

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 30.03.2020

Version number 2

Revision: 30.03.2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** *EP-799 Two Part Conductive Epoxy*
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
- **Sector of Use** *SU16 Manufacture of computer, electronic and optical products, electrical equipment*
- **Application of the substance / the mixture** *Functional electronic epoxy*
- **1.3 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
- **Further information obtainable from:**
Product Safety
Email: productsafety@kayakuAM.com
- **1.4 Emergency telephone number:**
Kayaku Advanced Materials : 617-965-5511
Chemtrec USA Emergency : 800-424-9300 (24 hr)
Chemtrec International Emergency : 703-527-3887 (24 hr)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS08 health hazard

- | | |
|---------------|---|
| Resp. Sens. 1 | H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Muta. 1B | H340 May cause genetic defects. |
| Carc. 1B | H350 May cause cancer. |
| Repr. 2 | H361 Suspected of damaging fertility or the unborn child. |
| STOT SE 1 | H370 Causes damage to organs. |
| STOT RE 1 | H372 Causes damage to organs through prolonged or repeated exposure. |



GHS05 corrosion

- | | |
|------------|---------------------------------|
| Eye Dam. 1 | H318 Causes serious eye damage. |
|------------|---------------------------------|



GHS09 environment

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



GHS07

- | | |
|---------------|------------------------------|
| Skin Irrit. 2 | H315 Causes skin irritation. |
|---------------|------------------------------|

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Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

· 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

· Hazard pictograms



GHS05 GHS08 GHS07 GHS09

· Signal word Danger

· Hazard-determining components of labelling:

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/vapours/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 victim to fresh air and keep at rest in a position 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.

· Additional information:

Restricted to professional users.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

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 · **vPvB:** Not applicable.

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SECTION 3: Composition/information on ingredients

· 3.2 Chemical characterisation: Mixtures

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

· **Dangerous components:**

	Proprietary Curing Agent ⚠ Resp. Sens. 1, H334; Repr. 2, H361; STOT SE 1, H370; STOT RE 1, H372; ⚠ Eye Dam. 1, H318; ⚠ Skin Irrit. 2, H315; Skin Sens. 1, H317	25-50%
	Proprietary Resin ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	25-50%
	Epoxy Resin ⚠ STOT RE 1, H372; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	25-50%
CAS: 140-31-8 EINECS: 205-411-0 Index number: 612-105-00-4	N-(aminoethyl)piperazine ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	1-5%
CAS: 64742-95-6 EINECS: 265-199-0 Index number: 649-356-00-4	Solvent naphtha (petroleum), light arom. ⚠ Flam. Liq. 3, H226; ⚠ Muta. 1B, H340; Carc. 1B, H350; Asp. Tox. 1, H304; ⚠ Acute Tox. 4, H332	1-5%
· Additional Components:		
	Inorganic pigment	1-5%

 · **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 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 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:** If symptoms persist consult doctor.

 · **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

 · **4.3 Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
 - Alcohol resistant foam
 - Fire-extinguishing powder
 - ABC powder
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
 - Ensure adequate ventilation
 - Wear protective equipment. Keep unprotected persons away.
 - Keep away from ignition sources.
- **6.2 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.
- **6.3 Methods and material for containment and cleaning up:**
 - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 - Ensure adequate ventilation.
- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
 - Ensure good ventilation/exhaust at the workplace.
 - Open and handle receptacle with care.
 - Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
 - Keep respiratory protective device available.
 - Keep ignition sources away - Do not smoke.
 - Protect against electrostatic charges.
- **7.2 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 oxidising and acidic materials.
- **Further information about storage conditions:**
 - Store receptacle in a well ventilated area.
 - Store in cool, dry conditions in well sealed containers.
 - Protect from heat and direct sunlight.

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 · 7.3 **Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

 · **Additional information about design of technical facilities:** No further data; see item 7.

 · **8.1 Control parameters**

 · **Ingredients 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 valid during the making were used as basis.

 · **8.2 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 protection:**

In case of low exposure use cartridge respirator. In case of intensive or longer exposure use self-contained respiratory protective device.

 · **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**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

 · **Eye protection:**


Tightly sealed goggles

SECTION 9: Physical and chemical properties

 · **9.1 Information on basic physical and chemical properties**

 · **General Information**

 · **Appearance:**

Form: Liquid

Colour: Black

Odour: Weak, characteristic

Odour threshold: Not determined.

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· pH-value:	Not determined.
· Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
· Flash point:	100 °C
· Flammability (solid, gas):	Not applicable.
· Decomposition temperature:	Not determined.
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density:	Not determined.
· Relative density	Not determined.
· Vapour density	Not determined.
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	1.8 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

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

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SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values relevant for classification:**

Proprietary Resin		
Oral	LD50	30000 mg/kg (Rat)
Dermal	LD50	> 1200 mg/kg (Rat)
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:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity**
May cause genetic defects.
- **Carcinogenicity**
May cause cancer.
- **Reproductive toxicity**
Suspected of damaging fertility or the unborn child.
- **STOT-single exposure**
Causes damage to organs.
May cause respiratory irritation.
- **STOT-repeated exposure**
Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (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.

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- Toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Disposal must be made in accordance with International, National, and regional regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number	UN3082
· ADR, IMDG, IATA	
· 14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (4,4'-Isopropylidenediphenol- Epichlorohydrin Copolymer)
· ADR, IATA	
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (4,4'-Isopropylidenediphenol- Epichlorohydrin Copolymer), MARINE POLLUTANT
· 14.3 Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	9 Miscellaneous dangerous substances and articles.
· Label	9
· 14.4 Packing group	III
· ADR, IMDG, IATA	
· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: 4,4'-Isopropylidenediphenol- Epichlorohydrin Copolymer
· 14.6 Special precautions for user	Warning: Miscellaneous dangerous substances and articles.
· Hazard identification number (Kemler code):	90
· EMS Number:	F-A,S-F
· Stowage Category	A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.

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· Transport/Additional information:
· ADR
· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· Transport category

3

· Tunnel restriction code

E

· IMDG
· Limited quantities (LQ)

5L

· Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation":

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

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
· Directive 2012/18/EU
· Named dangerous substances - ANNEX I None of the ingredients is listed.

· Seveso category

H3 STOT SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE

E2 Hazardous to the Aquatic Environment

· Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 28, 29

· National regulations:
· Other regulations, limitations and prohibitive regulations

Kayaku Advanced Materials has confirmed with our precious metal suppliers that they do not use conflict minerals, as outlined in the Dodd-Frank Wall Street Reform and Consumer Protection Act in Title XV, Section 1502.

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 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.

· Relevant phrases

H226 Flammable liquid and vapour.

H302 Harmful if swallowed.

H304 May be fatal if swallowed and enters airways.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

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H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
· **Classification according to Regulation (EC) No 1272/2008**
Art. 9(1) of Regulation (EC) No. 1272/2008 was used for classification purposes.

- **Department issuing SDS:** Product safety department
- **Contact:** Tom Cole, EHS Manager (tcole@kayakuAM.com)
- **Revision History:** The manufacturer information in Section 1 has been updated.
- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity - dermal – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1B: Carcinogenicity – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Asp. Tox. 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