



Printing date 09.02.2024 Version number 45 (replaces version 44) Revision: 09.02.2024

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

· 1.1 Product identifier

· Trade name BRAWO-I - Komponente B

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

· Application of the substance

/ the mixture Epoxy sealing

Hardening agent/ Curing agent

· 1.3 Details of the supplier of the safety data sheet

· Manufacturer/Supplier: BRAWO SYSTEMS GmbH

Blechhammerweg 13-17 67659 Kaiserslautern Deutschland/Germany

Tel: +49(0)631-205 61 100

· Informing department: Technische Abteilung

msds@brawoliner.de

· 1.4 Emergency telephone

number: +49 (0) 61 31 - 19 240 (Giftnotruf Mainz)

SECTION 2: Hazards identification

- · 2.1 Classification of the substance or mixture
- · Classification according to Regulation (EC) No 1272/2008

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Repr. 2 H361fd Suspected of damaging fertility. Suspected of damaging the unborn

child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

· 2.2 Label elements

Labelling according to

Regulation (EC) No 1272/2008 The product is classified and labelled according to the GB CLP regulation.

· Hazard pictograms







GHS05 GHS07 GHS08

· Signal word Danger

· Hazard-determining

components of labelling: Isophorone diamine

2-piperazin-1-ylethylamine polymer amine terminated Polyoxypropylentriamin

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· Hazard statements	H302 Harmful if swallowed.
	H312 Harmful in contact with skin.
	H314 Causes severe skin burns and eye damage.
	H317 May cause an allergic skin reaction.
	H361fd Suspected of damaging fertility. Suspected of damaging
	the unborn child.
	H373 May cause damage to organs through prolonged or
	repeated exposure.
	H412 Harmful to aquatic life with long lasting effects.
· Precautionary statements	P101 If medical advice is needed, have product
	container or label at hand.
	P102 Keep out of reach of children.
	P103 Read carefully and follow all instructions.
	P260 Do not breathe dusts or mists.
	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all
	contaminated clothing. Rinse skin with water [or
	shower].
	P305+P351+P338 IF IN EYES: Rinse cautiously with water for
	several minutes. Remove contact lenses, if
	present and easy to do. Continue rinsing.
	P310 Immediately call a POISON CENTER/doctor.
	P321 Specific treatment (see on this label).
	P362+P364 Take off contaminated clothing and wash it before reuse.
	P501 Dispose of contents/container in accordance
	with local/regional/national/international
	regulations.
	<u> </u>

· 2.3 Other hazards

· Results of PBT and vPvB assessment · PBT: Not applicable. Not applicable. · vPvB:

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

Description: Mixture consisting of the following components.

Dangerous components:		
EC number: 949-140-2	polymer amine terminated	30-60%
	Eye Dam. 1, H318; Skin Irrit. 2, H315; Skin Sens. 1B, H317	
CAS: 2855-13-2	Isophorone diamine	<i>≥</i> 25- <i>≤</i> 30%
EINECS: 220-666-8 Reg.nr.: 01-2119514687-32	Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	
	Polyoxypropylentriamin	≥10-<25%
	Eye Dam. 1, H318; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Acute Tox. 4, H312	
CAS: 140-31-8	2-piperazin-1-ylethylamine	≥5-<10%
EINECS: 205-411-0	Repr. 2, H361fd; STOT RE 1, H372; Skin Corr. 1B, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	





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CAS: 15520-10-2	2-methylpentane-1,5-diamine	≥5-<10%
EINECS: 239-556-6	Skin Corr. 1A, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; STOT SE 3, H335	
CAS: 100-51-6	Benzyl alcohol	<5%
	Acute Tox. 4, H302; Acute Tox. 4, H332; Eye Irrit. 2, H319	
CAS: 69-72-7	salicylic acid	≥1-<3%
EINECS: 200-712-3	Repr. 2, H361d; Eye Dam. 1, H318; Acute Tox. 4, H302	
· Additional information	For the wording of the listed hazard phrases refer to s	ection 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

• General information Immediately remove any clothing contaminated with the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the

accident.

• After inhalation Supply fresh air and call for doctor for safety reasons.

In case of unconsciousness bring patient into stable side position

for transport.

· After skin contact Instantly wash with water and soap and rinse thoroughly.

• After eye contact Call a doctor immediately.
• After swallowing Instantly call for doctor.

