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Safety Data Sheet acc. to OSHA HCS

Printing date 09/20/2019 Version-No. 5 Reviewed on 09/20/2019

1 Identification

- · 1.1. Product identifier
- · Trade name / Article No: KLEIBERIT 711.3
- 1.2. Relevant identified uses of the substance / mixture <u>or</u> uses advised against Restricted to professional users.
- · 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

Germany

Information department:

e-mail: hse@kleiberit.com

KLEIBERIT Adhesives USA Inc.

109-B Howie Mine Road, PO Box 1319

Waxhaw, NC 28173

USA

Phone 1-704-843-3339 FAX 1-704-843-4930

- · 1.4. Emergency telephone number:
- +1 866 928 0789 USA (English, French, Spanish)
- +1 215 207 0061 Americas regional number (English, Spanish, Portuguese)
- +1 866 928 0789 USA (English, French, Spanish)
- +1 215 207 0061 Americas regional number (English, Spanish, Portuguese)

2 Hazard(s) 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 labeling:

aliphatic polyisocyanate, based on HDI 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.

· NFPA-ratings (scale 0 - 4) - USA:



Health = 1 Fire = 0 Reactivity = 0

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· HMIS-ratings (scale 0 - 4) - USA:

Health = 0 Fire = 0Reactivity = 0

- · 2.3. Other hazards
- · Results of PBT and vPvB assessment
- · PBT: Not applicable. vPvB: Not applicable.

3 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	%
	aliphatic polyisocyanate, based on HDI Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	<2%
CAS: 140921-24-0	1,6-hexanediyl-bis(2-(2-(1-ethylpentyl)-3-oxazolidinyl)ethyl)carbamate Skin Sens. 1, H317	<1%
	diphenylmethane-4,4'-diisocyanate 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	<1%
	methyl methacrylate Flam. Liq. 2, H225; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335	<0.5%
RTECS: OZ 3675000	n-Butyl methacrylate Flam. Liq. 3, H226; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	<0.5%

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.

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

After skin contact:

After contact with the molten product, cool rapidly with cold water.

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.
- · After swallowing: If symptoms persist consult doctor.
- · Information for 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.

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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.

· 5.2. Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Nitrogen oxides (NOx)

Isocyanate

Traces: Hydrogen cyanide (HCN)

- 5.3. Advice for firefighters
- · Protective equipment: Wear self-contained respiratory protective device.

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.

See Pos. 8 - Breathing equipment.

- · **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.

- · Protective Action Criteria for Chemicals
- · PAC-1:

9003-11-6 Polyoxyalkylene diol: 6.9 mg/m³

25322-69-4 polypropylene glycol: 30 mg/m³

101-68-8 diphenylmethane-4,4'-diisocyanate: 0.45 mg/m³

80-62-6 methyl methacrylate: 17 ppm

97-88-1 n-Butyl methacrylate: 19 mg/m3

822-06-0 hexamethylene-1,6-diisocyanate: 0.018 ppm

108-88-3 toluene: 67 ppm

140-88-5 Ethyl acrylate: 8.3 ppm

· PAC-2:

9003-11-6 Polyoxyalkylene diol: 76 mg/m³

25322-69-4 polypropylene glycol: 330 mg/m³

101-68-8 diphenylmethane-4,4'-diisocyanate: 5 mg/m³

80-62-6 methyl methacrylate: 120 ppm

97-88-1 n-Butyl methacrylate: 210 mg/m3

822-06-0 hexamethylene-1,6-diisocyanate: 0.2 ppm

108-88-3 toluene: 560 ppm

140-88-5 Ethyl acrylate: 36 ppm

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· PAC-3:

9003-11-6 Polyoxyalkylene diol: 460 mg/m³

25322-69-4 polypropylene glycol: 2,000 mg/m³

101-68-8 diphenylmethane-4,4'-diisocyanate: 55 mg/m³

80-62-6 methyl methacrylate: 570 ppm

97-88-1 n-Butyl methacrylate: 1,300 mg/m³

822-06-0 hexamethylene-1,6-diisocyanate: 3 ppm

108-88-3 toluene: 3700* ppm

140-88-5 Ethyl acrylate: 240 ppm

7 Handling and storage

· Handling:

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

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.

Clean the pipe before decoupling

Use only in well ventilated areas.

Prevent formation of dust.

