

Safety Data Sheet according to HPR, Schedule 1

Date of issue 10/17/2025

Version number 9.1

Revision: 10/17/2025

SECTION 1: Identification

- **1.1. Product identifier**
- **Trade name / Article No: KLEIBERIT 502.8**
- **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
- **Information department:**
e-mail: hse@kleiberit.com
- KLEIBERIT Adhesives Canada, Inc.
45 Sheppard Avenue East, Suite 900
Toronto, Ontario M2N 5W9
Canada
- Phone 1-704-843-3339
FAX 1-704-843-4930
- **1.4. Emergency telephone number:**
+1 800 579 7421 Canada (English, French)
+1 215 207 0061 Americas regional number (English, Spanish, Portuguese)

SECTION 2: Hazard identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**

Acute toxicity - inhalation 4	H332 Harmful if inhaled.
Skin irritation 2	H315 Causes skin irritation.
Eye irritation 2A	H319 Causes serious eye irritation.
Sensitization - respiratory 1	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Sensitization - skin 1	H317 May cause an allergic skin reaction.
Carcinogenicity 2	H351 Suspected of causing cancer.
Specific target organ toxicity (single exposure) 3	H335 May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) 2	H373 May cause damage to the respiratory system through prolonged or repeated exposure. <u>Route of exposure:</u> Inhalation.

- **2.2. Label elements**

- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Danger

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

Prepolymer consisting of (p)MDI and polyether polyol
 diphenylmethane-4,4'-diisocyanate
 diphenylmethane-diisocyanate, isomers and homologous
 Diphenylmethane-2,4'-diisocyanate
 tosyl isocyanate

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- **Hazard statements**

H332 Harmful if inhaled.
 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 the respiratory system through prolonged or repeated exposure. Route of exposure: Inhalation.

- **Precautionary statements**

P260 Do not breathe mist/vapors/spray.
 P280 Wear protective gloves / eye protection.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 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.

- **Information pertaining to particular dangers for man and environment:**

- **NFPA-ratings (scale 0 - 4) - USA:**



Health = 2
 Fire = 1
 Reactivity = 0

- **HMIS-ratings (scale 0 - 4) - USA:**



Health = *2
 Fire = 1
 Reactivity = 0

- **WHMIS Classes, Divisions and Subdivisions - Canada**

- **Class D - Poisonous and Infectious Materials**

Division 2 - Materials Causing Other Toxic Effects

Subdivision B - Toxic Materials

- **CARCINOGENICITY**

diphenylmethane diisocyanate

NTP: No IARC: 3 OSHA: No

- **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 the substances listed below with nonhazardous additions.

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Trade name / Article No: KLEIBERIT 502.8*(Contd. of page 2)***· Dangerous components:**

