



Printing date 02/22/2024 Reviewed on 02/08/2024

1 Identification

· Product identifier

• Trade name: BRAWO SRR US (component A)

· Application of the substance

/ the mixture Epoxy curing agent

· Details of the supplier of the safety data sheet

Manufacturer/Supplier: KUZE

Kunststoff und Zement Systemtechnik GmbH

Maxstraße 10

45127 Essen, Germany Tel.: +49 176 10 625 103 E-Mail: info@kuze-sys.de

Information department:

· Emergency telephone

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

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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] derivatives

· 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.

Contaminated work clothing must not be allowed out of the

workplace.

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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 comp	onents:	
CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	60-80%
CAS: 9003-36-5	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	Oxirane, mono[(C12-14-alkyloxy)methyl] derivatives	≥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.

• After eye contact Seek medical treatment.

Rinse opened eye for several minutes under running water. If

symptoms persist, consult a doctor.

After swallowing Rinse out mouth and then drink plenty of water.

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Seek medical treatment.

5 Fire-fighting measures

· Extinguishing media

· Suitable extinguishing agents CO2, extinguishing powder or water spray. Fight larger fires with

water spray or alcohol resistant foam.

· 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.

Dilute with plenty of water.

· 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

CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	39 mg/m³
CAS: 112945-52-5	Siliciumdioxid	18 mg/m³
CAS: 9002-88-4	Polyethylene low density	16 mg/m³
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/m³
	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/m³
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:		
	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	430 mg
CAS: 112945-52-5	Siliciumdioxid	100 mg
CAS: 9002-88-4	Polyethylene low density	170 mg
CAS: 100-51-6	Benzyl alcohol	52 ppm
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	1,000 p
CAS: 9002-89-5	Polyvinylalkohol	270 mg
	Reaction mass of ethylbenzene and xylene	920* pp
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	330 pp
CAS: 141-78-6	Ethyl acetate	1,700 p
CAS: 123-86-4	n-Butyl acetate	200 pp
CAS: 108-31-6	maleic anhydride	2 ppm
CAS: 8050-09-7	Rosin	790 mg
CAS: 78-92-2	2-Butanol	220 pp
CAS: 107-98-2	1-Methoxy-2-propanol	160 pp
CAS: 103-11-7	2-ethylhexyl acrylate	120 pp
PAC-3:		
	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] 2 bisoxirane	2,600 mg
CAS: 112945-52-5	Siliciumdioxid	630 mg/n
CAS: 9002-88-4	Polyethylene low density	1,000 mg
CAS: 100-51-6	Benzyl alcohol	740 ppm
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	5000* pp
CAS: 9002-89-5	Polyvinylalkohol 1	1,600 mg
	Reaction mass of ethylbenzene and xylene	2500* ppi
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	2000* pp
CAS: 141-78-6	Ethyl acetate	10000** p
CAS: 123-86-4	n-Butyl acetate	3000* pp
CAS: 108-31-6	maleic anhydride 2	20 ppm
CAS: 8050-09-7	Rosin	1,500 mg
CAS: 78-92-2	2-Butanol	10000** p
CAS: 107-98-2	1-Methoxy-2-propanol 6	660 ppm

7 Handling and storage

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[·] Handling

[•] Precautions for safe handling Open and handle receptacle with care.

Ensure good ventilation/exhaustion at the workplace.



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Prevent formation of aerosols.

· Information about protection

against explosions and fires: No special measures required. Conditions for safe storage, including any incompatibilities

· 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

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. The lists that were valid during the creation were used as basis.

· Exposure controls

Personal protective equipment

General protective and

· Additional information:

Keep away from foodstuffs, beverages and feed. hygienic measures

> Immediately remove all soiled and contaminated clothing Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· Breathing equipment: Not required. · Protection of hands: Protective aloves.

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.

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

Material of gloves

The exact breakthrough time must be obtained from the protective

glove manufacturer and must be observed.

· Eve protection: Not required.

· Body protection: Impervious protective clothing

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Protective work clothing.

Information on basic physical and	l chemical properties
General Information	
Appearance: Form:	Fluid
Color:	Whitish
Odor:	Characteristic
Odor threshold:	Not determined.
pH-value:	Mixture is non-soluble (in water). Not determined.
Change in condition	
Melting point/Melting range:	undetermined
Boiling point/Boiling range:	>200 °C (>392 °F)
Flash point:	>93 °C (>199.4 °F)
Flammability (solid, gaseous)	Not applicable.
Auto igniting:	460 °C (860 °F)
Decomposition temperature:	Not determined.
lgnition temperature:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure at 20 °C (68 °F):	0 hPa
Density at 20 °C (68 °F):	1.1 g/cm³ (9.18 lbs/gal)
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	- " . ".
Water:	Fully miscible
Partition coefficient (n-octanol/wa	ter): Not determined.
Viscosity:	Mad determined
dynamic: kinematic:	Not determined. Not determined.

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· Other information

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

No dangerous reactions known

Conditions to avoid
 Incompatible materials:
 No further relevant information available.
 No further relevant information available.

