

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

Printing date 09.02.2024


Version number 28 (replaces version 27)

Revision: 09.02.2024

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

- **1.1 Product identifier**
- **Trade name** **BRAWO-HT - 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.
- Skin Corr. 1B 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.
- 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
4,4'-methylenebis(cyclohexan-1-amine)
polymer amine terminated
2,4,6-tris(dimethylaminomethyl)phenol
2,4,6-Tris-(1-Phenyl-Ethyl) carboic acid
- **Hazard statements** H302 Harmful if swallowed.

(Contd. on page 2)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name BRAWO-HT - Komponente B

(Contd. of page 1)

- Precautionary statements**
- H314 Causes severe skin burns and eye damage.
 - H317 May cause an allergic skin reaction.
 - H373 May cause damage to organs through prolonged or repeated exposure.
 - H412 Harmful to aquatic life with long lasting effects.
 - 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.
- 2.3 Other hazards**
- Results of PBT and vPvB assessment**
- PBT:** Not applicable.
 - vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: Mixture consisting of the following components.

Dangerous components:

CAS: 2855-13-2 EINECS: 220-666-8 Reg.nr.: 01-2119514687-32	Isophorone diamine Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	30-60%
EC number: 949-140-2	polymer amine terminated Eye Dam. 1, H318; Skin Irrit. 2, H315; Skin Sens. 1B, H317	10-30%
CAS: 1761-71-3 EINECS: 217-168-8	4,4'-methylenebis(cyclohexan-1-amine) STOT RE 2, H373; Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Sens. 1B, H317	10-30%
CAS: 90-72-2 EINECS: 202-013-9 Reg.nr.: 2119560597-27	2,4,6-tris(dimethylaminomethyl)phenol Skin Corr. 1C, H314; Eye Dam. 1, H318; Acute Tox. 4, H302	≥5-<10%
CAS: 100-51-6	Benzyl alcohol Acute Tox. 4, H302; Acute Tox. 4, H332; Eye Irrit. 2, H319	<5%
CAS: 61788-44-1 EINECS: 262-975-0	2,4,6-Tris-(1-Phenyl-Ethyl) carboic acid Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Skin Sens. 1, H317	≥1-<2.5%

(Contd. on page 3)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 2)

CAS: 69-72-7
EINECS: 200-712-3

salicylic acid

Repr. 2, H361d; Eye Dam. 1, H318; Acute Tox. 4, H302

<1%

· **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 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. 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.

(Contd. on page 4)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

See Section 13 for information on disposal.

(Contd. of page 3)

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**
- **Storage**
- **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** 8A

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: 2855-13-2 Isophorone diamine

Oral	DNEL	0.526 mg/kg bw/Tag (ArL)
Inhalative	DNEL	20.1 mg/m ³ (ArL)

CAS: 1761-71-3 4,4'-methylenebis(cyclohexan-1-amine)

Oral	DNEL	0.06 mg/kg bw/Tag (ArL)
Dermal	DNEL	0.1 mg/kg bw/day (ArL)
Inhalative	DNEL	1 mg/m ³ (ArL)

CAS: 90-72-2 2,4,6-tris(dimethylaminomethyl)phenol

Inhalative	DNEL	0.31 mg/m ³ (ArL)
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CAS: 100-51-6 Benzyl alcohol

Oral	DNEL	4 mg/kg bw/Tag (ArL)
		20 mg/kg bw/Tag (Ark)
Dermal	DNEL	8 mg/kg bw/day (ArL)
		40 mg/kg bw/day (Ark)
Inhalative	DNEL	22 mg/m ³ (ArL)
		110 mg/m ³ (Ark)

(Contd. on page 5)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name BRAWO-HT - Komponente B

(Contd. of page 4)

· PNECs

CAS: 2855-13-2 Isophorone diamine

PNEC	0.006 mg/l (Mew)
	0.06 mg/l (Freshwater)
PNEC	0.578 mg/kg dwt (Sediment)
	5.784 mg/kg dwt (Fresh water sediment)

CAS: 1761-71-3 4,4'-methylenebis(cyclohexan-1-amine)

PNEC	0.08 mg/l (Fresh water)
	3.2 mg/l (Kla)
	13.7 mg/l (Mew)
PNEC	27.2 mg/kg dwt (Bod)
	13.7 mg/kg dwt (Sediment)
	137 mg/kg dwt (Fresh water sediment)

CAS: 90-72-2 2,4,6-tris(dimethylaminomethyl)phenol

PNEC	0.2 mg/l (Sewage Treatment Plant)
	0.0084 mg/l (Mew)
	0.084 mg/l (Freshwater)

CAS: 100-51-6 Benzyl alcohol

PNEC	0.527 mg/l (Marine water sediment)
	0.1 mg/l (Mew)
	1 mg/l (Fresh water sediment)
PNEC	0.456 mg/kg dwt (Bod)
	5.27 mg/kg dwt (Fresh water sediment)

· Additional information: The lists that were valid during the compilation were used as basis.

