

**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 14.02.2023

Version number 7 (replaces version 6)

Revision: 14.02.2023

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name:** EBR DC Positive Radiation Resist Edge Bead Remover**Article number:** G040100**1.2 Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

**Sector of Use** SU16 Manufacture of computer, electronic and optical products, electrical equipment**Product category** PC21 Laboratory chemicals**Application of the substance / the mixture** Solvents**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

The person responsible in EU Member State:

ONLY REPRESENTATIVE

Lionel Marcélis, PhD

President

REACH NATION SRL

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1440 Braine-le-Château

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\*Only Representative for 1,3-dioxolane (CAS 646-06-0) only. Other substances are being supported under REACH by Only Representatives of Non-European suppliers and others may be exempt from registration.

**Further information obtainable from:**

Product Safety

Email: [productsafety@kayakuAM.com](mailto: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**

GHS02 flame

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



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.

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#### · 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



GHS02 GHS05

##### · Signal word Danger

##### · Hazard-determining components of labelling:

1,3-dioxolane

##### · Hazard statements

H225 Highly flammable liquid and vapour.

H318 Causes serious eye damage.

##### · Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

P370+P378 In case of fire: Use to extinguish: Alcohol resistant foam, Fire-extinguishing powder, Carbon dioxide.

P403+P235 Store in a well-ventilated place. Keep cool.

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

#### · 2.3 Other hazards

None of the ingredients are included in the list established in accordance with Article 59(1) for having endocrine disrupting properties.

None of the ingredients are substances identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (or Commission Regulation (EU) 2018/605.

##### · Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

## SECTION 3: Composition/information on ingredients

#### · 3.2 Mixtures

· Description: Solvent mixture

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<b>· Dangerous components:</b>		
CAS: 646-06-0 EINECS: 211-463-5 Index number: 605-017-00-2 Reg.nr.: 01-2119490744-29-0017	1,3-dioxolane ⚠ Flam. Liq. 2, H225; ⚠ Eye Dam. 1, H318	98-99.5%
CAS: 107-98-2 EINECS: 203-539-1 Index number: 603-064-00-3	1-methoxy-2-propanol ⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	0.5-2%

 · **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.
- **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.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
Alcohol resistant foam  
Fire-extinguishing powder  
Carbon dioxide
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Formaldehyde
- **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  
Keep away from ignition sources.  
Use respiratory protective device against the effects of fumes/dust/aerosol.  
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **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.  
 Dispose contaminated material as waste according to item 13.
- **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**  
 Keep away from heat and direct sunlight.  
 Ensure good ventilation/exhaust at the workplace.  
 Prevent formation of aerosols.
- **Information about fire - and explosion protection:**  
 Keep ignition sources away - Do not smoke.  
 Use explosion-proof apparatus / fittings and spark-proof tools.  
 Protect against electrostatic charges.
- **7.2 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 oxidising and acidic materials.  
 Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:**  
 Store in cool, dry conditions in well sealed containers.  
 Protect from heat and direct sunlight.  
 Store receptacle in a well ventilated area.
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

 · **Ingredients with limit values that require monitoring at the workplace:**
**107-98-2 1-methoxy-2-propanol**

IOELV	Short-term value: 568 mg/m <sup>3</sup> , 150 ppm
	Long-term value: 375 mg/m <sup>3</sup> , 100 ppm
	Skin

 · **Additional information:** The lists valid during the making were used as basis.

#### · 8.2 Exposure controls

- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**  
 Keep away from food and beverages.  
 Immediately remove all soiled and contaminated clothing

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Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

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.

· **Hand protection**

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**

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

· **Eye/face protection**



Tightly sealed goggles

### SECTION 9: Physical and chemical properties

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

· **General Information**

· **Physical state**

Liquid

· **Colour:**

Clear to light yellow

· **Odour:**

Characteristic

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

-26.4 °C

· **Boiling point or initial boiling point and boiling range**

75 °C

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

Not determined.