Drink copious amounts of water and provide fresh air. Instantly call

for doctor.

SECTION 5: Firefighting measures

5.1 Extinguishing media

· Suitable extinguishing agents Use fire fighting measures that suit the environment.

5.2 Special hazards arising from the substance or

mixture No further relevant information available.

5.3 Advice for firefighters

· Protective equipment: No special measures required.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:

Inform respective authorities in case product reaches water or

sewage system.

· 6.3 Methods and material for

containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders,

universal binders, sawdust). Use neutralising agent.

Dispose of contaminated material as waste according to item 13.

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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 information on disposal.

SECTION 7: Handling and storage

· 7.1 Precautions for safe

handling Store in cool, dry place in tightly closed containers.

Open and handle container with care.

· Information about protection

against explosions and fires: No special measures required.

· 7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by

storerooms and containers: No special requirements.

Information about storage in

one common storage facility: Not required.

· Further information about

storage conditions: Keep container tightly sealed.

· Storage class

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· Components with critical 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.

DNELs		
CAS: 285	5-13-2	Isophorone diamine
Oral	DNEL	0.526 mg/kg bw/Tag (ArL)
Inhalative	DNEL	20.1 mg/m³ (ArL)
CAS: 394	23-51-3	Polyoxypropylentriamin
Inhalative	DNEL	14 mg/m³ (ArL)
CAS: 140	-31-8 2·	piperazin-1-ylethylamine
Dermal	DNEL	3.33 mg/kg bw/day (ArL)
Inhalative	DNEL	10.6 mg/m³ (ArL)
CAS: 155	20-10-2	2-methylpentane-1,5-diamine
Dermal	DNEL	1.5 mg/kg bw/day (ArL)
Inhalative	DNEL	0.25 mg/m³ (ArL)
		0.5 mg/m³ (Ark)
CAS: 100	-51-6 B	enzyl alcohol
Oral	DNEL	4 mg/kg bw/Tag (ArL)
		20 mg/kg bw/Tag (Ark)
		(Contd. on pa





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Dermal	DNEL	8 mg/kg bw/day (ArL)	
		40 mg/kg bw/day (Ark)	
Inhalati	ve DNEL	22 mg/m³ (ArL)	
		110 mg/m³ (Ark)	
PNECs	;		
CAS: 2	855-13-2	Isophorone diamine	
PNEC	0.006 mg/	// (Mew)	
	0.06 mg/l	(Freshwater)	
PNEC	0.578 mg/	/kg dwt (Sediment)	
	5.784 mg/	/kg dwt (Fresh water sediment)	
CAS: 3	9423-51-3	3 Polyoxypropylentriamin	
PNEC	10 mg/l (S	Sewage Treatment Plant)	
	0.00044 n	mg/l (Mew)	
	0.0044 mg	g/l (Freshwater)	
PNEC	0.002 mg/	ı/kg dwt (Bod)	
	0.002 mg/	ı/kg dwt (Sediment)	
	0.02 mg/k	kg dwt (Fresh water sediment)	
CAS: 1	40-31-8 2	P-piperazin-1-ylethylamine	
PNEC	250 mg/l (Kla)		
	0.0058 mg	g/I (Mew)	
	0.058 mg/	/l (Freshwater)	
PNEC	1 mg/kg d	dwt (Bod)	
	21.5 mg/k	kg dwt (Sediment)	
	215 mg/kg	g dwt (Fresh water sediment)	
CAS: 1	5520-10-2	2 2-methylpentane-1,5-diamine	
PNEC	0.042 mg/	// (Mew)	
	0.42 mg/l (Freshwater)		
CAS: 1	00-51-6 B	Benzyl alcohol	
PNEC	0.527 mg/	ı/l (Marine water sediment)	
	0.1 mg/l (l	Mew)	
	1 mg/l (Fr	resh water sediment)	
PNEC	0.456 mg/	ı/kg dwt (Bod)	
	- 07 "	kg dwt (Fresh water sediment)	

· 8.2 Exposure controls · Appropriate engineering

controls No further data; see section 7.

· Individual protection measures, such as personal protective equipment

· General protective and

hygienic measures Keep away from foodstuffs, beverages and food.

> Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

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· Hand protection Protective gloves.

