

## Safety Data Sheet acc. to OSHA HCS

Printing date 02/07/2024

Reviewed on 02/05/2024

### 1 Identification

- **Product identifier**
- **Trade name:** **BRAWO-I US (Component B)**
- **Application of the substance / the mixture**  
Epoxy sealing  
Hardening agent/ 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.: +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**
- Acute Toxicity - Oral 4 H302 Harmful if swallowed.
- Acute Toxicity - Dermal 4 H312 Harmful in contact with skin.
- Skin Corrosion 1B H314 Causes severe skin burns and eye damage.
- Eye Damage 1 H318 Causes serious eye damage.
- Sensitization - Skin 1 H317 May cause an allergic skin reaction.
- Toxic to Reproduction 2 H361 Suspected of damaging fertility or the unborn child.
- Specific Target Organ Toxicity - Repeated Exposure 1 H372 Causes damage to organs through prolonged or repeated exposure.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05 GHS07 GHS08

· **Signal word**

Danger

· **Hazard-determining components of labeling:**

3-aminomethyl-3,5,5-trimethylcyclohexylamine  
2-piperazin-1-ylethylamine  
Polyoxypropylentriamin  
Salicylic acid

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<ul style="list-style-type: none"> <li>· <b>Hazard statements</b></li> <li>· <b>Precautionary statements</b></li> <li>· <b>Classification system</b></li> <li>· <b>NFPA ratings (scale 0-4)</b></li> <li>· <b>Other hazards</b></li> <li>· <b>Results of PBT and vPvB assessment</b></li> <li>· <b>PBT:</b></li> <li>· <b>vPvB:</b></li> </ul>	<p>1,3-cyclohexanedimethanamine 1,3-Benzoldimethanamine</p> <p><i>Harmful if swallowed or in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.</i></p> <p><i>Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dusts or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Call a poison center/doctor if you feel unwell. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. IF exposed or concerned: Get medical advice/attention. Specific treatment. Get medical advice/attention if you feel unwell. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations.</i></p> <p>Health = 3 Fire = 1 Reactivity = 0</p> <p><i>Not applicable.</i> <i>Not applicable.</i></p>
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### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

CAS: 2855-13-2 EINECS: 220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine	30-60%
CAS: 39423-51-3	Polyoxypropylentriamin	10-30%
CAS: 140-31-8 EINECS: 205-411-0	2-piperazin-1-ylethylamine	≥5-<10%
CAS: 15520-10-2 EINECS: 239-556-6	2-methylpentane-1,5-diamine	≥5-<10%
CAS: 2579-20-6 EINECS: 219-941-5	1,3-cyclohexanedimethanamine	≥3-<5%
CAS: 100-51-6 EINECS: 202-859-9	Benzyl alcohol	<5%
CAS: 69-72-7 EINECS: 200-712-3	Salicylic acid	≥1-<3%
CAS: 1477-55-0 EINECS: 216-032-5	1,3-Benzoldimethanamine	≥1-<2.5%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

· **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 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** Call a doctor immediately.

· **After swallowing** Immediately call a doctor. Drink copious amounts of water and provide fresh air. Immediately call a doctor.

### 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.

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
- **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).  
Use neutralizing agent.  
Dispose contaminated material as waste according to section 13.  
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: 39423-51-3	Polyoxypropylentriamin	30 mg/m <sup>3</sup>
CAS: 140-31-8	2-piperazin-1-ylethylamine	6.4 mg/m <sup>3</sup>
CAS: 100-51-6	Benzyl alcohol	30 ppm

· **PAC-2:**

CAS: 39423-51-3	Polyoxypropylentriamin	330 mg/m <sup>3</sup>
CAS: 140-31-8	2-piperazin-1-ylethylamine	71 mg/m <sup>3</sup>
CAS: 100-51-6	Benzyl alcohol	52 ppm

· **PAC-3:**

CAS: 39423-51-3	Polyoxypropylentriamin	2,000 mg/m <sup>3</sup>
CAS: 140-31-8	2-piperazin-1-ylethylamine	420 mg/m <sup>3</sup>
CAS: 100-51-6	Benzyl alcohol	740 ppm

### 7 Handling and storage

- **Handling**
- **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** No special measures required.

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- **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** 8A
- **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 following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.*

<b>CAS: 100-51-6 Benzyl alcohol</b>	
WEEL	Long-term value: 10 ppm
<b>CAS: 1477-55-0 1,3-Benzoldimethanamine</b>	
REL	Ceiling limit value: 0.1 mg/m <sup>3</sup> Skin
TLV	Ceiling limit value: 0.018 ppm Skin

- **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.  
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.*

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- **Penetration time of glove material** The exact breakthrough time must be obtained from the protective glove manufacturer and must be observed.
- **Eye protection:** Tightly sealed goggles.
- **Body protection:** Protective work clothing.

### 9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

- **Form:** Fluid
- **Color:** Whitish
- **Odor:** Amine-like

· **pH-value:** Not determined.

· **Change in condition**

- **Melting point/Melting range:** undetermined
- **Boiling point/Boiling range:** 232 °C (449.6 °F)

· **Flash point:** 110 °C (230 °F)

· **Auto igniting:** 380 °C (716 °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):** 0.96 g/cm<sup>3</sup> (8.01 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.

