

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

Printing date 14.01.2022

Version number 11


Revision: 14.01.2022

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

- **1.1 Product identifier**
- **Trade name** **BRAWO TC - 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 resin  
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.*
  - Aquatic Chronic 2 H411 Toxic 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 CLP regulation.*
- **Hazard pictograms**



GHS05   GHS07   GHS09
- **Signal word** *Danger*
- **Hazard-determining components of labelling:** *Polyoxypropylentriamin  
3-aminomethyl-3,5,5-trimethylcyclohexylamine  
Polyoxypropylenediamine  
polymer amine terminated  
3-(trimethoxysilyl)propylamine  
2,4,6-Tris-(1-Phenyl-Ethyl) carboic acid*
- **Hazard statements** *H302 Harmful if swallowed.*

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- Precautionary statements**
- H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H411 Toxic 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 Chemical characterisation: Mixtures**  
**Description:** Mixture consisting of the following components.

**Dangerous components:**

CAS: 39423-51-3	Polyoxypropylentriamin Skin Corr. 1B, H314; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Acute Tox. 4, H312	25-50%
CAS: 9046-10-0	Polyoxypropylenediamine Skin Corr. 1B, H314; Aquatic Chronic 3, H412	25-50%
CAS: 38640-62-9 EINECS: 254-052-6 Reg.nr.: 01-2119565150-48-0000	Diisopropyl-naphthalin-Isomere Asp. Tox. 1, H304; Aquatic Chronic 2, H411	≥2.5-<10%
	polymer amine terminated Eye Dam. 1, H318; Skin Irrit. 2, H315; Skin Sens. 1B, H317	≥1-<3%
CAS: 2855-13-2 EINECS: 220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	≥2.5-<3%
CAS: 15520-10-2 EINECS: 239-556-6	2-methylpentane-1,5-diamine Skin Corr. 1A, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	≥1-<1.5%

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CAS: 13822-56-5 EINECS: 237-511-5	3-(trimethoxysilyl)propylamine Skin Corr. 1C, H314; Acute Tox. 4, H302; Skin Sens. 1A, H317	≥0.1-<1%
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	≥0.25-<0.5%

· **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** Instantly remove any clothing soiled by 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. Instantly rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water. Seek medical treatment.
- **After swallowing** Rinse out mouth and then drink plenty of water. Instantly call for doctor. Drink copious amounts of water and provide fresh air. Instantly call for 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

No further relevant information available.

### 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.

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- **6.2 Environmental precautions:** No special measures required.
- **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.  
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**
- **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.
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

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

##### 39423-51-3 Polyoxypropylentriamin

Inhalative	DNEL	14 mg/m <sup>3</sup> (ArL)
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##### 9046-10-0 Polyoxypropylenediamine

Oral	DNEL	0.04 mg/kg bw/Tag (ArL)
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Dermal	DNEL	2.5 mg/kg bw/day (ArL)
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##### 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Oral	DNEL	0.526 mg/kg bw/Tag (ArL)
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Inhalative	DNEL	20.1 mg/m <sup>3</sup> (ArL)
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### 15520-10-2 2-methylpentane-1,5-diamine

Dermal	DNEL	1.5 mg/kg bw/day (ArL)
Inhalative	DNEL	0.25 mg/m <sup>3</sup> (ArL) 0.5 mg/m <sup>3</sup> (Ark)

#### · PNECs

### 39423-51-3 Polyoxypropylentriamin

PNEC	10 mg/l (Sewage Treatment Plant) 0.00044 mg/l (Mew) 0.0044 mg/l (Suw)
PNEC	0.002 mg/kg dwt (Bod) 0.002 mg/kg dwt (Sediment) 0.02 mg/kg dwt (Fresh water sediment)

### 9046-10-0 Polyoxypropylenediamine

PNEC	7.5 mg/l (Sewage Treatment Plant) 0.015 mg/l (Fresh water)
PNEC	0.0176 mg/kg dwt (Bod) 0.125 mg/kg dwt (Sediment) 0.132 mg/kg dwt (Fresh water sediment)

### 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine

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

### 15520-10-2 2-methylpentane-1,5-diamine

PNEC	0.042 mg/l (Mew) 0.42 mg/l (Suw)
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· **Additional information:** The lists that were valid during the compilation were used as basis.

#### · 8.2 Exposure controls

#### · 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.

#### · Protection of hands:

Protective gloves.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

#### · Material of gloves

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

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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- **Eye protection:** Safety glasses  
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

##### · Appearance:

- **Form:** Fluid
- **Colour:** Whitish
- **Smell:** Characteristic

· **pH-value:** Not applicable.

##### · Change in condition

- **Melting point/freezing point:** Not determined
- **Initial boiling point and boiling range:** Not determined

· **Flash point:** > 150 °C

· **Self-inflammability:** Product is not selfigniting.

· **Explosive properties:** Product is not explosive.

· **Density at 20 °C** 1.08 g/cm<sup>3</sup>

##### · Solubility in / Miscibility with

· **Water:** Not miscible or difficult to mix

· **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

#### · 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 toxicological effects

· **Acute toxicity** Harmful if swallowed.

