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

· **1.1 Product identifier**

· **Trade name: EBR PG**

· **Article number:** G042075
· **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
22 Rue Notre Dame au Bois
1440 Braine-le-Château
BELGIUM
Tel : +32491880259

*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
· **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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GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

· **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 GHS07

· **Signal word** *Danger*

· **Hazard-determining components of labelling:**
1,3-dioxolane
1-methoxy-2-propanol
· **Hazard statements**
H225 Highly flammable liquid and vapour.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
· **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**
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

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SECTION 3: Composition/information on ingredients

· ***3.2 Chemical characterisation: Mixtures***
· ***Description:*** *Solvent mixture*

· ***Dangerous components:***		
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*	*50-80%*
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*	*5-30%*

· ***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.
If skin irritation continues, consult a doctor.
· ***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
ABC powder
· ***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
Can form explosive gas-air mixtures.
Containers may explode due to pressure increase when container is exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.

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· ***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:***
Dilute with plenty of water.
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***
Keep away from heat and direct sunlight.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Prevent formation of aerosols.
· ***Information about fire - and explosion protection:***
Keep ignition sources away - Do not smoke.
Protect from heat.
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 alkalis (caustic solutions).
Do not store together with oxidising and acidic materials.
· ***Further information about storage conditions:***
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.
· ***7.3 Specific end use(s)*** *Positive radiation resist edge bead remover*

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SECTION 8: Exposure controls/personal protection

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

· ***Ingredients with limit values that require monitoring at the workplace:***	
107-98-2 1-methoxy-2-propanol	
IOELV	*Short-term value: 568 mg/m³, 150 ppm* *Long-term value: 375 mg/m³, 100 ppm* *Skin*

· ***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.
Avoid contact with the eyes and skin.
Do not inhale gases / fumes / aerosols.
· ***Respiratory protection:*** *Use suitable respiratory protective device in case of insufficient ventilation.*
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· ***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 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:	*Clear to light yellow*
· ***Odour:***	*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:	75 °C
· **Flash point:**	<7.5 °C (クローズドカップ)
· **Flammability (solid, gas):**	Not applicable.
· **Ignition temperature:**	270 °C
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	2.1 Vol %
Upper:	20.5 Vol %
	Not determined.
· **Vapour pressure at 20 °C:**	133 hPa
· **Density at 20 °C:**	1.0355 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Fully miscible.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **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**
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
· **10.6 Hazardous decomposition products:**
Formaldehyde

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Carbon monoxide and carbon dioxide

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:**		
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)

· **Primary irritant effect:**
· **Skin corrosion/irritation** Not a known skin irritant
· **Serious eye damage/irritation**
Causes serious eye damage.
· **Respiratory or skin sensitisation** No information
· **Experience with humans:** No further relevant information available.
· **Additional toxicological information:**
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** No information
· **Carcinogenicity** No information
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure**
May cause drowsiness or dizziness.
· **STOT-repeated exposure** No information
· **Aspiration hazard** No information

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**		
646-06-0 1,3-dioxolane		
Oral	14 day NOEC	>1000 mg/l (algae)
	EC50	7650 mg/kg (daphnia magna)
	LC50 48 hr	12000 mg/L (Sheepshead minnow)
107-98-2 1-methoxy-2-propanol		
	EC50 96 hr	23300 (daphnia magna)
		>1000 (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.
· ***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.
· ***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.*
· ***Recommended cleansing agents:*** *Water, if necessary together with cleansing agents.*

SECTION 14: Transport information

· ***14.1 UN-Number***	
· ***ADR, IMDG, IATA***	*UN1166*
· ***14.2 UN proper shipping name***	
· ***ADR***	*1166 DIOXOLANE*
· ***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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· ***Hazard identification number (Kemler code):***	*33*
· ***EMS Number:***	*F-E,S-D*
· ***14.7 Transport in bulk according to Annex II of Marpol and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	
· ***ADR***	
· ***Limited quantities (LQ)***	*1L*
· ***Transport category***	*2*
· ***Tunnel restriction code***	*D/E*
· ***UN "Model Regulation":***	*UN1166, DIOXOLANE, 3, II*

SECTION 15: Regulatory information

· ***15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture***

· ***Directive 2012/18/EU***
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** *5.000 t*
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** *50.000 t*
· ***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.
· ***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

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LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
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