

Safety Data Sheet acc. to OSHA HCS

Printing date 02/07/2024

Reviewed on 02/05/2024


1 Identification

- **Product identifier**
- **Trade name:** **BRAWO-III US (Component A)**
- **Application of the substance / the mixture** Epoxy sealing
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:** KUZE
Kunststoff und Zement
Systemtechnik GmbH
Maxstraße 10
45127 Essen, Germany
Tel.: +1149 176 10 625 103
E-Mail: info@kuze-sys.de
- **Information department:** info@kuze-sys.de
- **Emergency telephone number:** Tel.: +49 / (0)700 24112112 (MCR)
Tel.: +1 872 5888271 (MCR)

2 Hazard(s) identification

- **Classification of the substance or mixture**
Skin Irritation 2 H315 Causes skin irritation.
Sensitization - Skin 1 H317 May cause an allergic skin reaction.

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



GHS07
- **Signal word** Warning
- **Hazard-determining components of labeling:** 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane
Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)] dioxirane and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl} oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)] dioxirane
Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs
- **Hazard statements** Causes skin irritation.
May cause an allergic skin reaction.
- **Precautionary statements** Avoid breathing dust/fume/gas/mist/vapors/spray
Wash thoroughly after handling.

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Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Specific treatment.

Wash contaminated clothing before reuse.

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

· **Classification system**

· **NFPA ratings (scale 0-4)**

Health = 1

Fire = 1

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:**

Not applicable.

· **vPvB:**

Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture consisting of the following components.

· **Dangerous components:**

CAS: 1675-54-3 EINECS: 216-823-5	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	60-80%
EC number: 701-263-0	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and 2-{2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	10-30%
CAS: 933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)	≥1-<10%
CAS: 68609-97-2 EINECS: 271-846-8	oxirane, mono[(C12-14-alkyloxy)methyl] derivs	≥0.1-<0.5%

· **Additional information**

For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Immediately rinse with water.

· **After eye contact**

Seek medical treatment.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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· **After swallowing**

Rinse out mouth and then drink plenty of water.
Seek medical treatment.

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5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Inform respective authorities in case of seepage into water course or sewage system.
- **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**

· **PAC-1:**

CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	39 mg/m ³
CAS: 112945-52-5	Siliciumdioxid	18 mg/m ³
CAS: 9002-88-4	Polyethylene low density	16 mg/m ³
CAS: 100-51-6	Benzyl alcohol	30 ppm
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	50 ppm
CAS: 9002-89-5	Polyvinylalkohol	24 mg/m ³
	Reaction mass of ethylbenzene and xylene	130 ppm
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	75 ppm
CAS: 141-78-6	Ethyl acetate	1,200 ppm
CAS: 123-86-4	n-Butyl acetate	5 ppm
CAS: 108-31-6	maleic anhydride	0.2 ppm
CAS: 8050-09-7	Rosin	72 mg/m ³
CAS: 78-92-2	2-Butanol	150 ppm
CAS: 107-98-2	1-Methoxy-2-propanol	100 ppm

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CAS: 103-11-7	2-ethylhexyl acrylate	15 ppm
· PAC-2:		
CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	430 mg/m ³
CAS: 112945-52-5	Siliciumdioxid	100 mg/m ³
CAS: 9002-88-4	Polyethylene low density	170 mg/m ³
CAS: 100-51-6	Benzyl alcohol	52 ppm
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	1,000 ppm
CAS: 9002-89-5	Polyvinylalkohol	270 mg/m ³
	Reaction mass of ethylbenzene and xylene	920* ppm
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	330 ppm
CAS: 141-78-6	Ethyl acetate	1,700 ppm
CAS: 123-86-4	n-Butyl acetate	200 ppm
CAS: 108-31-6	maleic anhydride	2 ppm
CAS: 8050-09-7	Rosin	790 mg/m ³
CAS: 78-92-2	2-Butanol	220 ppm
CAS: 107-98-2	1-Methoxy-2-propanol	160 ppm
CAS: 103-11-7	2-ethylhexyl acrylate	120 ppm

