

Safety data sheet

according to Regulation (EC) No. 1907/2006 as amended from
time to time

Printing date 02.08.2023



Version-No. 1

Revision: 01.08.2023

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

- **1.1. Product identifier**
- Trade name / Article-No: **KLEIBERIT 510.3.17**
- UFI: 16UT-E0XP-9007-UTP6
- **1.2. Relevant identified uses of the substance / mixture or uses advised against**
For professional users only.
- **Application of the substance / the mixture** Adhesives
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
KLEIBERIT SE & Co. KG
Max-Becker-Str. 4
76356 Weingarten
Germany
- **Further information obtainable from:**
phone: +49 (0) 7244 62-0
FAX: +49 (0) 7244 700-0
E-Mail: hse@kleiberit.com
- **1.4. Emergency telephone number:**
+44 1235 239670 European regional number (European languages)
112 Emergency telephone number for Malta
543 22 22 Icelandic University Hospital

SECTION 2: Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**
Acute Tox. 4 H332 Harmful if inhaled.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens. 1 H317 May cause an allergic skin reaction.
Carc. 2 H351 Suspected of causing cancer.
STOT SE 3 H335 May cause respiratory irritation.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure. Route of exposure: Inhalation.
- **2.2. Label elements**
- **Hazard pictograms**
 
GHS07 GHS08
- **Signal word** Danger
- **Hazard-determining components of labelling:**
methylenediphenyl diisocyanate, modified
- **Hazard statements**
H332 Harmful if inhaled.

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- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H351 Suspected of causing cancer.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure. Route of exposure: Inhalation.

- **Precautionary statements**

- P260 Do not breathe mist/vapours/spray.
- P280 Wear protective gloves / eye protection.
- P302+P352 IF ON SKIN: Wash with plenty of water and soap.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P314 Get medical advice/attention if you feel unwell.

- **Additional information:**

- Contains isocyanates. May produce an allergic reaction.
- As from 24 August 2023 adequate training is required before industrial or professional use.

- **2.3. Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**

- **Description:** Mixture of substances listed below with nonhazardous additions.

- **Dangerous components:**

Registry-No's	Identification / Classification GHS-CLP	%
CAS: 25686-28-6 Reg.nr.: 01-2119457013-49-XXXX	methylenediphenyl diisocyanate, modified Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335, EUH204 Specific concentration limits: Skin Irrit. 2; H315: C ≥ 5 % Eye Irrit. 2; H319: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0.1 % STOT SE 3; C ≥ 5 %	30-40%
CAS: 9048-57-1	4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	20-30%
CAS: 60551-33-9	1,2-Ethanediamine, polymer with 1,1'-methylenebis[4- isocyanatobenzene] homopolymer, methyloxirane and oxirane Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1B, H317; STOT SE 3, H335 ATE: LC ₅₀ /4 h inhalative: 11 mg/l	20-30%
CAS: 28182-81-2 Reg.nr.: 01-2119485796-17-XXXX	aliphatic polyisocyanate, based on HDI Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	3-5%

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Reg.nr.: 01-2119472146-39-XXXX	hydrocarbons, C11-C12, isoalkanes, < 2% aromatics	≤3%
	Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 4, H413	
CAS: 4083-64-1	tosyl isocyanate	≥0.1-<0.5%
	Resp. Sens. 1, H334; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335, EUH014, EUH204	
	Specific concentration limits: Eye Irrit. 2; H319: C ≥ 5 % STOT SE 3; H335: C ≥ 5 % Skin Irrit. 2; H315: C ≥ 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:**

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.

Take affected persons into fresh air and keep quiet.

· **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.

If skin irritation continues, consult a doctor.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:** Call for a doctor immediately.

· 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.

· 5.2. Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Traces: Hydrogen cyanide (HCN)

· 5.3. Advice for firefighters

· **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

· 6.1. Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Particular danger of slipping on leaked/spilled product.

Use respiratory protective device against the effects of fumes/dust/aerosol.

· 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 contaminated material as waste according to section 13.

Ensure adequate ventilation.

