

## Safety data sheet

### according to 1907/2006/EC, Article 31

Printing date 03.06.2019

Version number 1

Revision: 03.06.2019

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

- **1.1 Product identifier**
- **Trade name:** Polytec TC 422 Part B
- **Article number:** TC422B
- **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 hardener
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Polytec PT GmbH  
Ettlinger Str. 30  
D- 76307 Karlsbad  
GERMANY  
E-Mail: info@polytec-pt.de
- **Further information obtainable from:** Product Safety
- **1.4 Emergency telephone number:**  
Emergency CONTACT (24-Hour-Number): GBK GmbH +49 (0)6132-84463

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**  
This mixture is classified as hazardous according to regulation (EC) 1272 / 2008 (CLP)
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

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

Eye Dam. 1      H318 Causes serious eye damage.



GHS07

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

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 CLP regulation.
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labelling:**  
Fettsäure, Tallo-1-Reaktionsprodukt mit Tetraethylenpentamin  
3,6-diazaoctanethylenediamin  
3,6,9-triazaundecamethylenediamine  
piperazine (liquid)  
2-piperazin-1-ylethylamine
- **Hazard statements**  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.

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H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 2.3 Other hazards

#### Results of PBT and vPvB assessment

This mixture does not contain substances complying with criteria for PBT and vPvB according to regulation (EC) No. 1907/2006 (REACH) annex XIII respectively regulation (EU) No. 253/2011.

PBT: not applicable

vPvB: not applicable

## SECTION 3: Composition/information on ingredients

#### 3.2 Chemical characterisation: Mixtures

Description: Mixture of substances listed below with nonhazardous additions.

##### Dangerous components:

|                                    |                                                                                                                                                                |         |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| CAS: 68953-36-6                    | Fettsäure, Tallol-Reaktionsprodukt mit Tetraethylenpentamin<br>⚠ Eye Dam. 1, H318; ⚠ Aquatic Chronic 2, H411                                                   | 10-25%  |
| CAS: 112-24-3<br>EINECS: 203-950-6 | 3,6-diazaoctanethylenediamin<br>⚠ Skin Corr. 1B, H314; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412                   | 2.5-10% |
| CAS: 112-57-2<br>EINECS: 203-986-2 | 3,6,9-triazaundecamethylenediamine<br>⚠ Skin Corr. 1B, H314; ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317           | ≤5%     |
| CAS: 110-85-0<br>EINECS: 203-808-3 | piperazine (liquid)<br>⚠ Resp. Sens. 1, H334; Repr. 2, H361fd; ⚠ Skin Corr. 1B, H314; ⚠ Skin Sens. 1, H317                                                     | ≤1%     |
| CAS: 140-31-8<br>EINECS: 205-411-0 | 2-piperazin-1-ylethylamine<br>⚠ Acute Tox. 3, H311; ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Skin Sens. 1, H317; Aquatic Chronic 3, H412 | ≤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 soiled by the product.

##### 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: Rinse opened eye for several minutes under running water. Then consult a doctor.

##### After swallowing:

Drink plenty of water and provide fresh air. Call for a doctor immediately.

Rinse out mouth and then drink plenty of water.

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- **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:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.  
Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **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 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 disposal information.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.  
Do not breathe fumes. Avoid contact with eyes, skin and clothing
- **Information about fire - and explosion protection:**  
Keep respiratory protective device available.  
No special measures required
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Keep container tightly closed and store at room temperature. Ensure good ventilation
- **Information about storage in one common storage facility:** Not required.

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· **Further information about storage conditions:** Keep container tightly sealed.

### SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

#### · 8.1 Control parameters

· **Ingredients with limit values that require monitoring at the workplace:**

##### 110-85-0 piperazine (liquid)

|     |                                         |
|-----|-----------------------------------------|
| WEL | Short-term value: 0.3 mg/m <sup>3</sup> |
|     | Long-term value: 0.1 mg/m <sup>3</sup>  |
|     | Sen                                     |

#### · DNELs

##### 140-31-8 2-piperazin-1-ylethylamine

|            |                                                |                                            |
|------------|------------------------------------------------|--------------------------------------------|
| Oral       | DNEL oral long term exposure - systemic effect | 0.3 mg/kg bw/day (general population)      |
| Dermal     | DNEL dermal long term exposure                 | 1.7 mg/kg bw/day (general population)      |
|            |                                                | 3.3 mg/kg bw/day (worker)                  |
|            | DNEL dermal short term exposure                | 10 mg/kg bw/day (general population)       |
|            |                                                | 20 mg/kg bw/day (worker)                   |
| Inhalative | DNEL Acute/short term exposure - local effect  | 5.3 mg/m <sup>3</sup> (general population) |
|            |                                                | 21.4 mg/m <sup>3</sup> (worker)            |
|            | DNEL Long term exposure - systemic effect      | 0.9 mg/m <sup>3</sup> (general population) |
|            |                                                | 3.6 mg/m <sup>3</sup> (worker)             |

#### · PNECs

##### 140-31-8 2-piperazin-1-ylethylamine

|               |                                       |
|---------------|---------------------------------------|
| PNEC aqua     | 0.058 mg/l (fresh w) (freshwater)     |
| PNEC aqua     | 0.0058 mg/l (marine w) (marine water) |
| PNEC sediment | 215 mg/kg (fresh w) (freshwater)      |

· **Additional information:** The lists valid during the making were used as basis.

#### · 8.2 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.

##### · Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation. Use suitable respiratory protective device when aerosol or mist is formed.

##### · Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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### Material of gloves

Gloves made from the following material(s) are recommended: Butyl rubber minimum thickness 0,5mm.

Alternative glove material: Nitrile rubber (thickness: 0,4 mm)

Examinations according DIN EN 374-2 have to be following result: It must be achieved a protection index of at least grade 2 in 3 test chemicals in Annex A to EN 374-3. Please ask your manufacturer of gloves or visit [www.gisbau.de/service/epoxi/expotab.html](http://www.gisbau.de/service/epoxi/expotab.html) for more information.

### Penetration time of glove material

The penetration time of the glove material should be longer than 8 hours (Thickness: butyl rubber 0,5mm ; nitrile rubber 0,35mm)

### Eye protection:



Tightly sealed goggles

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General Information

#### Appearance:

|                  |                 |
|------------------|-----------------|
| Form:            | Pasty           |
| Colour:          | grey-white      |
| Odour:           | Characteristic  |
| Odour threshold: | Not determined. |

pH-value: Not determined.

#### Change in condition

|                                          |               |
|------------------------------------------|---------------|
| Melting point/freezing point:            | Undetermined. |
| Initial boiling point and boiling range: | Undetermined. |

Flash point: >100 °C

Flammability (solid, gas): Not applicable.

Decomposition temperature: Not determined.

Auto-ignition temperature: Product is not selfigniting.

Explosive properties: Product does not present an explosion hazard.

#### Explosion limits:

|        |                 |
|--------|-----------------|
| Lower: | Not determined. |
| Upper: | Not determined. |

Vapour pressure: Not determined.

Density at 20 °C: 1.98 g/cm<sup>3</sup>

Relative density: Not determined.

Vapour density: Not determined.

Evaporation rate: Not determined.

#### Solubility in / Miscibility with

water: Not miscible or difficult to mix.

Partition coefficient: n-octanol/water: Not determined.

#### Viscosity:

Dynamic at 20 °C: 21,000 mPas (PTTM 202.2)

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|                                              |                                            |
|----------------------------------------------|--------------------------------------------|
| <b>Kinematic:</b>                            | Not determined.                            |
| · <b>Solvent content:</b><br><b>VOC (EC)</b> | 0.00 %                                     |
| <b>Solids content:</b>                       | 0.0 %                                      |
| · <b>9.2 Other information</b>               | 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 and stored 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:** Strong oxidizing and reducing compounds, strong acids and alkali
- **10.6 Hazardous decomposition products:**  
Carbondioxide, Carbonmonoxide, Nitrogen Oxides (NOx)  
Danger of forming toxic pyrolysis products.