· **Upper:**

Not determined.

· **Flash point:**

-6 °C (クロースドカップ)

· **Ignition temperature:**

274 °C

· **Decomposition temperature:**

Not determined.

· **pH**

Not determined.

· **Viscosity:**

· **Kinematic viscosity**

Not determined.

· **Dynamic:**

Not determined.

· **Solubility**

· **water:**

Fully miscible.

· **Partition coefficient n-octanol/water (log value)**

Not determined.

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· Vapour pressure at 20 °C:	133 hPa
· Density and/or relative density	
· Density at 20 °C:	1.0355 g/cm <sup>3</sup>
· Relative density	Not determined.
· Vapour density	Not determined.
· 9.2 Other information	
· Appearance:	
· Form:	Liquid
· Important information on protection of health and environment, and on safety.	
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	
Highly flammable liquid and vapour.	
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

### 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  
Polymerisation.  
Possible formation of peroxide.
- 10.4 Conditions to avoid  
Contact with incompatible materials.  
Heat, flames and sparks. Extremes of temperature and direct sunlight.
- 10.5 Incompatible materials: Strong Oxidizing Agents, Strong Acids, Strong Bases

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#### · 10.6 Hazardous decomposition products:

Formaldehyde

Carbon monoxide and carbon dioxide

### SECTION 11: Toxicological information

#### · 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

 · **Acute toxicity** Based on available data, the classification criteria are not met.

#### · LD/LC50 values 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)

 · **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

 · **Serious eye damage/irritation**

Causes serious eye damage.

 · **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

 · **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

 · **Carcinogenicity** Based on available data, the classification criteria are not met.

 · **Reproductive toxicity** Based on available data, the classification criteria are not met.

 · **STOT-single exposure** Based on available data, the classification criteria are not met.

 · **STOT-repeated exposure** Based on available data, the classification criteria are not met.

 · **Aspiration hazard** Based on available data, the classification criteria are not met.

 · **Experience with humans:** No further relevant information available.

#### · 11.2 Information on other hazards

#### · Endocrine disrupting properties

None of the ingredients is listed.

### SECTION 12: Ecological information

#### · 12.1 Toxicity

#### · Aquatic toxicity:

##### 646-06-0 1,3-dioxolane

14 day NOEC	>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)
	>1000 mg/l (green algae)
LC50/96 h	20800 mg/l (Pimephales promelas)

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

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· **12.3 Bioaccumulative potential**

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

· **12.4 Mobility in soil**

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

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.

· **12.7 Other adverse effects**

· **Additional ecological information:**

· **General notes:**

Water hazard class 1 (German Regulation) (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.

### SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Disposal must be made in accordance with International, National, and regional regulations.

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

### SECTION 14: Transport information

· **14.1 UN number or ID number**

· **ADR, IMDG, IATA** UN1166

· **14.2 UN proper shipping name**

· **ADR, IMDG, IATA** DIOXOLANE

· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class**

3 Flammable liquids.

· **Label**

3

· **14.4 Packing group**

· **ADR, IMDG, IATA** II

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user**

Warning: Flammable liquids.

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· <b>Hazard identification number (Kemler code):</b>	33
· <b>EMS Number:</b>	F-E,S-D
· <b>14.7 Maritime transport in bulk according to IMO instruments</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Transport category</b>	2
· <b>Tunnel restriction code</b>	D/E
· <b>UN "Model Regulation":</b>	UN1166, DIOXOLANE, 3, II

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **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**  
H225 Highly flammable liquid and vapour.  
H226 Flammable liquid and vapour.  
H318 Causes serious eye damage.  
H336 May cause drowsiness or dizziness.
- **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's information in Section 1, the product hazard information in Section 2 and the component hazard information in Section 3 have been updated.
- **Version number of previous version:** 6
- **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  
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

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vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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EU