

**Material Safety Data Sheet**  
selon ISO/DIS 11014

Printing date 02/12/2023

Version-No. 9

Reviewed on 02/12/2023

**Identification**

- **1.1. Product identifier**
- **Trade name / Article No: KLEIBERIT 501.0**
- **Application of the substance / the mixture** Adhesives
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
KLEBCHEMIE  
M.G.Becker GmbH & Co. KG  
Max Becker Str. 4  
D - 76356 Weingarten / Baden  
Allemagne / Germany
- **Information department:**

KLEIBERIT Adhesives Canada  
Inc.  
45 Sheppard Avenue East, Suite 900  
Toronto, Ontario M2N 5W9  
Canada

Phone 1-416-256-5842  
FAX 1-416-781-4901  
Toll free 1888-443-666

- **1.4. Emergency telephone number:**  
email: hse@kleiberit.com

1-800-424-9300 (CHEMTREC)  
1-800-451-1403 (SARA-HOTLINE)

**Hazard(s) 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. 2A 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 labeling:**  
diphenylmethane-diisocyanate, isomers and homologous
- **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.

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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**

P280 Wear protective gloves / eye protection.

P260 Do not breathe vapours.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

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.

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

Health = 1

Fire = 1

Reactivity = 0

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

Health = \*2

Fire = 1

Reactivity = 0

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

D1A - Very toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects

**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**

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

## Composition/information on ingredients

**3.2 Mixtures****Description:** Mixture of the substances listed below with nonhazardous additions.**Dangerous components:**

Registry-No's	Identification / Classification GHS-CLP	%
CAS: 9016-87-9	diphenylmethane-diisocyanate, isomers and homologous	40-50% w/w
RTECS: TR 0320000	Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
CAS: 101-68-8	diphenylmethane-4,4'-diisocyanate	5-10% w/w
RTECS: NQ 9350000	Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	

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CAS: 5873-54-1	diphenylmethane-2,4'-diisocyanate	3-5% w/w
	Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	
CAS: 2536-05-2	2,2'-methylenediphenyl diisocyanate	< 2.0% w/w
	Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	

• **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 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.
- **After skin contact:**  
Treat affected skin with cotton wool or cellulose. Then wash and rinse thoroughly with water and a mild cleaning agent.  
If skin irritation continues, consult a doctor.  
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.
- **Information for doctor:**
- **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.

### Fire-fighting measures

- **Flammability** Combustible Yes: - No: **X**
- **If yes, under which conditions ?** Not flammable. Not combustible. Flash point >93.3 °C / > 200 °F
- **5.1. Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:**
- **Flash point :** See Pos. 9
- **Flammable Limits (% by volume)** Not applicable
- **Explosion Data - Sensitive to Impact:** Not applicable
- **Explosion Data - Sensitive to Static Discharge:** Not applicable
- **5.2. Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides  
Isocyanates  
Traces:  
Hydrogen cyanide (HCN)
- **5.3. Advice for firefighters**
- **Protective equipment:**  
Mount respiratory protective device.  
Wear self-contained respiratory protective device.

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### Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

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).

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.

### Handling and storage

- **Handling:**

- **7.1. Precautions for safe handling**

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

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

Handle the substance preferably in closed system

Spraying: in vented cabin with laminar air flow

Caution: Do not refill residue into storage receptacles

Prevent formation of aerosols.

Work only in fume cabinet.

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

Appropriate regular employee training.

Avoid contact with the skin.

Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

Absorb spilled amount immediately.

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

additional to professional application with multiple and/or significant contact

limit the exposure to 4 hours

- **Information about protection against explosions and fires:** 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.

- **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.

### Exposure controls/personal protection

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

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### 8.1. Control parameters

#### Components with limit values that require monitoring at the workplace:

CAS No.	Designation of material	%	Type	Value	Unit
<b>101-68-8 diphenylmethane-4,4'-diisocyanate</b>					
EL (Canada)	Valeur à long terme: 0.005 ppm Valeur plafond: 0.01 ppm Skin; S				
EV (Canada)	Valeur à long terme: 0.005 ppm Valeur plafond: 0.02 ppm				
TWA (Canada)	Valeur momentanée: 0.2 (10 minutes) mg/m <sup>3</sup> , 0.02 ppm Valeur à long terme: 0.05 mg/m <sup>3</sup> , 0.005 ppm IDLH Documentation 8/16/96				
PEL (U.S.A.)	Valeur plafond: 0.2 mg/m <sup>3</sup> , 0.02 ppm				
REL (U.S.A.)	Valeur à long terme: 0.05 mg/m <sup>3</sup> , 0.005 ppm Valeur plafond: 0.2* mg/m <sup>3</sup> , 0.02* ppm *10-min				
TLV (U.S.A.)	Valeur à long terme: 0.051 mg/m <sup>3</sup> , 0.005 ppm				

