

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 A
- **Article number:** TC422A
- **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 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**



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Skin Irrit. 2	H315 Causes skin irritation.
Eye Irrit. 2	H319 Causes serious eye irritation.
Skin Sens. 1	H317 May cause an allergic skin reaction.

- **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**



GHS07 GHS09

- **Signal word** Warning
- **Hazard-determining components of labelling:**
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
1,4-bis(2,3-epoxypropoxy)butane
Reactionproduct of Bisphenol F and Epichlorohydrin
Novolac Epoxy Resin, proprietary
reaction product: bisphenol-A-(epichlorohydrin) epoxy resin (number average molecular weight ≤ 700)
2-propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin
- **Hazard statements**
H315 Causes skin irritation.

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H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.

• Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves / eye protection / face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
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: 9003-36-5	formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	10-25%
CAS: 28064-14-4	Reactionproduct of Bisphenol F and Epichlorohydrin Novolac Epoxy Resin, proprietary ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	2.5-10%
CAS: 25068-38-6 NLP: 500-033-5	reaction product: bisphenol-A-(epichlorohydrin) epoxy resin (number average molecular weight ≤ 700) ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	2.5-10%
CAS: 2425-79-8 EINECS: 219-371-7	1,4-bis(2,3-epoxypropoxy)butane ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	2.5-10%
CAS: 68610-41-3	2-propenenitrile, polymer with 1,3-butadiene, carboxy-terminated, polymers with bisphenol A and epichlorohydrin ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	≤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:** 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.

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- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Rinse out mouth and then drink plenty of water.
- **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:**
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** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.
- **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**
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).
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:** 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:**

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

• **DNELs**

9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Oral	DNEL oral long term exposure - systemic effect	60.25 mg/kg bw/day (general population)
Dermal	DNEL dermal long term exposure	62.5 mg/kg bw/day (general population) 104.15 mg/kg bw/day (worker)
Inhalative	DNEL Long term exposure - systemic effect	8.7 mg/m ³ (general population) 29.39 mg/m ³ (worker)

28064-14-4 Reactionproduct of Bisphenol F and Epichlorohydrin Novolac Epoxy Resin, proprietary

Inhalative	DNEL Long term exposure - systemic effect	29.39 mg/m ³ (worker)
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25068-38-6 reaction product: bisphenol-A(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)

Oral	DNEL oral long term exposure - systemic effect	0.75 mg/kg bw/day (worker)
Dermal	DNEL dermal long term exposure	8.33 mg/kg bw/day (worker)
Inhalative	DNEL Acute/short term exposure - local effect	12.25 mg/m ³ (worker)
	DNEL Long term exposure - systemic effect	12.25 mg/m ³ (worker)

2425-79-8 1,4-bis(2,3-epoxypropoxy)butane

Oral	DNEL oral long term exposure - systemic effect	0.33 mg/kg bw/day (general population)
Dermal	DNEL dermal long term exposure	3.33 mg/kg bw/day (general population) 6.66 mg/kg bw/day (worker)
Inhalative	DNEL Long term exposure - systemic effect	1.16 mg/m ³ (general population) 4.7 mg/m ³ (worker)

• **PNECs**

9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

PNEC aqua	0.003 mg/l (fresh w) (freshwater)
PNEC aqua	0.0003 mg/l (marine w) (marine water)
PNEC sediment	0.294 mg/kg (fresh w) (freshwater)

2425-79-8 1,4-bis(2,3-epoxypropoxy)butane

PNEC aqua	0.024 mg/l (fresh w) (freshwater)
PNEC aqua	0.0024 mg/l (marine w) (marine water)
PNEC sediment	0.084 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.

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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)

• **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: Blue

• **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.

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Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density at 20 °C:	1.8 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 at 20 °C:	77,000 mPas (PTTM 202.2)
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** No further relevant information available.
- **10.5 Incompatible materials:** Strong oxidizing and reducing compounds, strong acids and alkali
- **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
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:

9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol

Oral LD50 >10,000 mg/kg (rat)

Dermal LD50 >2,000 mg/kg (rat)

28064-14-4 Reactionproduct of Bisphenol F and Epichlorohydrin Novolac Epoxy Resin, proprietary

Oral LD50 >2,000 mg/kg (rat)

25068-38-6 reaction product: bisphenol-A-(epichlorohydrin) epoxy resin (number average molecular weight ≤ 700)

Oral LD50 >15,000 mg/kg (rat)

Dermal LD50 23,000 mg/kg (rabbit)

2425-79-8 1,4-bis(2,3-epoxypropoxy)butane

Oral LD50 1,163 mg/kg (rat)

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Dermal LD50	>2,150 mg/kg (rabbit)
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- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **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:

25068-38-6 reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)

EC50	220 mg/kg (Alg)
EC50/48h	2.8 mg/l (daphnia magna)
LC50/96h	3.6 mg/l (leu)

- **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:** Toxic for 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.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for 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
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- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number	UN3082
· ADR, IMDG, IATA	
· 14.2 UN proper shipping name	-
· ADR	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)), MARINE POLLUTANT
· IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
· 14.3 Transport hazard class(es)	
· ADR	
	
· Class	9 (M6) Miscellaneous dangerous substances and articles.
· Label	9
· IMDG, IATA	
	
· Class	9 Miscellaneous dangerous substances and articles.
· Label	9
· 14.4 Packing group	
· ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
· Marine pollutant:	Yes
· Special marking (ADR):	Symbol (fish and tree)
· Special marking (IATA):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Miscellaneous dangerous substances and articles.

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• Danger code (Kemler):	90
• EMS Number:	F-A,S-F
• Stowage Category	A
• 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 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (FORMALDEHYDE, OLIGOMERIC REACTION PRODUCTS WITH 1-CHLORO-2,3-EPOXYPROPANE AND PHENOL, REACTION PRODUCT: BISPHENOL-A-(EPICHLORHYDRIN) EPOXY RESIN (NUMBER AVERAGE MOLECULAR WEIGHT ≤ 700)), 9, III

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.
- **Seveso category** E2 Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
- **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.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H411 Toxic to aquatic life with long lasting effects.

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- **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

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Skin Sens. 1: Skin sensitisation – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

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