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

**39423-51-3 Polyoxypropylentriamin**

Oral	LD50	550 mg/kg (rat)
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Dermal	LD50	>1000 mg/kg (rat)
<b>9046-10-0 Polyoxypropylenediamine</b>		
Oral	LD50	2855 mg/kg (Rat)
Dermal	LD50	2980 mg/kg (Kan)
<b>38640-62-9 Diisopropyl-naphthalin-Isomere</b>		
Oral	LD50	>4000 mg/kg (rat)
Dermal	LD50	>4000 mg/kg (rat)
Inhalative	LC50 OECD 403	>5.6 mg/l (rat)
<b>2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine</b>		
Oral	LD50	1030 mg/kg (rat)
	NOAEL	250 mg/kg (rat)
Dermal	LD50	1840 mg/kg (rabbit)
		>2000 mg/kg (rat)
<b>15520-10-2 2-methylpentane-1,5-diamine</b>		
Oral	LD50	1170 mg/kg (rat)
Dermal	LD50	1870 mg/kg (rabbit)
Inhalative	LC50/4 h	19.6 mg/l (rat)

- **Primary irritant effect:**
- **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.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity:

<b>39423-51-3 Polyoxypropylentriamin</b>	
LC50/96h	>100 mg/l (Oncorhynchus mykiss)
EC50/48h	13 mg/l (Daphnia magna)
ErC50/72h	4.4 mg/l (algae)
<b>38640-62-9 Diisopropyl-naphthalin-Isomere</b>	
EC50/72h	0.15 mg/l (algae)
LC50/48h	1.7 mg/l (Daphnia magna)
EC50/48h	0.16 mg/l (Daphnia magna)

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### 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine

LC50/96h	110 mg/l ( <i>Leucidus idus</i> )
EC50	1120 mg/l ( <i>Pseudomonas putida</i> )
EC50/48h	23 mg/l ( <i>Daphnia magna</i> )
NOEC	1.5 mg/l ( <i>Desmodesmus subspicatus</i> ) 3 mg/l ( <i>Daphnia magna</i> )
ErC50/72h	>50 mg/l ( <i>Desmodesmus subspicatus</i> )

### 15520-10-2 2-methylpentane-1,5-diamine

EC50/72h	>100 mg/l (algae)
EC50	1825 mg/l (fish)
EC50/48h	19.8 mg/l ( <i>Daphnia magna</i> )

- **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.
- **Additional ecological information:**
- **General notes:** Must not reach sewage water or drainage ditch undiluted or unneutralised.  
Danger to drinking water if even extremely small quantities leak into soil.
- **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 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:** Disposal must be made according to official regulations.

## SECTION 14: Transport information

- **14.1 UN-Number**
- **ADR, IMDG, IATA** UN2735
- **14.2 UN proper shipping name**

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· <b>ADR</b>	AMINES, LIQUID, CORROSIVE, N.O.S. ( Polyoxypropylentriamin, Polyoxypropylenediamine), ENVIRONMENTALLY HAZARDOUS
· <b>IMDG</b>	AMINES, LIQUID, CORROSIVE, N.O.S. ( Polyoxypropylentriamin, Polyoxypropylenediamine), MARINE POLLUTANT
· <b>IATA</b>	AMINES, LIQUID, CORROSIVE, N.O.S. ( Polyoxypropylentriamin, Polyoxypropylenediamine)
· <b>14.3 Transport hazard class(es)</b>	
· <b>ADR</b>	
· <b>Class</b>	8 (C7) Corrosive substances.
· <b>Label</b>	8
· <b>IMDG, IATA</b>	
· <b>Class</b>	8 Corrosive substances.
· <b>Label</b>	8
· <b>14.4 Packing group</b>	
· <b>ADR, IMDG, IATA</b>	II
· <b>14.5 Environmental hazards:</b>	
	Product contains environmentally hazardous substances: Polyoxypropylentriamin
· <b>Marine pollutant:</b>	Yes
	Symbol (fish and tree)
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>14.6 Special precautions for user</b>	
· <b>Kemler Number:</b>	Warning: Corrosive substances.
· <b>EMS Number:</b>	80
· <b>Segregation groups</b>	F-A, S-B
· <b>Stowage Category</b>	Alkalis
· <b>Segregation Code</b>	A
	SG35 Stow "separated from" SGG1-acids
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	
	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· <b>Transport category</b>	2
· <b>Tunnel restriction code</b>	E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENTRIAMIN,

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**POLYOXYPROPYLENEDIAMINE), 8, II,  
ENVIRONMENTALLY HAZARDOUS**

### 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** 200 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

- **Relevant phrases**
  - H302 Harmful if swallowed.
  - H304 May be fatal if swallowed and enters airways.
  - 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.
  - H332 Harmful if inhaled.
  - 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 (REACH)
  - PNEC: Predicted No-Effect Concentration (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

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*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**Skin Sens. 1: Skin sensitisation – Category 1**Skin Sens. 1A: Skin sensitisation – Category 1A**Skin Sens. 1B: Skin sensitisation – Category 1B**Asp. Tox. 1: Aspiration hazard – Category 1**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.**

GB