### 8.2. Exposure controls

limit the exposure to:  
8 hours

#### Personal protective equipment:

**General protective and hygienic measures:** Do not inhale gases / fumes / aerosols.

#### Breathing equipment:

Wear NIOSH-approved, air-purifying respirator.  
Use suitable respiratory protective device only when aerosol or mist is formed.  
Wear NIOSH-approved, air-purifying respirator in case of insufficient ventilation.  
At spray application respiratory protection must be worn.

#### Protection of hands: Protective gloves

#### Material of gloves

- A Nitrile rubber - NBR: AlphaTec® (Lamination strength not applicable)
- D butyl rubber - BR: ChemTek™ (0,7 mm)
- E Fluorocarbon rubber (Viton) - FKM (0,7 mm) ! General information without declaration of a manufacturer !
- F Natural rubber - NR: Extra™ (0.5 mm)
- G Chloroprene rubber - CR: Neotop® (0,75 mm)
- H Polyvinylchloride - PVC: Snorkel® (0,5 mm)

**Penetration time of glove material** Permeation: ≥ 480 min

**Eye protection:** Tightly sealed goggles

## Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### General Information

#### Appearance:

**Form:** Fluid  
**Color:** Brown

**Odor:** Weak, characteristic

**Odor threshold:** Not determined

**pH-value:** Not applicable

#### Change in condition

**Melting point/Melting range:** Not determined  
**Boiling point/Boiling range:** 208 °C (406 °F)  
**Softening temperature / range:** Not determined

**Flash Point:** 212 °C (414 °F)

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- **Flammability (solid, gaseous):** Not applicable.
- **Ignition Temperature:** > 400 °C (> 752 °F)
- **Decomposition Temperature:** ~260 °C (~500 °F) (CAS 101-68-8)
- **Auto Igniting:** Product is not selfigniting.
- **Danger of Explosion:** Product does not present an explosion hazard.
- **Explosion Limits:**
  - Lower:** Not determined
  - Upper:** Not determined
- **Vapor Pressure:** Not determined.
- **Density at 20 °C (68 °F):** ca. 1.13 g/cm<sup>3</sup> (ca. 9.43 lbs/gal)
- **Relative Density** Not determined.
- **Vapour Density** Not determined
- **Evaporation Rate** Not applicable
- **Solubility in / Miscibility with Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined
- **Viscosity:**
  - Dynamic at 20 °C (68 °F):** ca. 8000 mPas
  - Kinematic:** Not determined.
- **9.2. Other information** No further relevant information available.

### Stability and reactivity

- **10.1. Reactivity** see item 10.3
- **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**  
Exothermic reactions with amines, alcohols, acids and bases. Reacts with water forming CO<sub>2</sub>-gas. In closed containers risk of bursting owing to increase of pressure.
- **10.4. Conditions to avoid** No further relevant information available.
- **10.5. Incompatible materials:** No further relevant information available.
- **10.6. Hazardous decomposition products:** No dangerous decomposition products known.

### Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**  
Harmful if inhaled.
- **LD/LC50 values that are relevant for classification:**

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

Oral	LD <sub>50</sub>	>10000 mg/kg (rat)
Dermal	LD <sub>50</sub>	>9400 mg/kg (rabbit)
Inhalative	LC <sub>50</sub> /4 h	0.31 mg/l (rat)
	LC <sub>50</sub> /4h (Staeube,Nebel)	0.31 mg/l (rat)

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

Oral	LD <sub>50</sub>	> 10000 mg/kg (rat) (84/449/EWG, B.1)
Dermal	LD <sub>50</sub>	> 9400 mg/kg (rabbit) (OECD 402)
Inhalative	LC <sub>50</sub> /4h (Staeube,Nebel)	0.49 mg/l (rat) (OECD 403)

