

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 411 Part B
- **Article number:** TC411B
- **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 for thermally conductive adhesives
- **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

Acute Tox. 4	H302 Harmful if swallowed.
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**



- **Signal word** Danger
- **Hazard-determining components of labelling:**
Polyoxypropylendiamin
2-piperazin-1-ylethylamine
Fettsäure, Tallol-Reaktionsprodukt mit Tetraethylenpentamin
3,6,9-triazaundecamethylenediamine
3,6-diazaoctanethylenediamin
- **Hazard statements**
H302 Harmful if swallowed.

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H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
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: 9046-10-0	Polyoxypropylendiamin ⚠ Skin Corr. 1B, H314; ⚠ Acute Tox. 4, H302; Aquatic Chronic 3, H412	25-50%
CAS: 68953-36-6	Fettsäure, Tallol-Reaktionsprodukt mit Tetraethylenpentamin ⚠ Eye Dam. 1, H318; ⚠ Aquatic Chronic 2, H411	10-25%
CAS: 112-57-2 EINECS: 203-986-2	3,6,9-triazaundecamethylenediamine ⚠ Skin Corr. 1B, H314; ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317	≤5%
CAS: 140-31-8 EINECS: 205-411-0	2-piperazin-1-ylethylamine ⚠ Acute Tox. 3, H311; ⚠ Skin Corr. 1B, H314; ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; Skin Sens. 1, H317; Aquatic Chronic 3, H412	≤5%
CAS: 112-24-3 EINECS: 203-950-6	3,6-diazaoctanethylenediamin ⚠ Skin Corr. 1B, H314; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; 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.

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.

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- **After skin contact:**
Treat affected skin with cotton wool or cellulose. Then wash and rinse thoroughly with water and a mild cleaning agent.
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:**
Call for a doctor immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
Rinse out mouth and then drink plenty of water.
- **4.2 Most important symptoms and effects, both acute and delayed**
Can cause severe burns after skin or eye contact.
Toxic if swallowed. May cause burns to mouth, throat and stomach.
- **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:**
CO₂, 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**
In case of fire, the following can be released:
Nitrogen oxides (NO_x)
Carbon monoxide (CO)
During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear fully protective suit.
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.

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See Section 13 for disposal information.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Ensure good ventilation / exhaust at workplace.
- Do not breathe fumes. Do not smoke.
- Avoid contact with eyes, skin and clothes.
- Wear protective clothing.
- Ensure good ventilation/exhaust 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: Store away from foodstuffs.

Further information about storage conditions:

- After decanting material in a new packaging this has to be labelled like original packaging.
- 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:

- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

DNELs

9046-10-0 Polyoxypropylendiamin

Oral	DNEL oral long term exposure - systemic effect	0.04 mg/kg bw/day (general population)
Dermal	DNEL dermal long term exposure	1.25 mg/kg bw/day (general population)
		2.5 mg/kg bw/day (worker)

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 ³ (general population)
		21.4 mg/m ³ (worker)
	DNEL Long term exposure - systemic effect	0.9 mg/m ³ (general population)
		3.6 mg/m ³ (worker)

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· 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

· 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 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)

· **Not suitable are gloves made of the following materials:** Strong material gloves

· Eye protection:



Tightly sealed goggles

· **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Pasty
Colour: White
Odour: Amine-like

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· 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:	Not applicable.
· 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:	1.3 g/cm ³
· 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:	Not determined.
Kinematic:	Not determined.
· Solvent content: VOC (EC)	0.00 %
· 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 and stored according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** Protect from heat and strong sunlight
- **10.5 Incompatible materials:** Strong oxidizing and reducing compounds, strong acids and alkali
- **10.6 Hazardous decomposition products:**
Carbondioxide, Carbonmonoxide, Nitrogen Oxides (NO_x)
Danger of forming toxic pyrolysis products.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed.

LD/LC50 values relevant for classification:

9046-10-0 Polyoxypropylendiamin

Oral LD50 475 mg/kg (rat)

Dermal LD50 2,090 mg/kg (rabbit)

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

Dermal LD50 660 mg/kg (rabbit)

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

Oral LD50 2,140 mg/kg (rat)

Dermal LD50 880 mg/kg (rabbit)

112-24-3 3,6-diazaoctanethylenediamin

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

Dermal LD50 1,000-2,000 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.

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

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

9046-10-0 Polyoxypropylendiamin

EC50/48h 15 mg/l (daphnia magna)

LC50/96h >100 mg/l (onc)

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.

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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 fregulation (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

• **14.1 UN-Number**

• **ADR, IMDG, IATA**

UN1760

• **14.2 UN proper shipping name**

• **ADR**

-
1760 CORROSIVE LIQUID, N.O.S.
(Polyoxypropylendiamin, N-AMINOETHYLPIPERAZINE),
ENVIRONMENTALLY HAZARDOUS
CORROSIVE LIQUID, N.O.S. (Polyoxypropylendiamin, N-AMINOETHYLPIPERAZINE)

• **IMDG, IATA**

• **14.3 Transport hazard class(es)**

• **ADR**



• **Class**

8 (C9) 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**

Warning: Corrosive substances.

• **Danger code (Kemler):**

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• EMS Number: • Segregation groups • Stowage Category • Stowage Code	F-A,S-B Alkalis A SW2 Clear of living quarters.
• 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
• Transport/Additional information:	
• ADR • Limited quantities (LQ) • Excepted quantities (EQ) • Transport category • Tunnel restriction code	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml 3 E
• IMDG • Limited quantities (LQ) • Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
• UN "Model Regulation":	UN 1760 CORROSIVE LIQUID, N.O.S. (POLYOXYPROPYLENDIAMIN, N-AMINOETHYLPIPERAZINE), 8, III, ENVIRONMENTALLY HAZARDOUS

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
- **National regulations:**
- **Information about limitation of use:**
Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.
- **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.
H411 Toxic to aquatic life with long lasting effects.

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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:**

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 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

Skin Sens. 1: Skin sensitisation – 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

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