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

regular check up, maintenance and cleaning of equipment and machines

Personnel who work with Polyisocyanates should have a pre-placement medical examination and periodic examinations thereafter, including a pulmonary function test. Anyone with a medical history of chronic respiratory disease, asthmatic or bronchial attacks, indications of allergic responses, recurrent eczema or sensitization conditions of the skin should not handle or work with Polyisocyanates. Anyone who develops chronic respiratory distress when working with Polyisocyanates should be removed from exposure and examined by a physician. Further exposure must be avoided if a sensitivity to Polyisocyanates or the corresponding monomeric diisocyanates has developed.

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)

Allow access to authorized personnel only.

additional to professional application with multiple and/or significant contact

limit the exposure to 4 hours

have emergency plan in place, to minimize impact

- · 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.

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8 Exposure controls/personal protection

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

PEL (USA) Ceiling limit value: 0.2 mg/m³, 0.02 ppm REL (USA) Long-term value: 0.05 mg/m³, 0.005 ppm

Ceiling limit value: 0.2* mg/m³, 0.02* ppm *10-min

TLV (USA) Long-term value: 0.051 mg/m³, 0.005 ppm

EL (USA) Long-term value: 0.005 ppm Ceiling limit value: 0.01 ppm

S(R)

EV (USA) Long-term value: 0.005 ppm

Ceiling limit value: 0.02 ppm

TWA (USA) Short-term value: 0.2 (10 minutes) mg/m³, 0.02 ppm

Long-term value: 0.05 mg/m³, 0.005 ppm

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80-62-6 methyl methacrylate

PEL (USA) Long-term value: 410 mg/m³, 100 ppm

REL (USA) Long-term value: 410 mg/m³, 100 ppm

TLV (USA) Short-term value: 410 mg/m³, 100 ppm Long-term value: 205 mg/m³, 50 ppm

DSEN

EL (USA) Short-term value: 100 ppm

Long-term value: 50 ppm

S(D)

EV (USA) Short-term value: 100 ppm

Long-term value: 50 ppm

97-88-1 n-Butyl methacrylate

EL (USA) Long-term value: 50 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

· 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.

Breathing equipment:

Wear NIOSH-approved, air-purifying respirator.

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

Combination Filter OV (Organic Vapours) / P95 (Particles and Aerosols) [42 CFR part 84]

At spray application respiratory protection must be worn.

Protection of hands:

Heat resistant gloves

Protective gloves

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Avoid direct contact with the chemical/ the product/ the preparation by organizational measures.

Material of gloves
 Leather gloves

A Nitrile rubber - NBR: AlphaTec® (Lamination strength not applicable)

Eye protection: Safety glasses

· Body protection: Protective work clothing

9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

Form: Solid

Color: According to product specification

Odor: uncharacteristicOdor threshold: Not determined.pH-value: Not applicable.

Change in condition

Melting point/Melting range: Undetermined. Boiling point/Boiling range: Undetermined.

Softening temperature / range: ca. 70 °C (~158 °F) (ring + ball)

Flash Point: Not applicable.
 Flammability (solid, gaseous): Not determined.
 Ignition Temperature: >300 °C (>572 °F)
 Decomposition Temperature: Not determined.

· **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 applicable.

Density at 20 °C (68 °F): ca. 1.1 g/cm³ (~9.18 lbs/gal)

Relative Density
 Vapour Density
 Evaporation Rate
 Not determined.
 Not applicable.
 Not applicable.

· Solubility in / Miscibility with

Water: Insoluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity: At room temperature: not applicable

Dynamic: Not applicable.Kinematic: Not applicable.

• **9.2. Other information** No further relevant information available.

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.

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- · 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
- · 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.

Therefore measures for the elimination of the vapours have to be taken, e.g. by means of an appropriate ventilation/ exhaust device.

11 Toxicological information

- · 11.1. Information on toxicological effects
- · Acute toxicity: Based on available data, the classification criteria are not met.
- LD/LC50 values that are relevant for classification:

28182-81-2 aliphatic polyisocyanate, based on HDI

Oral LD₅₀ >2,500 mg/kg (rat)

weibliche Ratte >2500 mg/kg

Dermal LD₅₀ >2,000 mg/kg (rabbit) (OECD 402)

>2,000 mg/kg (rat) (OECD 402)

Inhalative LC₅₀/4h_(Staeube,Nebel) 0.467 mg/l (rat)

