

Printing date 02/23/2021

Reviewed on 02/23/2021

## 1 Identification

- **Product identifier**
- **Trade name:** EBR DC Positive Radiation Resist Edge Bead Remover
- **Product number:** G040100
- **Application of the substance / the mixture** Solvents
- **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](mailto: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**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**

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

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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

1,3-dioxolane

(Contd. on page 2)

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 1)

**· Hazard statements**

- H225 Highly flammable liquid and vapor.  
 H319 Causes serious eye irritation.  
 H360 May damage fertility or the unborn child.

**· Precautionary statements**

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+P310 If swallowed: Immediately call a poison center/doctor.  
 P304+P312 IF INHALED: Call a POISON CENTER/doctor if you feel unwell.  
 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.  
 P370+P378 In case of fire: Use for extinction: Alcohol resistant foam.  
 P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.  
 P370+P378 In case of fire: Use for extinction: Carbon dioxide.  
 P403+P235 Store in a well-ventilated place. Keep cool.  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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

**· HMIS-ratings (scale 0 - 4)**

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

- PBT: Not applicable.  
 · vPvB: Not applicable.

**3 Composition/information on ingredients**
**· Chemical characterization: Mixtures**
**· Description: Solvent mixture**
**· Dangerous components:**

646-06-0	1,3-dioxolane	⚠ Flam. Liq. 2, H225; ⚠ Repr. 1B, H360	98-99.5%
107-98-2	1-methoxy-2-propanol	⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	0.5-2%

(Contd. on page 3)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 2)

**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 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

Carbon dioxide

**· For safety reasons unsuitable extinguishing agents:**

Water with full jet

Water

**· Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Formaldehyde

**· Advice for firefighters****· Protective equipment:** Wear SCBA.**6 Accidental release measures****· Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

Keep away from ignition sources

Use respiratory protective device against the effects of fumes/dust/aerosol.

Wear protective equipment. Keep unprotected persons away.

**· Environmental precautions:** 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.

Dispose contaminated material as waste according to Section 13.

**· Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

(Contd. on page 4)

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

See Section 13 for disposal information.

(Contd. of page 3)

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
 Keep away from heat and direct sunlight.  
 Store in cool, dry place in tightly closed containers.  
 Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).  
 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.  
 Use explosion-proof apparatus / fittings and spark-proof tools.  
 Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:**  
 Store in inert atmosphere or keep well sealed to prevent the formation of peroxides and other oxidation products.  
 Store in a cool location.
- **Information about storage in one common storage facility:**  
 Do not store together with oxidizing and acidic materials.  
 Do not store together with alkalis (caustic solutions).
- **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:**
**646-06-0 1,3-dioxolane**

 TLV 61 mg/m<sup>3</sup>, 20 ppm

**107-98-2 1-methoxy-2-propanol**

 REL Short-term value: 540 mg/m<sup>3</sup>, 150 ppm

 Long-term value: 360 mg/m<sup>3</sup>, 100 ppm

 TLV Short-term value: (553) NIC-369 mg/m<sup>3</sup>, (150) NIC-100 ppm

 Long-term value: (369) NIC-184 mg/m<sup>3</sup>, (100) NIC-50 ppm

NIC-A4

- **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.

(Contd. on page 5)

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 4)

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

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.

**· Protection of hands:**

Selection of glove material on consideration of the penetration times, rates of diffusion and degradation



Protective gloves

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

**· Material of gloves**

Butyl rubber, BR

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>	Clear to light yellow
<b>Odor:</b>	Characteristic
<b>Odor threshold:</b>	Not determined.

<b>· pH-value:</b>	Not determined.
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**· Change in condition**

<b>Melting point/Melting range:</b>	-26.4 °C (-15.5 °F)
<b>Boiling point/Boiling range:</b>	75 °C (167 °F)

<b>· Flash point:</b>	-6 °C (21.2 °F)
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<b>· Flammability (solid, gaseous):</b>	Not applicable.
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<b>· Ignition temperature:</b>	274 °C (525.2 °F)
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<b>· Decomposition temperature:</b>	Not determined.
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<b>· Auto igniting:</b>	Product is not selfigniting.
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<b>· Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
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**· Explosion limits:**

<b>Lower:</b>	Not determined.
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(Contd. on page 6)

## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 5)

<b>Upper:</b>	Not determined.
· <b>Vapor pressure at 20 °C (68 °F):</b>	133 hPa (99.8 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	1.0355 g/cm <sup>3</sup> (8.64125 lbs/gal)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <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**
  - Polymerization.
  - Possible formation of peroxide.
- **Conditions to avoid**
  - Contact with incompatible materials.
  - Heat, flames and sparks. Extremes of temperature and direct sunlight.
- **Incompatible materials:** Strong Oxidizing Agents, Strong Acids, Strong Bases
- **Hazardous decomposition products:**
  - Formaldehyde
  - Carbon monoxide and carbon dioxide