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**5873-54-1 diphenylmethane-2,4'-diisocyanate**Oral LD<sub>50</sub> > 2000 mg/kg (rat) (84/449/EWG, B.1)Dermal LD<sub>50</sub> > 9400 mg/kg (rabbit) (OECD 402)Inhalative LC<sub>50</sub>/4h<sub>(Staeube,Nebel)</sub> 0.387 mg/l (rat) (OECD 403)**2536-05-2 2,2'-methylenediphenyl diisocyanate**Oral LD<sub>50</sub> >2000 mg/kg (rat)Dermal LD<sub>50</sub> >9400 mg/kg (rabbit)Inhalative LC<sub>50</sub>/4h<sub>(Staeube,Nebel)</sub> 0.527 mg/l (rat)• **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.

• **Additional toxicological information:**• **Carcinogenic categories**• **IARC (International Agency for Research on Cancer)**

diphenylmethane-4,4'-diisocyanate: 3

cyclohexanone: 3

benzoyl chloride: 2A

• **NTP (National Toxicology Program)**

None of the ingredients is listed.

**Ecological information**• **12.1. Toxicity**• **Aquatic toxicity:****9016-87-9 diphenylmethane-diisocyanate, isomers and homologous**LC<sub>50</sub> >1000 mg / l / 96h (fish)EC<sub>50</sub> >1000 mg / l / 24h (water flea - Daphnia)EC<sub>50</sub> >1640 mg / l / 72h (algae)**101-68-8 diphenylmethane-4,4'-diisocyanate**LC<sub>50</sub> > 1000 mg / l / 96h (fish)EC<sub>50</sub> > 1000 mg / l / 24h (water flea - Daphnia)IC<sub>50</sub> > 1640 mg / l / 72h (algae)**5873-54-1 diphenylmethane-2,4'-diisocyanate**LC<sub>50</sub> > 1000 mg / l / 96h (Zebrafish - Danio rerio)EC<sub>50</sub> > 1000 mg / l / 24h (water flea - Daphnia)IC<sub>50</sub> > 1640 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)**2536-05-2 2,2'-methylenediphenyl diisocyanate**LC<sub>50</sub> >1000 mg / l / 96h (fish)EC<sub>50</sub> >1000 mg / l / 24h (water flea - Daphnia)EC<sub>50</sub> >1640 mg / l / 72h (Chlorophyceae - Scenedesmus subspicatus)• **12.2. Persistence and degradability** No further relevant information available.

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- **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. Other adverse effects** No further relevant information available.

### 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.  
Can be disposed of with household garbage after solidification following consultation with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
- **Uncleaned packagings:**
- **Recommendation:**  
Non contaminated packagings can be used for recycling.  
Empty contaminated packagings thoroughly. Disposal must be made according to official regulations.

### Transport information

- **14.1. UN-Number**
- **IMDG, IATA** Void
- **14.2. UN proper shipping name**
- **DOT, IMDG, IATA** Void
- **DOT, IMDG, IATA**
- **Class** Void
- **14.4. Packing group**
- **DOT, IMDG, IATA** Void
- **14.5. Environmental hazards:**
- **Marine pollutant:** No
- **14.6. Special precautions for user** Not applicable.
- **14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** Void

### Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**  
See position no 2 - Hazards Identification
- **Sara - USA:**
- **Section 313 (Specific toxic chemical listings):**  
101-68-8 diphenylmethane-4,4'-diisocyanate
- **TSCA (Toxic Substances Control Act) - USA:**
- **DSL (Canadian Domestic Substance List) - Canada:**  
All ingredients are listed.
- **National regulations:**
- **Other regulations, limitations and prohibitive regulations: Restricted to professional users.**
- **VOC - Volatile Organic Compounds**
- **US (40CFR part59): VOC content [g / L] 0 g / L**
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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### 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.

#### • JAPAN

**Building Standard Law on Sick House Issues, enforced on July 1, 2003**

Registration 5010 :

J A I A 005930 F☆☆☆☆

#### • USA: Relevant labels and warnings

HAZCOM LABEL: CAUTION! HARMFUL.

MAY CAUSE SENSITIZATION BY INHALATION AND SKIN CONTACT.

#### • Relevant phrases

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. Route of exposure: Inhalation.

#### • Department issuing SDS: Safety & Environment

#### • Abbreviations and acronyms:

ICAO: International Civil Aviation Organisation

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

#### • \* Data compared to the previous version altered. -

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