· PAC-3:

CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	2,600 mg/m ³
CAS: 112945-52-5	Siliciumdioxid	630 mg/m ³
CAS: 9002-88-4	Polyethylene low density	1,000 mg/m ³
CAS: 100-51-6	Benzyl alcohol	740 ppm
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	5000* ppm
CAS: 9002-89-5	Polyvinylalkohol	1,600 mg/m ³
	Reaction mass of ethylbenzene and xylene	2500* ppm
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	2000* ppm
CAS: 141-78-6	Ethyl acetate	10000** ppm
CAS: 123-86-4	n-Butyl acetate	3000* ppm
CAS: 108-31-6	maleic anhydride	20 ppm
CAS: 8050-09-7	Rosin	1,500 mg/m ³
CAS: 78-92-2	2-Butanol	10000** ppm
CAS: 107-98-2	1-Methoxy-2-propanol	660 ppm
CAS: 103-11-7	2-ethylhexyl acrylate	150 ppm

7 Handling and storage

- **Handling**
- **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.

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Open and handle receptacle with care.

- **Information about protection against explosions and fires:** *No special measures required.*
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** *No special requirements.*
- **Information about storage in one common storage facility:** *Not required.*
- **Further information about storage conditions:** *Keep receptacle tightly sealed.*
- **Storage class** *10*
- **Specific end use(s)** *Only for professional use*

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** *No further data; see section 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 foodstuffs, beverages and feed.
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.*
- **Protection of hands:** *Protective gloves.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
After use of gloves apply skin-cleaning agents and skin cosmetics.*
- **Material of gloves** *The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.*
- **Penetration time of glove material** *The exact breakthrough time must be obtained from the protective glove manufacturer and must be observed.*
- **Eye protection:** *Not required.*

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Trade name: BRAWO-III US (Component A)

· **Body protection:** Protective work clothing.

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9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form:	Fluid
Color:	Green
Odor:	Characteristic

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	200 °C (392 °F)

· **Flash point:** 141 °C (285.8 °F)

· **Auto igniting:** 184 °C (363.2 °F)

· **Ignition temperature:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Vapor pressure at 20 °C (68 °F):** 0.1 hPa

· **Density at 20 °C (68 °F):** 1.1 g/cm³ (9.18 lbs/gal)

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix

· **Viscosity:**

dynamic:	Not determined.
kinematic:	Not determined.

· **Other information**

No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Possibility of hazardous reactions**

No dangerous reactions known

· **Conditions to avoid**

No further relevant information available.

· **Incompatible materials:**

No further relevant information available.

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Trade name: BRAWO-III US (Component A)

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- **Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:

- LD/LC50 values that are relevant for classification:

CAS: 1675-54-3 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Dermal	LD50	23,000 mg/kg (rabbit)
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CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs

Oral	LD50	17,100 mg/kg (rat)
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- Primary irritant effect:

- on the skin: Irritant to skin and mucous membranes.

- on the eye: No irritating effect, known to us.

- Sensitization: No sensitizing effects known.

- Additional toxicological information: Irritant

- Carcinogenic categories

- IARC (International Agency for Research on Cancer)

CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	3
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CAS: 9002-88-4	Polyethylene low density	3
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CAS: 9002-89-5	Polyvinylalkohol	3
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	Reaction mass of ethylbenzene and xylene	3
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CAS: 128-37-0	2,6-Di-tert-butyl-p-cresol	3
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CAS: 103-11-7	2-ethylhexyl acrylate	2B
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- NTP (National Toxicology Program)

None of the ingredients is listed.

- OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

- Toxicity

- Aquatic toxicity:

CAS: 1675-54-3 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

IC50	>42.6 mg/l (Bak)
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LC50/96h	2 mg/l (Oncorhynchus mykiss)
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EC50/48h	1.8 mg/l (Daphnia magna)
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ErC50/72h	11 mg/l (Selenastrum capricornutum)
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Trade name: BRAWO-III US (Component A)

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CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs

EbC50/72h 843 mg/l (Pseudokirchneriella subcapitata)

LC50/96h >5,000 mg/l (Oncorhynchus mykiss)

1,800 mg/l (Lepomis macrochirus)

EC50 >100 mg/l (BEL)

NOEC 500 mg/l (Pseudokirchneriella subcapitata)

- **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.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:** Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
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.
- **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 together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Dispose of packaging according to regulations on the disposal of packagings.
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN3082
- **UN proper shipping name**
- **DOT** Environmentally hazardous substance, liquid, n.o.s. (epoxide derivatives)

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Trade name: BRAWO-III US (Component A)

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· ADR, IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxide derivates)
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxide derivates), MARINE POLLUTANT
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	9 Miscellaneous dangerous substances and articles
· Label	9
· ADR	
· Class	9 (M6) Miscellaneous dangerous substances and articles
· Label	9
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: epoxide derivates
· Marine pollutant:	Yes Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· Special marking (IATA):	Symbol (fish and tree)
· 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
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 450 L On cargo aircraft only: 450 L
· Remarks:	Special marking with the symbol (fish and tree).
· 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: E1 Maximum net quantity per inner packaging: 30 ml

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Trade name: BRAWO-III US (Component A)

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	Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATES), 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 is listed.

· **SARA Section 313 (specific toxic chemical listings)**

	Reaction mass of ethylbenzene and xylene
CAS: 108-31-6	maleic anhydride
CAS: 78-92-2	2-Butanol

· **TSCA (Toxic Substances Control Act)**

TSCA list: All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	ACTIVE
CAS: 9002-88-4	Polyethylene low density	ACTIVE
CAS: 100-51-6	Benzyl alcohol	ACTIVE
CAS: 68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs	ACTIVE
CAS: 64742-95-6	Lösungsmittelnaphtha (Erdöl), leichte aromatische	ACTIVE
CAS: 85711-46-2	Fatty acids, C14-18 and C16-18 unsaturated, treated with maleic acid	ACTIVE
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	ACTIVE
CAS: 9002-89-5	Polyvinylalkohol	ACTIVE
CAS: 1302-78-9	Bentonite	ACTIVE
	Reaction mass of ethylbenzene and xylene	ACTIVE
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	ACTIVE
CAS: 141-78-6	Ethyl acetate	ACTIVE
CAS: 123-86-4	n-Butyl acetate	ACTIVE
CAS: 128-37-0	2,6-Di-tert-butyl-p-cresol	ACTIVE
CAS: 7732-18-5	Water	ACTIVE
CAS: 108-31-6	maleic anhydride	ACTIVE
CAS: 8050-09-7	Rosin	ACTIVE
CAS: 78-92-2	2-Butanol	ACTIVE
CAS: 64742-47-8	Distillates (petroleum), hydrotreated light	ACTIVE
CAS: 107-98-2	1-Methoxy-2-propanol	ACTIVE

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Trade name: BRAWO-III US (Component A)

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CAS: 103-11-7	2-ethylhexyl acrylate	ACTIVE
· Hazardous Air Pollutants		
	Reaction mass of ethylbenzene and xylene	
CAS: 108-31-6	maleic anhydride	
· Prop 65 - Chemicals known to cause cancer		
CAS: 103-11-7	2-ethylhexyl acrylate	
· Cancerogenity categories		
· EPA (Environmental Protection Agency)		
	Reaction mass of ethylbenzene and xylene	I
· TLV (Threshold Limit Value)		
	Reaction mass of ethylbenzene and xylene	A4
CAS: 128-37-0	2,6-Di-tert-butyl-p-cresol	A4
CAS: 108-31-6	maleic anhydride	A4
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
None of the ingredients is listed.		
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.		

16 Other information

- Department issuing SDS:** Environment protection department.
- Contact:**
- Date of preparation / last revision** 02/07/2024
- 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
 - 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)
 - 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
 - Skin Irritation 2: Skin corrosion/irritation – Category 2
 - Sensitization - Skin 1: Skin sensitisation – Category 1

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**· * Data compared to the
previous version altered.**

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US