



## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 14.07.2022


Version-No. 8 (replaces version 7)

Revision: 10.11.2021

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

- **1.1. Product identifier**
- Trade name / Article-No: **KLEIBERIT 704.5**
- UFI: 5AYF-C0GX-E00A-5821
- **1.2. Relevant identified uses of the substance / mixture or uses advised against**  
**For professional use 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  
D - 76356 Weingarten / Baden  
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  
**+65 3158 1412**  
Asia Pacific regional number (English, Bahasa, Malaysia, Hindi, Japanese, Korean, Mandarin; Tagalog)

### SECTION 2: Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008 - GHS/CLP**  
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.
- **2.2. Label elements**
- **Hazard pictograms**
-   
GHS08
- **Signal word** Danger
- **Hazard-determining components of labelling:**  
diphenylmethane-4,4'-diisocyanate
- **Hazard statements**  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H317 May cause an allergic skin reaction.  
H351 Suspected of causing cancer.
- **Precautionary statements**  
P261 Avoid breathing vapours.  
P280 Wear protective gloves.

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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.

- **Information concerning particular hazards for human and environment:**

- Persons already sensitised to diisocyanates may develop allergic reactions when using this product.

- Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.

- This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

- **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: 101-68-8	diphenylmethane-4,4'-diisocyanate	≥1-<2.5%
Reg.nr.: 01-2119457014-47-XXXX	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 %	

- **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**

- **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.

If skin irritation continues, consult a doctor.

- **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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

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- **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: Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, 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:  
Isocyanates  
Nitrogen oxides (NO<sub>x</sub>)  
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.  
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:**  
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**  
Appropriate regular employee training.  
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  
Contact with skin and inhalation of aerosols/ vapours 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.  
Prevent formation of dust.  
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.  
Avoid contact with skin and eyes.

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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

- **General protective and hygienic 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**

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

- **DNELs**

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

Dermal DNEL short term 50 mg/kg (human being)

Inhalative DNEL short term 0.1 mg/m<sup>3</sup> (human being)

DNEL long term 0.05 mg/m<sup>3</sup> (human being)

- **PNECs**

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

PNEC- Freshwater 1 mg/l (not specified)

PNEC-seawater 0.1 mg/l (not specified)

PNEC-periodic release 10 mg/l (not specified)

PNEC-Freshwater sediment 1 mg/kg (not specified)

PNEC-soil 1 mg/kg (not specified)

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

- **Ingredients with biological limit values:**

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

BGW (Germany) 10 µg/g Kreatinin

Untersuchungsmaterial: Urin

Probennahmezeitpunkt: Expositionsende bzw. Schichtende

Parameter: 4,4'-Diaminodiphenylmethan

- **CAS No. Designation of material % Type Value Unit**

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

AGW (Germany) Long-term value: 0.05 E mg/m<sup>3</sup>

1;=2=(I);DFG, 11, 12, H, Sah, Y

- **8.2. Exposure controls**

limit the exposure to:

8 hours

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- additional to professional application with multiple and/or significant contact limit the exposure to 4 hours
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**  
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:**  
Use suitable respiratory protective device in case of insufficient ventilation:  
Filter A/P2 (EN 14387)  
At spray application respiratory protection must be worn.
- **Hand protection**  
Protective gloves  
Heat resistant gloves
- **Material of gloves**  
A Nitrile rubber - NBR: AlphaTec® (> 0,4 mm)  
Leather gloves
- **Eye/face protection** Safety glasses
- **Body protection:** Protective work clothing
- **Thermal hazards** Risk of burns during thermal processing.

## SECTION 9: Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**
- **General Information**
- **Physical state** Solid
- **Colour:** According to product specification
- **Odour:** Light
- **Odour threshold:** Not determined.
- **Melting point/freezing point:** Undetermined.
- **Boiling point or initial boiling point and boiling range** Undetermined.
- **Flammability** Not determined.
- **Lower and upper explosion limit**
- **Lower:** Not determined.
- **Upper:** Not determined.
- **Flash point:** Not applicable.
- **Ignition temperature:** >300 °C
- **Decomposition temperature:** Not determined.
- **pH** Not applicable.
- **Viscosity:** At room temperature: not applicable
- **Kinematic viscosity** Not applicable.
- **Dynamic:** Not applicable.
- **Solubility**
- **water:** Insoluble.
- **Partition coefficient n-octanol/water (log value)** Not determined.
- **Vapour pressure:** Not applicable.
- **Density and/or relative density**
- **Density at 20 °C:** ca. 1.1 g/cm<sup>3</sup>
- **Relative density** Not determined.
- **Vapour density** Not applicable.

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· Particle characteristics	See item 3.
· <b>9.2. Other information</b>	
· Appearance:	
· Form:	Solid
· Important information on protection of health and environment, and on safety.	
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Change in condition	
· Evaporation rate	Not applicable.
· 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
- **Additional information:**  
When hotmelt adhesives are melted and applied, vapours are set free and an unpleasant odour can occur, even if the recommended working temperature has been observed. Moreover if the prescribed working temperature is exceeded over a longer period, harmful decomposition products can develop. Precautions should be taken to eliminate the vapours, e.g. by using a suitable ventilation system.  
Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

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### SECTION 11: Toxicological information

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC<sub>50</sub> values relevant for classification:**

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

Oral LD<sub>50</sub> >2,000 mg/kg (rat) (84/449/EWG, B.1)

Dermal LD<sub>50</sub> >9,400 mg/kg (rabbit) (OECD 402)

Inhalative LC<sub>50</sub> /4 h 1.5 mg/l (not specified) (Calculation (ATE))

- **Note:**

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.

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

- **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** 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.

#### 11.2 Information on other hazards

- **Endocrine disrupting properties**

None of the ingredients is listed.

### SECTION 12: Ecological information

#### 12.1. Toxicity

- **Aquatic toxicity:**

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

LC<sub>50</sub> >1,000 mg / l / 96h (fish)

EC<sub>50</sub> >1,000 mg / l / 24h (water flea - daphnia)

IC<sub>50</sub> >1,640 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.

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- **12.6. 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 04 09\*: waste adhesives and sealants containing organic solvents or other dangerous substances  
Adhesive completely reacted:  
08 04 10: waste adhesives and sealants other than those mentioned in 08 04 09
- **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
- **EU-Regulations**  
101-68-8 diphenylmethane-4,4'-diisocyanate: REACH, Annex XVII, No. 56, 74
- **Directive 2012/18/EU - Seveso-III:**
- **Named dangerous substances - ANNEX I** None of the ingredients is included.
- **Regulation (EC) No 1907/2006 - REACH, ANNEX XVII** Conditions of restriction: 3
- **Regulation (EU) No 649/2012**  
  
None of the ingredients is listed.

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- **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:** Restricted to professional users.

- **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**

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.

EUH204 Contains isocyanates. May produce an allergic reaction.

- **Department issuing SDS:** Safety & Environment

- **Version number of previous version:** 7

- **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

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

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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  
Resp. Sens. 1: Respiratory sensitisation – Category 1  
Skin Sens. 1: Skin sensitisation – Category 1  
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

EU