Registry-No's	Identification / Classification GHS-CLP	%
	Prepolymer consisting of (p)MDI and polyether polyol Sensitization - respiratory 1, H334; Specific target organ toxicity (repeated exposure) 2, H373; Acute toxicity - inhalation 4, H332; Skin irritation 2, H315; Eye irritation 2A, H319; Sensitization - skin 1, H317; Specific target organ toxicity (single exposure) 3, H335	50-70% w/w *
CAS: 101-68-8 RTECS: NQ 9350000	diphenylmethane-4,4'-diisocyanate Sensitization - respiratory 1, H334; Carcinogenicity 2, H351; Specific target organ toxicity (repeated exposure) 2, H373; Acute toxicity - inhalation 4, H332; Skin irritation 2, H315; Eye irritation 2A, H319; Sensitization - skin 1, H317; Specific target organ toxicity (single exposure) 3, H335 Specific concentration limits: Skin Irritation - Category 2; H315: C ≥ 5 % Eye Irritation - Category 2; H319: C ≥ 5 % Respiratory Sensitizer - Category 1; H334: C ≥ 0.1 % Specific Target Organ Toxicity - Single Exposure - Category 3; H335: C ≥ 5 %	10-20% w/w *
CAS: 9016-87-9 RTECS: TR 0320000	diphenylmethane-diisocyanate, isomers and homologous Sensitization - respiratory 1, H334; Carcinogenicity 2, H351; Specific target organ toxicity (repeated exposure) 2, H373; Acute toxicity - inhalation 4, H332; Skin irritation 2, H315; Eye irritation 2A, H319; Sensitization - skin 1, H317; Specific target organ toxicity (single exposure) 3, H335 Specific concentration limits: Skin Irritation - Category 2; H315: C ≥ 5 % Eye Irritation - Category 2; H319: C ≥ 5 % Respiratory Sensitizer - Category 1; H334: C ≥ 0.1 % Specific Target Organ Toxicity - Single Exposure - Category 3; H335: C ≥ 5 %	10% w/w
CAS: 5873-54-1	Diphenylmethane-2,4'-diisocyanate Sensitization - respiratory 1, H334; Carcinogenicity 2, H351; Specific target organ toxicity (repeated exposure) 2, H373; Acute toxicity - inhalation 4, H332; Skin irritation 2, H315; Eye irritation 2A, H319; Sensitization - skin 1, H317; Specific target organ toxicity (single exposure) 3, H335 Specific concentration limits: Skin Irritation - Category 2; H315: C ≥ 5 % Eye Irritation - Category 2; H319: C ≥ 5 % Respiratory Sensitizer - Category 1; H334: C ≥ 0.1 % Specific Target Organ Toxicity - Single Exposure - Category 3; H335: C ≥ 5 %	≥5-<10% w/w *

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CAS: 6425-39-4	2,2'-dimorpholinyl-diethyl ether	<2% w/w
	Eye irritation 2A, H319	
CAS: 4083-64-1	tosyl isocyanate	≥0.1-<0.5% w/w *
	Sensitization - respiratory 1, H334; Skin irritation 2, H315; Eye irritation 2A, H319; Specific target organ toxicity (single exposure) 3, H335	
	Specific concentration limits: Eye Irritation - Category 2; H319: C ≥ 5 %	
	Specific Target Organ Toxicity - Single Exposure - Category 3; H335: C ≥ 5 %	
	Skin Irritation - Category 2; H315: C ≥ 5 %	
	%	

* Actual concentration ranges are withheld as a trade secret.

· **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:** Immediately call a doctor.
- **4.2. Most important symptoms and effects, both acute and delayed**
Asthma attacks
Allergic reactions
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Fire-fighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Flash point :** See Pos. 9
- **5.2. Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Isocyanate
Nitrogen oxides (NO_x)
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.

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

See Pos. 8 - Breathing equipment.

· **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 neutralizing agent.

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Take up mechanically; cover residues with wet, liquid-binding material (saw dust, universal binder - diatomite, sand). Take up after 1 hour in receptacles, don't close tight (development of CO₂ !). Be aware that sufficient moisture is present and keep outdoors for several days.· **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 solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.

Not less than 3-5 air exchanges per hour

Appropriate regular employee training.

Skin contact and inhalation of aerosols/vapors of the preparation should be avoided.

Spraying: in vented cabin with laminar air flow

Wear protective gloves/protective clothing/eye protection/face protection.

Use only in well ventilated areas.

Store in cool, dry place in tightly closed receptacles.

Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.

regular check up, maintenance and cleaning of equipment and machines

Perform spray applications in automated and closed systems.

Avoid contact with skin and eyes.