· 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.

· Hand protection

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/face protection

Tightly sealed safety glasses.

(Contd. on page 6)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 5)

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

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Colour:	Colourless
· 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:	117 °C
· pH	Not applicable. Not determined.
· Viscosity:	
· Kinematic viscosity	Not determined.
· dynamic:	Not determined.
· Solubility	
· Water:	Not miscible or difficult to mix
· Steam pressure:	Not determined.
· Density and/or relative density	
· Density at 20 °C	0.98 g/cm ³

· 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	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· 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

(Contd. on page 7)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 6)

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

· **LD/LC50 values that are relevant for classification:**

CAS: 2855-13-2 Isophorone 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: 1761-71-3 4,4'-methylenebis(cyclohexan-1-amine)

Oral	LD50	380 mg/kg (rat)
Dermal	LD50	2110 mg/kg (rat)

CAS: 90-72-2 2,4,6-tris(dimethylaminomethyl)phenol

Oral	LD50	mg/kg (rat)
	NOAEL	15 mg/kg (rat)

CAS: 100-51-6 Benzyl alcohol

Oral	LD50	1230 mg/kg (rat)
	NOAEL 2nd year study	200 mg/kg (mouse) 200 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rabbit)
Inhalative	LC50/4 h	>4178 mg/l (rat)

CAS: 69-72-7 salicylic acid

Oral	LD50	891 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
- **Serious eye damage/irritation** Causes serious eye damage.
- **Respiratory or skin sensitisation** May cause an allergic skin reaction.

(Contd. on page 8)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name BRAWO-HT - Komponente B

(Contd. of page 7)

- **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** May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

· Endocrine disrupting properties

CAS: 61788-44-1	2,4,6-Tris-(1-Phenyl-Ethyl) carboic acid	List II
CAS: 69-72-7	salicylic acid	List II; III

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

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: 1761-71-3 4,4'-methylenebis(cyclohexan-1-amine)

LC50/96h	>100 mg/l (Leucidus idus)
EC50/48h	6.84 mg/l (Daphnia magna)
NOEC	4 mg/l (Daphnia magna)
ErC50/72h	141.2 mg/l (Desmodesmus subspicatus)

CAS: 90-72-2 2,4,6-tris(dimethylaminomethyl)phenol

EC50/72h	84 mg/l (Desmodesmus subspicatus)
LC50/96h	175 mg/l (Cyp)
	718 mg/l (Daphnia magna)
NOEC	2 mg/l (BEL)
	6.25 mg/l (Desmodesmus subspicatus)

CAS: 100-51-6 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.

(Contd. on page 9)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 8)

- **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:** Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
Must not reach sewage water or drainage ditch undiluted or unneutralised.
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.
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

SECTION 14: Transport information

- | | |
|--|---|
| · 14.1 UN number or ID number | |
| · ADR, IMDG, IATA | UN2735 |
| · 14.2 UN proper shipping name | |
| · ADR, IMDG, IATA | AMINES, LIQUID, CORROSIVE, N.O.S.
(Isophorone diamine, 4,4'-methylenebis(cyclohexylamine)) |
| · 14.3 Transport hazard class(es) | |
| · ADR | |
| · Class | 8 (C7) Corrosive substances. |
| · Label | 8 |
| · IMDG, IATA | |
| · Class | 8 Corrosive substances. |
| · Label | 8 |
| · 14.4 Packing group | |
| · ADR, IMDG, IATA | II |

(Contd. on page 10)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 9)

· 14.5 Environmental hazards:	
· Marine pollutant:	No
· 14.6 Special precautions for user <i>Warning: Corrosive substances.</i>	
· Kemler Number:	80
· EMS Number:	F-A,S-B
· Segregation groups	(SGG18) Alkalis
· Stowage Category	A
· Segregation Code	SG35 Stow "separated from" SGG1-acids
· 14.7 Maritime transport in bulk according to IMO instruments <i>Not applicable.</i>	
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (ISOPHORONE DIAMINE, 4,4'-METHYLENEBIS(CYCLOHEXYLAMINE)), 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.

(Contd. on page 11)

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

Printing date 09.02.2024

Version number 28 (replaces version 27)

Revision: 09.02.2024

Trade name **BRAWO-HT - Komponente B**

(Contd. of page 10)

· **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.
H361d Suspected of damaging the unborn child.
H373 May cause 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)
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. 1B: Skin corrosion/irritation – Category 1B
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
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
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

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