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- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** 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:**

**CAS: 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine**

Oral	LD50	1,030 mg/kg (ATE) 1,030 mg/kg (rat)
	NOAEL	250 mg/kg (rat)
Dermal	LD50	1,840 mg/kg (rabbit) >2,000 mg/kg (rat)

**CAS: 39423-51-3 Polyoxypropylentriamin**

Oral	LD50	550 mg/kg (rat)
Dermal	LD50	>1,000 mg/kg (rat)

**CAS: 140-31-8 2-piperazin-1-ylethylamine**

Oral	LD50	2,000-5,000 mg/kg (rat) 500 mg/kg (rabbit)
Dermal	LD50	200-1,000 mg/kg (rabbit)

**CAS: 15520-10-2 2-methylpentane-1,5-diamine**

Oral	LD50	1,170 mg/kg (rat)
Dermal	LD50	1,870 mg/kg (rabbit)
Inhalative	LC50/4 h	19.6 mg/l (rat)

**CAS: 2579-20-6 1,3-cyclohexanedimethanamine**

Oral	LD50	700 mg/kg (rat)
Dermal	LD50	1,700 mg/kg (rat)

**CAS: 100-51-6 Benzyl alcohol**

Oral	LD50	1,230 mg/kg (rat)
	NOAEL 2nd year study	200 mg/kg (mouse) 200 mg/kg (rat)
Dermal	LD50	2,000 mg/kg (rabbit)
Inhalative	LC50/4 h	>4,178 mg/l (rat)

**CAS: 69-72-7 Salicylic acid**

Oral	LD50	891 mg/kg (rat)
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Dermal	LD50	>2,000 mg/kg (rat)
<b>CAS: 1477-55-0 1,3-Benzoldimethanamine</b>		
Oral	LD50	1,180 mg/kg (mouse) 930 mg/kg (rat)
Dermal	LD50	>3,100 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:** Harmful  
Corrosive  
Irritant  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **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: 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine**

LC50/96h	110 mg/l (Leucidus idus)
EC50	1,120 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: 39423-51-3 Polyoxypropylentriamin**

LC50/96h	>100 mg/l (Oncorhynchus mykiss)
EC50/48h	13 mg/l (Daphnia magna)
ErC50/72h	4.4 mg/l (algae)

**CAS: 140-31-8 2-piperazin-1-ylethylamine**

EC50/72h	>1,000 mg/l (algae)
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LC50/96h	2,190 mg/l (fish)
<b>CAS: 15520-10-2 2-methylpentane-1,5-diamine</b>	
EC50/72h	>100 mg/l (algae)
EC50	1,825 mg/l (fish)
EC50/48h	19.8 mg/l (Daphnia magna)
<b>CAS: 2579-20-6 1,3-cyclohexanedimethanamine</b>	
EC50/24h	90 mg/l (Pseudokirchneriella subcapitata)
EC50	90 mg/l (Pseudomonas putida)
LC50/48h	130 mg/l (Leucidus idus)
<b>CAS: 100-51-6 Benzyl alcohol</b>	
IC50/72h	700 mg/l (algae)
LC50/96h	460 mg/l (Pimephales promelas) 10 mg/l (Lepomis macrochirus)
<b>CAS: 1477-55-0 1,3-Benzoldimethanamine</b>	
IC50/72h	12 mg/l (algae)
EC50/72h	12 mg/l (Scenedesmus subspicatus)
LC50/96h	>100 mg/l (Oncorhynchus mykiss) 87.6 mg/l (Ory)
EC50/48h	15.2 mg/l (Daphnia magna)

- **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  
Must not reach bodies of water or drainage ditch undiluted or unneutralized.  
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.

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### 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

· <b>UN-Number</b>	
· <b>DOT, ADR, IMDG, IATA</b>	UN1760
· <b>UN proper shipping name</b>	<i>Corrosive liquids, n.o.s. (Polyoxypropylentriamin, Isophoronediamine)</i>
· <b>DOT</b>	
· <b>ADR, IMDG, IATA</b>	<i>CORROSIVE LIQUID, N.O.S. (Polyoxypropylentriamin, ISOPHORONEDIAMINE)</i>
· <b>Transport hazard class(es)</b>	
· <b>DOT, IMDG, IATA</b>	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>ADR</b>	
· <b>Class</b>	8 (C9) Corrosive substances
· <b>Label</b>	8
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	<i>Warning: Corrosive substances</i>
· <b>Hazard identification number (Kemler code):</b>	80
· <b>EMS Number:</b>	F-A, S-B
· <b>Stowage Category</b>	B
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

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· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 1 L  
On cargo aircraft only: 30 L

· **ADR**

· **Excepted quantities (EQ)**

Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

· **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 ml

· **UN "Model Regulation":**

UN 1760 CORROSIVE LIQUID, N.O.S.  
(POLYOXYPROPYLENTRIAMIN,  
ISOPHORONEDIAMINE), 8, II

**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)**

None of the ingredients is listed.

· **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.

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Prop 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

· **Carcinogenity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

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· **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
  - Acute Toxicity - Oral 4: Acute toxicity – Category 4
  - Skin Corrosion 1B: Skin corrosion/irritation – Category 1B
  - Eye Damage 1: Serious eye damage/eye irritation – Category 1
  - Sensitization - Skin 1: Skin sensitisation – Category 1
  - Toxic to Reproduction 2: Reproductive toxicity – Category 2
  - Specific Target Organ Toxicity - Repeated Exposure 1: Specific target organ toxicity (repeated exposure) – Category 1

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