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Selection of the glove material on consideration of the penetration

After use of gloves apply skin-cleaning agents and skin cosmetics.

times, rates of diffusion and the degradation

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 of gloves

material

The exact breakthrough time must be obtained from the protective

glove manufacturer and must be observed.

Eye/face protection Tightly sealed safety glasses.
 Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

Colour: Yellowish
 Smell: Amine-like
 Melting point/freezing point: Not determined

· Boiling point or initial boiling point and

boiling range 247 °C (CAS: 2855-13-2 3-aminomethyl-3,5,5-

trimethylcyclohexylamine)

• Flash point: ≥61 °C • pH at 20 °C 12

· Viscosity:

Kinematic viscositydynamic at 20 °C:Not determined.900 mPas

· Solubility

· Water: Not miscible or difficult to mix

· Steam pressure: Not determined.

Density and/or relative density

· Density at 20 °C 1 g/cm³

· 9.2 Other information

· Appearance:

· Form: Fluid · Important information on protection of health

and environment, and on safety.

• Self-inflammability: Product is not selfigniting. • Explosive properties: Product is not explosive.

· Information with regard to physical hazard

classes

Explosives
Flammable gases
Void
Aerosols
Oxidising gases
Gases under pressure
Void

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· Flammable liquids	Void	
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
Thermal decomposition /

conditions to be avoided: No decomposition if used according to specifications.

· 10.3 Possibility of hazardous

reactions No dangerous reactions known

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

· 10.6 Hazardous

decomposition products: No dangerous decomposition products known

SECTION 11: Toxicological information

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

· Acute toxicity Harmful if swallowed.

Harmful in contact with skin.

LD/LC50 values that are relevant for classification:

LD/LC50 values that are relevant for classification:			
CAS: 28	55-13-2 Isophor	one diamine	
Oral	LD50	1030 mg/kg (ATE)	
		1030 mg/kg (rat)	
	NOAEL	250 mg/kg (rat)	
Dermal	LD50	1840 mg/kg (rabbit)	
		>2000 mg/kg (rat)	
CAS: 394	423-51-3 Polyox	ypropylentriamin	
Oral	LD50	550 mg/kg (rat)	
Dermal	LD50	>1000 mg/kg (rat)	
CAS: 14	0-31-8 2-piperaz	in-1-ylethylamine	
Oral	LD50	2000-5000 mg/kg (rat)	
		500 mg/kg (rabbit)	
Dermal	LD50	200-1000 mg/kg (rabbit)	
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CAS: 155	20-10-2 2-methylpenta	nne-1,5-diamine	
Oral	LD50	1170 mg/kg (rat)	
Dermal	LD50	1870 mg/kg (rabbit)	
Inhalative	LC50/4 h	19.6 mg/l (rat)	
CAS: 100	-51-6 Benzyl alcohol		
Oral	LD50	1230 mg/kg (rat)	
	NOAEL 2nd year stud	y 200 mg/kg (mouse)	
		200 mg/kg (rat)	
Dermal	LD50	2000 mg/kg (rabbit)	
Inhalative	LC50/4 h	>4178 mg/l (rat)	
CAS: 69-7	72-7 salicylic acid		
Oral	LD50	891 mg/kg (rat)	
Dermal	LD50	>2000 mg/kg (rat)	
· Skin corr	osion/irritation	Causes severe skin burns and eye damage.	
		Causes serious eye damage.	
Respirato sensitisa	-	May acuse an allergic skip recetion	
		May cause an allergic skin reaction. Based on available data, the classification criteria are not met.	
	•	· · · · · · · · · · · · · · · · · · ·	
Carcinog		Based on available data, the classification criteria are not met.	
· Reproduc	_	Suspected of damaging fertility. Suspected of damaging the unborn child.	
· STOT-sin	gle exposure	Based on available data, the classification criteria are not met.	