### 11 Toxicological information

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

 · **LD/LC50 values that are relevant for classification:**
**646-06-0 1,3-dioxolane**

Oral	LD50	3000 mg/kg (Rat)
Dermal	LD50	8480 mg/kg (rabbit)
Inhalative	LC50	68.4 mg/L (Rat)

**107-98-2 1-methoxy-2-propanol**

Oral	LD50	5660 mg/kg (Rat)
Dermal	LD50	13000 mg/kg (rabbit)
Inhalative	LC50/4 h	54.6 mg/l (Rat)

(Contd. on page 7)

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 6)

- **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:** No sensitizing effects known.
- **Experience with humans:** No further relevant information available.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Irritant

 · **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:**
**646-06-0 1,3-dioxolane**

14 day NOEC &gt;1000 mg/l (algae)

LC50/48 hr 12000 mg/L (Sheepshead minnow)

**107-98-2 1-methoxy-2-propanol**

EC50/96 hr 23300 mg/l (daphnia magna)

&gt;1000 mg/l (green algae)

LC50/96 h 20800 mg/l (Pimephales promelas)

 · **Persistence and degradability** The single components are biodegradable

 · **Behavior in environmental systems:**

 · **Bioaccumulative potential**

Due to the distribution coefficient n-octanol/water a worth-mentioning accumulation in organisms is not expected.

 · **Mobility in soil**

Component: Propylene glycol monomethyl ether, rapid dissipation in soil expected. Koc value between 1 and 50 indicating very high soil mobility.

 · **Additional ecological information:**

 · **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

 · **Results of PBT and vPvB assessment**

 · **PBT:** Not applicable.

 · **vPvB:** Not applicable.

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

US

(Contd. on page 8)



## Safety Data Sheet

acc. to OSHA HCS

Printing date 02/23/2021

Reviewed on 02/23/2021



**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 7)

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
 Disposal must be made in accordance with Federal, State, and Local regulations.  
 Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

· <b>UN-Number</b>	
· <b>DOT, ADR, IMDG, IATA</b>	UN1166
· <b>UN proper shipping name</b>	
· <b>DOT, ADR</b>	Dioxolane
· <b>IMDG, IATA</b>	DIOXOLANE
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>ADR, IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Warning: Flammable liquids
· <b>Hazard identification number (Kemler code):</b>	33
· <b>EMS Number:</b>	F-E,S-D
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

(Contd. on page 9)



Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 8)

· UN "Model Regulation": UN1166, Dioxolane, 3, II

## 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):

1,3-dioxolane

1-methoxy-2-propanol

### · 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

107-98-2 1-methoxy-2-propanol

### · New Jersey State Right To Know List

646-06-0 1,3-dioxolane

107-98-2 1-methoxy-2-propanol

### · Pennsylvania Hazardous Substances List

646-06-0 1,3-dioxolane

107-98-2 1-methoxy-2-propanol

- 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).

(Contd. on page 10)

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 9)

 · **Hazard pictograms**

 · **Signal word** *Danger*

 · **Hazard-determining components of labeling:**
*1,3-dioxolane*

 · **Hazard statements**
*H225 Highly flammable liquid and vapor.*
*H319 Causes serious eye irritation.*
*H360 May damage fertility or the unborn child.*

 · **Precautionary statements**
*P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.*
*P261 Avoid breathing dust/fume/gas/mist/vapors/spray*
*P280 Wear protective gloves/protective clothing/eye protection/face protection.*
*P301+P310 If swallowed: Immediately call a poison center/doctor.*
*P304+P312 IF INHALED: Call a POISON CENTER/doctor if you feel unwell.*
*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.*
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*P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.*
*P370+P378 In case of fire: Use for extinction: Carbon dioxide.*
*P403+P235 Store in a well-ventilated place. Keep cool.*
*P405 Store locked up.*
*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** *02/23/2021 / 4*

 · **Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*ICAO: International Civil Aviation Organisation*

*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*

(Contd. on page 11)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 02/23/2021

Reviewed on 02/23/2021

**Trade name: EBR DC Positive Radiation Resist Edge Bead Remover**

(Contd. of page 10)

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)  
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 & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Flam. Liq. 2: Flammable liquids – Category 2  
Flam. Liq. 3: Flammable liquids – Category 3  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
Repr. 1B: Reproductive toxicity – Category 1B  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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