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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**

- Handle the substance preferably in closed system
- Enclosure or extractor facilities are required.
- Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the vapour concentration below the workplace limit, wear an adequate respiratory protective device.
- Not less than 3-5 air exchanges per hour
- Wear protective gloves/protective clothing/eye protection/face protection.
- Use only in well ventilated areas.
- regular check up, maintenance and cleaning of equipment and machines
- Avoid contact with the skin.
- It is advised against using the product if there is a sensitivity of the airways or skin (asthma, chronic bronchitis, chronic skin disease)
- Allow access to authorised personnel only.
- Handling procedures must be well documented.
- have emergency plan in place, to minimize impact
- Clean the pipe before decoupling
- General protective and hygienic measures:**
- Immediately remove all soiled and contaminated clothing
- Avoid contact with the skin.
- Appropriate regular employee training.
- Keep good industrial hygiene.

7.2. Conditions for safe storage, including any incompatibilities

- Storage:**
- Requirements to be met by storerooms and receptacles:** Keep container tightly closed.
- Information about storage in one common storage facility:** Observe the national regulations.
- Further information about storage conditions:** None.
- 7.3. Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

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

25686-28-6 methylenediphenyl diisocyanate, modified

- Dermal DNEL short term 28.7 mg/kg (human being)
- Inhalative DNEL short term 0.1 mg/m³ (human being)
- DNEL long term 0.05 mg/m³ (human being)

28182-81-2 aliphatic polyisocyanate, based on HDI

- Inhalative DNEL short term 1 mg/m³ (human being)
- DNEL long term 0.5 mg/m³ (human being)

PNECs**25686-28-6 methylenediphenyl diisocyanate, modified**

- PNEC- Freshwater 1 mg/l (not specified)
- PNEC-seawater 0.1 mg/l (not specified)

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PNEC-soil 1 mg/kg (not specified)
PNEC-wastewater treatment plant 1 mg/l (not specified)

28182-81-2 aliphatic polyisocyanate, based on HDI

PNEC- Freshwater 0.127 mg/l (not specified)
PNEC-seawater 0.0127 mg/l (not specified)
PNEC-periodic release 1.27 mg/l (not specified)
PNEC-Freshwater sediment 26,670 mg/kg (not specified)
PNEC-soil 53,182 mg/kg (not specified)
PNEC-wastewater treatment plant 38.28 mg/l (not specified)

8.2. Exposure controls

limit the exposure to:

8 hours

- **Appropriate engineering controls** No further data; see section 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Use skin protection cream for skin protection.
- **Respiratory protection:**
Use suitable respiratory protective device in case of insufficient ventilation:
Filter A (DIN EN 14 387)
- **Hand protection** Protective gloves
- **Material of gloves** A Nitrile rubber - NBR: AlphaTec® (> 0,4 mm)
- **Eye/face protection** Safety glasses
- **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties****General Information**

- **Physical state** Fluid
- **Colour:** Whitish
- **Odour:** Weak, characteristic
- **Odour threshold:** Not determined.
- **Melting point/freezing point:** Undetermined.
- **Boiling point or initial boiling point and boiling range** 190 °C
- **Flammability** Not applicable.
- **Lower and upper explosion limit**
- **Lower:** Not determined.
- **Upper:** Not determined.
- **Flash point:** 200 °C
- **Auto-ignition temperature:** Not applicable.
- **Decomposition temperature:** Not determined.
- **pH** Not determined.
- **Viscosity:**
- **Kinematic viscosity** Not determined.
- **Dynamic at 20 °C:** ca. 18.500 mPas
Brookfield (6 / 20 rpm)
- **Solubility**
- **water:** Not miscible or difficult to mix.
- **Partition coefficient n-octanol/water (log value)** Not determined.
- **Vapour pressure:** Not determined.

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· Density and/or relative density	
· Density at 20 °C:	ca. 1.13 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· 9.2. Other information	
· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Solvent separation test:	
· Organic solvents:	2.1 %
· Solids content:	38.8 %
· Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

SECTION 10: Stability and reactivity

- **10.1. Reactivity**
see item 10.3
No further relevant information available.
- **10.2. Chemical stability** Stable when stored and used properly.
- **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:** Isocyanates

SECTION 11: Toxicological information

- **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Harmful if inhaled.