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

May cause damage to organs through prolonged or repeated

11.2 Information on other hazards

STOT-repeated exposure

Endocrine disrupting properties	
CAS: 69-72-7 salicylic acid	List II; III

SECTION 12: Ecological information

Aquatic to	xicity:	
CAS: 2855	-13-2 Isophorone diamine	
LC50/96h	110 mg/l (Leucidus idus)	
EC50	1120 mg/l (Pseudomonas putida)	
EC50/48h	23 mg/l (Daphnia magna)	
NOEC	1.5 mg/l (Desmodesmus subspicatus)	
	3 mg/l (Daphnia magna)	
ErC50/72h	>50 mg/l (Desmodesmus subspicatus)	
CAS: 3942	3-51-3 Polyoxypropylentriamin	
LC50/96h	>100 mg/l (Oncorhynchus mykiss)	
EC50/48h	13 mg/l (Daphnia magna)	
ErC50/72h	4.4 mg/l (algae)	
		(Contd. on page 9





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		(Contd	l. of page 8)
CAS:	140-3	31-8 2-piperazin-1-ylethylamine	
EC50	/72h	>1000 mg/l (algae)	
LC50	/96h	2190 mg/l (fish)	
CAS:	1552	0-10-2 2-methylpentane-1,5-diamine	
EC50	/72h	>100 mg/l (algae)	
EC50)	1825 mg/l (fish)	
EC50	/48h	19.8 mg/l (Daphnia magna)	
CAS:	100-5	51-6 Benzyl alcohol	
IC50/	72h	700 mg/l (algae)	
LC50	/96h	460 mg/l (Pimephales promelas)	
		10 mg/l (Lepomis macrochirus)	

· 12.2 Persistence and

degradability No further relevant information available.

· 12.3 Bioaccumulative

potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

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

· Remark: Toxic for fish

· Additional ecological information:

• General notes: Must not reach sewage water or drainage ditch undiluted or

unneutralised.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

Do not allow product to reach ground water, water bodies or

sewage system.

Danger to drinking water if even small quantities leak into soil.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

• Recommendation Must not be disposed of together with household garbage. Do not

allow product to reach sewage system.

Waste disposal key number: 55352

Bez.: aliphatische Amine Entsorgungshinweise: Sonderabfallverbrennung

· Uncleaned packagings:

Recommendation: Dispose of packaging according to regulations on the disposal of

packagings.

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(Contd. of page 9) Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

14.1 UN number or ID number ADR, IMDG, IATA	UN1760
14.2 UN proper shipping name ADR, IMDG, IATA	CORROSIVE LIQUID, N.O.S. (Isophorone diamin N-AMINOETHYLPIPERAZINE)
14.3 Transport hazard class(es)	
ADR Class Label	8 (C9) Corrosive substances. 8
IMDG, IATA Class Label	8 Corrosive substances. 8
14.4 Packing group ADR, IMDG, IATA	II
14.5 Environmental hazards: Marine pollutant:	No
14.6 Special precautions for user Kemler Number: EMS Number: Stowage Category Stowage Code	Warning: Corrosive substances. 80 F-A,S-B B SW2 Clear of living quarters.
14.7 Maritime transport in bulk accordi IMO instruments	ng to Not applicable.
Transport/Additional information:	
ADR Limited quantities (LQ) Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 m
Transport category Tunnel restriction code	2 E
IMDG Limited quantities (LQ) Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 m





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· UN "Model Regulation":

UN 1760 CORROSIVE LIQUID, N.O.S. (ISOPHORONE DIAMINE, N-AMINOETHYLPIPERAZINE). 8. II

SECTION 15: Regulatory information

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

substance or mixture

No further relevant information available.

Poisons Act

Regulated explosives precursors

None of the ingredients is listed.

· Regulated poisons

None of the ingredients is listed.

· Reportable explosives precursors

None of the ingredients is listed.

· Reportable poisons

None of the ingredients is listed.

· 15.2 Chemical safety

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

SECTION 16: Other information

· Relevant phrases H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H361d Suspected of damaging the unborn child.

H361fd Suspected of damaging fertility. Suspected of damaging

the unborn child.

H372 Causes damage to organs through prolonged or repeated

exposure.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

· Department issuing data

specification sheet:

Environment protection department.

· 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)

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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)

DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity - Category 4

Skin Corr. 1A: Skin corrosion/irritation - Category 1A

Skin Corr. 1B: Skin corrosion/irritation - Category 1B

Skin Irrit. 2: Skin corrosion/irritation - Category 2

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

Eye Irrit. 2: Serious eye damage/eye irritation - Category 2

Skin Sens. 1: Skin sensitisation - Category 1

Skin Sens. 1B: Skin sensitisation - Category 1B

Repr. 2: Reproductive toxicity - Category 2 Repr. 2: Reproductive toxicity - Category 2

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

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic

hazard – Category 2

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic

hazard - Category 3

GB

^{* *} Data compared to the previous version altered.