It is advised against using the product if there is a sensitivity of the airways or skin (asthma, chronic bronchitis, chronic skin disease)

Handling procedures must be well documented.

additional to professional application with multiple and/or significant contact

limit the exposure to 4 hours

· **General protective and hygiene measures:** Immediately remove all soiled and contaminated clothing.· **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:** Protect from humidity and water.· **7.3. Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/ Personal protection

· **8.1. Control parameters**· **Components with limit values that require monitoring at the workplace:**· **CAS No. Designation of material % Type Value Unit****101-68-8 diphenylmethane-4,4'-diisocyanate**

EL (USA) TWA: 0.005 ppm

Ceiling: 0.01 ppm

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EV (USA) TWA: 0.005 ppm
Ceiling: 0.02 ppm

TWA (USA) STEL: 0.2 (10 minutes) mg/m³, 0.02 ppm
TWA: 0.05 mg/m³, 0.005 ppm
IDLH Documentation 8/16/96

PEL (USA) Ceiling: 0.2 mg/m³, 0.02 ppm

REL (USA) TWA: 0.05 mg/m³, 0.005 ppm
Ceiling: 0.2* mg/m³, 0.02* ppm
*10-min

TLV (USA) TWA: 0.005 ppm

9016-87-9 diphenylmethane-diisocyanate, isomers and homologous

EL (USA) TWA: 0.005 ppm
Ceiling: 0.01 ppm

5873-54-1 Diphenylmethane-2,4'-diisocyanate

EL (USA) TWA: 0.005 ppm
Ceiling: 0.01 ppm

8.2. Exposure controls

limit the exposure to:

8 hours

additional to professional application with multiple and/or significant contact

limit the exposure to 4 hours

• **Appropriate engineering controls** No further data; see section 7.• **Personal protective equipment:**• **General protective and hygienic measures:**

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

• **Breathing equipment:**

Wear NIOSH-approved, air-purifying respirator in case of insufficient ventilation.

Filter A

Respiratory protection is required in work areas with inadequate ventilation and during spraying application.

• **Protection of hands:** Protective gloves• **Material of gloves A** Nitrile rubber - NBR: AlphaTec® (Lamination strength not applicable)• **Eye 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**

Liquid

• **Color:**

Brown

• **Odor:**

Weak, characteristic

• **Odor threshold:**

Not determined.

• **Melting point/Melting range:**

Undetermined.

• **Boiling point/Boiling range:**

208 °C (406.4 °F)

• **Flammability:**

Not applicable.

• **Explosion Limits:**• **Lower:**

Not determined.

• **Upper:**

Not determined.

• **Flash Point:**

250 °C (482 °F)

• **Ignition Temperature:**

>400 °C (>752 °F)

• **Decomposition Temperature:**

Not determined.

• **pH-value:**

Mixture is non-soluble (in water).

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- **Viscosity:**
- **Kinematic:** Not determined.
- **Dynamic at 20 °C (68 °F):** ca. 6.000 mPas
Brookfield (4 / 20 rpm)
- **Solubility in / Miscibility with**
- **Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Vapor Pressure:** Not determined.
- **Vapor pressure:**
- **Density at 20 °C (68 °F):** ca. 1.12 g/cm³ (ca. 9.35 lbs/gal)
- **Relative Density** Not determined.
- **Vapour Density** Not determined.
- **Particle characteristics** Not applicable.
- **9.2. Other information**
- **Appearance:**
- **Form:** Fluid
- **Important information on protection of health and environment, and on safety.**
- **Auto Igniting:** Product is not selfigniting.
- **Danger of Explosion:** Product does not present an explosion hazard.
- **Change in condition**
- **Evaporation Rate** Not determined.

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:** Isocyanate

SECTION 11: Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**
Harmful if inhaled.
- **LD/LC50 values that are relevant for classification:**
- Prepolymer consisting of (p)MDI and polyether polyol**
- Oral LD₅₀ >2,000 mg/kg (rat) (Calculation (ATE))
- Dermal LD₅₀ >9,400 mg/kg (rat) (Calculation (ATE))
- Inhalative LC₅₀ /4 h 11 mg/l (ATE)
- 101-68-8 diphenylmethane-4,4'-diisocyanate**
- Oral LD₅₀ >2,000 mg/kg (rat) (84/449/EWG, B.1)
- Dermal LD₅₀ >9,400 mg/kg (rabbit) (OECD 402)
- Inhalative LC₅₀ /4 h 11 mg/l (ATE)
- 9016-87-9 diphenylmethane-diisocyanate, isomers and homologous**
- Oral LD₅₀ >10,000 mg/kg (rat)
- Dermal LD₅₀ >9,400 mg/kg (rabbit)