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· **LD/LC₅₀ values relevant for classification:****25686-28-6 methylenediphenyl diisocyanate, modified**Oral LD₅₀ 5,001 mg/kg (rat)Dermal LD₅₀ 9,401 mg/kg (rabbit)Inhalative LC₅₀/4h_(dust,mist) 0.49 mg/l (rat)**9048-57-1 4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl)**Inhalative LC₅₀/4h_(dust,mist) 0.49 mg/l (rat)**60551-33-9 1,2-Ethanediamine, polymer with 1,1'-methylenebis[4-isocyanatobenzene] homopolymer, methyloxirane and oxirane**Inhalative LC₅₀ /4 h 11 mg/l (ATE)**28182-81-2 aliphatic polyisocyanate, based on HDI**Oral LD₅₀ >2,500 mg/kg (rat)
weibliche Ratte >2500 mg/kgDermal LD₅₀ >2,000 mg/kg (rabbit) (OECD 402)
>2,000 mg/kg (rat) (OECD 402)Inhalative LC₅₀ /4 h 11 mg/l (ATE)**hydrocarbons, C11-C12, isoalkanes, < 2% aromatics**Oral LD₅₀ >5,000 mg/kg (rat)Dermal LD₅₀ >5,000 mg/kg (rabbit)Inhalative LC₅₀ /4 h >5,000 mg/l (rat)**4083-64-1 tosyl isocyanate**Oral LD₅₀ 2,600 mg/kg (rat)· **Skin corrosion/irritation** Causes skin irritation.· **Serious eye damage/irritation** Causes serious eye irritation.· **Respiratory or skin sensitisation**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.· **Carcinogenicity** Suspected of causing cancer.· **Reproductive toxicity** Based on available data, the classification criteria are not met.· **STOT-single exposure** May cause respiratory irritation.· **STOT-repeated exposure**May cause damage to organs through prolonged or repeated exposure. Route of exposure: Inhalation.· **Aspiration hazard** Based on available data, the classification criteria are not met.· **11.2 Information on other hazards**· **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information· **12.1. Toxicity**· **Aquatic toxicity:****25686-28-6 methylenediphenyl diisocyanate, modified**LC₅₀ 1,001 mg / l / 96h (fish)EC₅₀ 1,001 mg / l / 24h (water flea - daphnia)EC₅₀ 1,641 mg / l / 72h (algae)

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28182-81-2 aliphatic polyisocyanate, based on HDILC₅₀ >100 mg / l / 96h (Zebrafish - Danio rerio)EC₅₀ >100 mg / l / 48h (water flea - daphnia)EC₅₀ >100 mg / l / 72h (algae)

- **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.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Behaviour in sewage processing plants:**
- **Remark:**
At correct sewage disposal in small quantities to biological sewage plants failures of the activated sludge are not expected.
- **Additional ecological information:**
- **General notes:** Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

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 05 01* waste isocyanates
- 08 04 09* waste adhesives and sealants containing organic solvents or other hazardous substances
- **Uncleaned packaging:**
- **Recommendation:**
Non contaminated packagings may be recycled.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1. UN number or ID number**
- **ADR, IMDG, IATA** Void
- **14.2. UN proper shipping name**
- **DOT, ADR, IMDG, IATA** Void
- **14.3. Transport hazard class(es)**
- **Class** Void
- **14.4. Packing group**
- **ADR, IMDG, IATA** Void
- **14.5. Environmental hazards:** Not applicable.
- **14.6. Special precautions for user** Not applicable.
- **14.7. Maritime transport in bulk according to IMO instruments** Not applicable.

SECTION 15: Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
See position no 2 - Hazards Identification
- **Directive 2012/18/EU - Seveso-III:**
- **Named dangerous substances - ANNEX I** None of the ingredients is included.

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- **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 3
- **Regulation (EU) No 649/2012**

None of the ingredients is listed.
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.
- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.
- **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.
- **National regulations:**
- **D: Waterhazard class** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **Other regulations, limitations and prohibitive regulations:** For professional users only.
- **VOC - 2010/75/EU [g/L]:** <25.0 g/l
- **VOC - 2010/75/EU [%]:** <3.00 %
- **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**

- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H351 Suspected of causing cancer.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H413 May cause long lasting harmful effects to aquatic life.
- EUH014 Reacts violently with water.
- EUH204 Contains isocyanates. May produce an allergic reaction.

· **Department issuing SDS:** Safety & Environment· **Abbreviations and acronyms:**

- 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
- 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

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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

Flam. Liq. 3: Flammable liquids – Category 3

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

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Skin Sens. 1B: Skin sensitisation – Category 1B

Carc. 2: Carcinogenicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

EU