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

Dermal LD50 23,000 mg/kg (rabbit)

CAS: 9003-36-5 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

Oral LD50 >2,000 mg/kg (rat)

Dermal LD50 >2,000 mg/kg (rabbit)

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

Oral LD50 17,100 mg/kg (rat)

· 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 | CAS: 9002-88-4 | Polyethylene low density | 3 |

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		(Contd. of page
CAS: 9002-89-5	Polyvinylalkohol	3
	Reaction mass of ethylbenzene and xylene	3
CAS: 128-37-0	2,6-Di-tert-butyl-p-cresol	3
CAS: 103-11-7	2-ethylhexyl acrylate	2E
· NTP (National T	oxicology Program)	
None of the ingre	edients is listed.	
· OSHA-Ca (Occu	ipational Safety & Health Administration)	
None of the ingre	edients is listed.	

12 Ecological information

· Toxicity

· Aquatic tox	cicity:
CAS: 1675-	54-3 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane
IC50	>42.6 mg/l (Bak)
LC50/96h	2 mg/l (Oncorhynchus mykiss)
EC50/48h	1.8 mg/l (Daphnia magna)
ErC50/72h	11 mg/l (Selenastrum capricornutum)
CAS: 9003-	36-5 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
LC50/96h	>100 mg/l (Daphnia magna)
EC50/96h	>100 mg/l (Leucidus idus)
CAS: 68609	9-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivatives
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
 Mobility in soil
 No further relevant information available.
 No further relevant information available.
- Ecotoxical 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.

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· **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.

· Recommended cleansing

agent:

Water, if necessary with cleansing agents.

UN-Number	
DOT	Void
ADR, IMDG, IATA	UN3082
UN proper shipping name	
DOT	Void
ADR, IATA	ENVIRONMENTALLY HAZARDOUS
	SUBSTANCE, LIQUID, N.O.S. (epoxide derivates)
IMDG	ENVIRONMENTALLY HAZARDOU
	SUBSTANCE, LIQUID, N.O.S. (epoxid derivates), MARINE POLLUTANT
	delivates), MARINE FOLLOTANT
Transport hazard class(es)	
DOT	
Class	Void
ADR	
Class	9 (M6) Miscellaneous dangerous substances an
	articles
Label	9
IMDG, IATA	
Class	9 Miscellaneous dangerous substances an
	articles
Label	9
Packing group	
DOT	Void
ADR, IMDG, IATA	III

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Trade name: BRAWO SRR US (component A)

	(Contd. of page
Environmental hazards: Marine pollutant: Special marking (ADR): Special marking (IATA):	Yes Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)
Special precautions for user	Warning: Miscellaneous dangerous substance and articles
Hazard identification number (Kemler code EMS Number: Stowage Category	9): 90 F-A,S-F A
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
ADR Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 100 ml
IMDG Limited quantities (LQ) Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 100 ml
UN "Model Regulation":	UN 3082 ENVIRONMENTALLY HAZARDOU SUBSTANCE, LIQUID, N.O.S. (EPOXID DERIVATES), 9, III

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· Safety, health and environmental regulations/ legislation specific for the

substance or mixture No further relevant information available.

	355 (extremely hazardous substances)
None of the ing	redients 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
	(Cantal an mana 44)

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	stances Control Act)	4.67
CAS: 1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	ACTI ACTI
CAS: 9003-36-5	AS: 9003-36-5 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	
CAS: 9002-88-4	Polyethylene low density	ACTI
CAS: 100-51-6	Benzyl alcohol	ACTI
CAS: 68609-97-2	Oxirane, mono[(C12-14-alkyloxy)methyl] derivatives	ACTI
CAS: 64742-95-6	Lösungsmittelnaphtha (Erdöl), leichte aromatische	ACTI
CAS: 85711-46-2	Fatty acids, C14-18 and C16-18 unsaturated, treated with maleic acid	ACTI
CAS: 108-65-6	2-methoxy-1-methylethyl acetate	ACTI
CAS: 9002-89-5	Polyvinylalkohol	ACTI
CAS: 1302-78-9	Bentonite	ACTI
	Reaction mass of ethylbenzene and xylene	ACTI
CAS: 108-83-8	2,6-Dimethyl-heptan-4-on	ACTI
CAS: 141-78-6	Ethyl acetate	ACTI
CAS: 123-86-4	n-Butyl acetate	ACTI
CAS: 128-37-0	2,6-Di-tert-butyl-p-cresol	ACTI
CAS: 7732-18-5	Water	ACTI
CAS: 108-31-6	maleic anhydride	ACTI
CAS: 8050-09-7	Rosin	ACTI
CAS: 78-92-2	2-Butanol	ACTI
CAS: 64742-47-8	Distillates (petroleum), hydrotreated light	ACTI
CAS: 107-98-2	1-Methoxy-2-propanol	ACTI
CAS: 103-11-7	2-ethylhexyl acrylate	ACTI
Hazardous Air Po	ollutants	
	eaction mass of ethylbenzene and xylene	
CAS: 108-31-6 m	aleic anhydride	
<u>-</u>	eals known to cause cancer	
CAS: 103-11-7 2-	ethylhexyl acrylate	
· Cancerogenity ca		
•	ntal Protection Agency)	
Reaction mass of	ethylbenzene and xylene	
· TLV (Threshold L	imit Value)	
R	eaction mass of ethylbenzene and xylene	
	6-Di-tert-butyl-p-cresol	
CAS: 108-31-6 m	aleic anhydride	
· NIOSH-Ca (Natio	nal Institute for Occupational Safety and Health)	



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

16 Other information

· Contact:

· Date of preparation / last

revision 02/22/2024

· 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

* Data compared to the previous version altered.

US