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

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

##### **112-24-3 3,6-diazaoctanethylenediamin**

|        |      |                            |
|--------|------|----------------------------|
| Oral   | LD50 | 1,000-2,000 mg/kg (rat)    |
| Dermal | LD50 | 1,000-2,000 mg/kg (rabbit) |

##### **112-57-2 3,6,9-triazaundecamethylenediamine**

|        |      |                    |
|--------|------|--------------------|
| Dermal | LD50 | 660 mg/kg (rabbit) |
|--------|------|--------------------|

##### **110-85-0 piperazine (liquid)**

|        |      |                      |
|--------|------|----------------------|
| Oral   | LD50 | 1,900 mg/kg (rat)    |
| Dermal | LD50 | 4,000 mg/kg (rabbit) |

##### **140-31-8 2-piperazin-1-ylethylamine**

|        |      |                    |
|--------|------|--------------------|
| Oral   | LD50 | 2,140 mg/kg (rat)  |
| Dermal | LD50 | 880 mg/kg (rabbit) |

- **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.
- **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.

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- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Must not reach sewage water or drainage ditch undiluted or unneutralised.  
Danger to drinking water if even small quantities leak into the ground.  
Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**  
This mixture does not contain substances complying with criteria for PBT or vPvB according to regulation (EC) No. 1907/2006 (REACH) , annex XIII and regulation (EU) No. 253/2011.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **European waste catalogue**  
08 04 09\* waste adhesives and sealants containing organic solvents or other hazardous substances
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

- |                                                                                                               |                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>· <b>14.1 UN-Number</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>   | UN2735                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>· <b>14.2 UN proper shipping name</b></li> <li>· <b>ADR</b></li> </ul> | -<br>2735 POLYAMINES, LIQUID, CORROSIVE, N.O.S.<br>(TRIETHYLENETETRAMINE, piperazine (liquid)),<br>ENVIRONMENTALLY HAZARDOUS<br>POLYAMINES, LIQUID, CORROSIVE, N.O.S.<br>(TRIETHYLENETETRAMINE, piperazine (liquid)) |
| <ul style="list-style-type: none"> <li>· <b>IMDG, IATA</b></li> </ul>                                         |                                                                                                                                                                                                                      |

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### · 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** III

### · 14.5 Environmental hazards:

· **Marine pollutant:** No

### · 14.6 Special precautions for user

· **Danger code (Kemler):** Warning: Corrosive substances.  
 80  
 · **EMS Number:** F-A,S-B  
 · **Segregation groups** Alkalis  
 · **Stowage Category** A  
 · **Segregation Code** SG35 Stow "separated from" acids.

### · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

#### · Transport/Additional information:

#### · ADR

· **Limited quantities (LQ)** 5L  
 · **Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml  
 · **Transport category** 3  
 · **Tunnel restriction code** E

#### · IMDG

· **Limited quantities (LQ)** 5L  
 · **Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

### · UN "Model Regulation":

UN 2735 POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
 (TRIETHYLENETETRAMINE, PIPERAZINE (LIQUID)), 8,  
 III, ENVIRONMENTALLY HAZARDOUS

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### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

- **Department issuing SDS:** Health & Safety

- **Contact:**

Product Safety  
+49 (0)7243 604-4000 (during business hours)  
email: info@polytec-pt.de

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport 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)  
VOC: Volatile Organic Compounds (USA, EU)  
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  
Acute Tox. 3: Acute toxicity – Category 3  
Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
Resp. Sens. 1: Respiratory sensitisation – Category 1  
Skin Sens. 1: Skin sensitisation – Category 1  
Repr. 2: Reproductive toxicity – 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