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

Oral LD $_{50}$ >10,000 mg/kg (rat) (84/449/EWG, B.1) Dermal LD $_{50}$ >9,400 mg/kg (rabbit) (OECD 402) Inhalative LC $_{50}$ /4h $_{(Staeube,Nebel)}$ 1.5 mg/l (rat) (Calculation (ATE))

80-62-6 methyl methacrylate

Oral LD₅₀ 7,872 mg/kg (rat)

97-88-1 n-Butyl methacrylate

Oral LD_{50} 22,600 mg/kg (rat) Dermal LD_{50} 11,300 mg/kg (rbt) Inhalative LC_{50} /4 h 4,910 mg/l (rat)

- · Primary irritant effect:
- on the skin: Based on available data, the classification criteria are not met.
- · on the eye: Based on available data, the classification criteria are not met.
- · 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

methyl methacrylate: 3

toluene: 3

Ethyl acrylate: 2B

NTP (National Toxicology Program)

None of the ingredients is listed.

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· OSHA-Ca (Occupational Safety & Health Administration)

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None of the ingredients is listed.

12 Ecological information

- · 12.1. Toxicity
- · Aquatic toxicity:

28182-81-2 aliphatic polyisocyanate, based on HDI

LC₅₀ >100 mg / I / 96h (Zebrafish - Danio rerio)

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

EC₅₀ >100 mg / I / 72h (algae)

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

LC₅₀ >1,000 mg / I / 96h (fish)

EC₅₀ >1,000 mg / I / 24h (water flea - daphnia)

 $IC_{50} > 1,640 \text{ mg} / I / 72h \text{ (algae)}$

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

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.

14 Transport information

· 14.1. UN-Number

· DOT, ADR, IMDG, IATA Void

14.2. UN proper shipping name

· DOT, ADR, IMDG, IATA Void

· 14.3. Transport hazard class(es)

· DOT

· Class Void

No dangerous good

· Class Void

· 14.4. Packing group

· DOT, ADR, IMDG, IATA Void

• 14.5. Environmental hazards: Not applicable. • 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.

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15 Regulatory information

- · 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture See position no 2 Hazards Identification
- · SARA (Superfund Amendments and Reauthorization Act) USA
- · Section 355 (Extremely hazardous substances):

None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):

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

80-62-6 methyl methacrylate

· TSCA (Toxic Substances Control Act) - USA

9003-11-6 Polyoxyalkylene diol: ACTIVE

25322-69-4 polypropylene glycol: ACTIVE

68131-77-1 distillates (petroleum), steam-cracked, polymerized: ACTIVE

140921-24-0 1,6-hexanediyl-bis(2-(2-(1-ethylpentyl)-3-oxazolidinyl)ethyl)carbamate: ACTIVE

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

80-62-6 methyl methacrylate: ACTIVE

97-88-1 n-Butyl methacrylate: ACTIVE

· DSL (Canadian Domestic Substance List) - Canada: (Substances not listed)

All ingredients are listed.

· Hazardous Air Pollutants

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

80-62-6 methyl methacrylate

822-06-0 hexamethylene-1,6-diisocyanate

108-88-3 toluene

140-88-5 Ethyl acrylate

- · Proposition 65 USA/California
- · Chemicals known to cause cancer:

140-88-5 Ethyl acrylate

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity (Prop 65):

108-88-3 toluene

· EPA (Environmental Protection Agency) - USA

101-68-8 diphenylmethane-4,4'-diisocyanate: D, CBD

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80-62-6 methyl methacrylate: E, NL

108-88-3 toluene: II

· TLV (Threshold Limit Value established by ACGIH) - USA:

101-68-8 diphenylmethane-4,4'-diisocyanate: see pos. 8

80-62-6 methyl methacrylate: A4

108-88-3 toluene: A4

140-88-5 Ethyl acrylate: A4

· NIOSH-Ca (National Institute for Occupational Safety and Health) - California/USA

140-88-5 Ethyl acrylate

- · National regulations:
- · Other regulations, limitations and prohibitive regulations: Restricted to professional users.
- · 15.2. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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

H225 Highly flammable liquid and vapor.

H226 Flammable liquid and vapor.

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.

· Department issuing SDS: Safety & Environment

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

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

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

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3 Acute Tox. 4: Acute toxicity – Category 4

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

Eye Irrit. 2A: Serious eye damage/eye irritation - Category 2A

Resp. Sens. 1: Respiratory sensitisation - Category 1

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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

USA