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Inhalative LC₅₀ /4 h 11 mg/l (ATE)**5873-54-1 Diphenylmethane-2,4'-diisocyanate**Oral LD₅₀ >2,000 mg/kg (rat) (84/449/EWG, B.1)Dermal LD₅₀ >9,400 mg/kg (rabbit) (OECD 402)Inhalative LC₅₀ /4 h 11 mg/l (ATE)**6425-39-4 2,2'-dimorpholinyl-diethyl ether**Oral LD₅₀ 2,020 mg/kg (rat)Dermal LD₅₀ 3,030 mg/kg (kan)

Leichte Reizwirkung an der Haut:

Index 2,70/8,0 (Draize-Methode, Kaninchen)

Reizwirkung am Auge:

Index 22,5/1010 (Draize-Methode, Kaninchen)

4083-64-1 tosyl isocyanateOral LD₅₀ 2,600 mg/kg (rat)**Note:**

Prepolymer consisting of (p) MDI and polyether polyol: Investigation of a comparable product diphenylmethane-diisocyanate:

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Primary irritant effect:**on the skin:**

Causes skin irritation.

on the eye:

Causes serious eye irritation.

Sensitization:

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.**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

Specific target organ toxicity - repeated exposureMay cause damage to the respiratory system through prolonged or repeated exposure. Route of exposure: Inhalation.**Aspiration hazard** Based on available data, the classification criteria are not met.**Additional toxicological information:****Carcinogenic categories****IARC (International Agency for Research on Cancer)**

diphenylmethane-4,4'-diisocyanate: 3

diphenylmethane-diisocyanate, isomers and homologous: 3

benzoyl chloride: 2A

NTP (National Toxicology Program)

None of the ingredients is listed.

11.2. Information on other hazards Unnecessary

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SECTION 12: Ecological information

- **12.1. Toxicity**
- **Aquatic toxicity:**

Prepolymer consisting of (p)MDI and polyether polyol

LC₅₀ >1,000 mg / l / 96h (fish)EC₅₀ >1,000 mg / l / 24h (water flea - daphnia)

101-68-8 diphenylmethane-4,4'-diisocyanate

LC₅₀ >1,000 mg / l / 96h (fish)EC₅₀ >1,000 mg / l / 24h (water flea - daphnia)IC₅₀ >1,640 mg / l / 72h (algae)

9016-87-9 diphenylmethane-diisocyanate, isomers and homologous

LC₅₀ >1,000 mg / l / 96h (fish)EC₅₀ >1,000 mg / l / 24h (water flea - daphnia)EC₅₀ >1,640 mg / l / 72h (algae)

5873-54-1 Diphenylmethane-2,4'-diisocyanate

LC₅₀ >1,000 mg / l / 96h (Zebrafish - Danio rerio)EC₅₀ >1,000 mg / l / 24h (water flea - daphnia)IC₅₀ >1,640 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)

6425-39-4 2,2'-dimorpholinyl diethyl ether

EC₅₀ >100 mg / l / 48h (water flea - daphnia)

- **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.
- **12.7. Other adverse effects**
- **Additional ecological information:**
- **General notes:** Prepolymer consisting of (p) MDI and polyether polyol: Investigation of a comparable product

SECTION 13: Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Non contaminated packagings can be used for recycling.
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1. UN-Number**
- **DOT/TDG, ADR, IMDG, IATA** Void
- **14.2. UN proper shipping name**
- **DOT/TDG, ADR, IMDG, IATA** Void

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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.

· **Department issuing SDS:** Safety & Environment· **Version number of previous version:** 9.0· **Date of preparation** 10/17/2025· **Abbreviations and acronyms:**

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

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

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