititation 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 Eye Irritation 2B: Serious eye damage/eye irritation – Category 2B

Sensitization - Respiratory 1: Respiratory sensitisation - Category 1

Sensitization - Skin 1: Skin sensitisation - Category 1

Germ Cell Mutagenicity 1B: Germ cell mutagenicity – Category 1B

Carcinogenicity 1B: Carcinogenicity - Category 1B

Toxic to Reproduction 2: Reproductive toxicity – Category 2

Specific Target Organ Toxicity - Single Exposure 1: Specific target organ toxicity (single exposure) – Category 1

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

Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) - Category 1

Aspiration Hazard 1: Aspiration hazard – Category 1

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

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