

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

Printing date 09.03.2021

Revision: 03.03.2021

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

- **1.1 Product identifier**
- **Trade name:** HADALAN Velo-Seal, Komp. A
- **Article number:** 41109A
- **UFI:** T113-D0JY-M00E-519C
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture**
Solvent-free, 2-component, high-speed sealing and wear layer, Comp. A
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Sievert Baustoffe GmbH & Co. KG
Mühlenschweg 6
D-49090 Osnabrück
Tel.: +49 2363 5663-0
- **Further information obtainable from:**
Abteilung: Produktsicherheit
Tel.: +49 2363 5663-0
info-hahne@sievert.de
- **1.4 Emergency telephone number:**
Giftnformationszentrum Nord (GIZ Nord) Universität Göttingen,
Tel.: 0551-19240

SECTION 2: Hazards identification

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



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS07

- **Signal word** Warning
- **Hazard-determining components of labelling:**
Aspartic acid, N,N-(methylenedi-4,1-cyclohexanediyl)bis-, tetraethyl ester
Aspartic ester
- **Hazard statements**
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

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- **Precautionary statements**

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P262 Do not get in eyes, on skin, or on clothing.
- P273 Avoid release to the environment.
- P280 Wear protective gloves / eye protection.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

- **2.3 Other hazards**

- **Results of PBT and vPvB assessment**

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

SECTION 3: Composition/information on ingredients

- **3.2 Chemical characterisation: Mixtures**

- **Description:** Mixture of the substances listed below with harmless additions

- **Dangerous components:**

CAS: 136210-30-5 ELINCS: 429-270-1	Aspartic acid, N,N-(methylenedi-4,1-cyclohexanediyl)bis-, tetraethyl ester ⚠ Skin Sens. 1, H317; Aquatic Chronic 3, H412	25-50%
CAS: 152637-10-0	Aspartic ester ⚠ Skin Sens. 1B, H317; Aquatic Chronic 3, H412	2.5-10%
CAS: 623-91-6 EINECS: 210-819-7	diethyl fumarate ⚠ Acute Tox. 4, H302	<2.5%

- **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.

- **After skin contact:** 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.

- **After swallowing:** Drink plenty of water and provide fresh air. 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:**

not applicable, product is not flammable

Carbon dioxide (CO₂), foam, extinguishing powder, with larger fires also water spray.

- **For safety reasons unsuitable extinguishing agents:** Full water jet.

- **5.2 Special hazards arising from the substance or mixture**

Nitrogen oxides (NO_x)

In the event of fire, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide are produced. Do not inhale explosion and fire gases.

- **5.3 Advice for firefighters**

- **Protective equipment:** Wear fully protective suit.

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SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Remove people. Provide adequate ventilation.
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
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**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the unopened original container.
- **Information about storage in one common storage facility:**
Keep away from food and luxury items. Wash hands and use protective skin ointment before breaks and at the end of work. Store work clothes separately. Change contaminated or saturated clothing immediately.
- **Further information about storage conditions:** Protect from frost.
- **Storage class:** (TRGS 510): 10: Flammable liquids
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see item 7.
- **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **DNELs**
Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester Value type Exposure route
Worker (short-term value)
DNEL Inhalative, - local effects No hazard identified
DNEL Inhalative - systemic effects 112 mg / m³ air
Most critical endpoint: repeated dose toxicity orally
DNEL Dermal - local effects Medium risk (no limit value derived) Most critical endpoint: Sensitization (skin)
DNEL Dermal - systemic effects No hazard identified
Worker (long-term value)
DNEL Inhalation - local effects No hazard identified
DNEL Inhalative - systemic effects 28 mg / m³ air
Most critical endpoint: repeated dose toxicity orally
DNEL Dermal - local effects Medium risk (no limit value derived) Most critical endpoint: Sensitization (skin)
DNEL Dermal - systemic effects 4 mg / kg body weight / day Most critical endpoint: repeated dose toxicity orally
Workers
DNEL eye contact - local effects No hazard identified

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General population (short-term value)

DNEL Inhalation - local effects No hazard identified

DNEL Inhalative - systemic effects 4.8 mg / m³ air Most critical endpoint: toxicity after repeated administration orally

DNEL Dermal - local effects Medium risk (no limit value derived) Most critical endpoint: Sensitization (skin)

DNEL Dermal - systemic effects 1.4 mg / kg body weight / day Most critical endpoint: repeated dose toxicity orally

DNEL Oral - systemic effects 1.4 mg / kg body weight / day Most critical endpoint: repeated dose toxicity orally

General population (long-term value)

DNEL Inhalation - local effects No hazard identified

DNEL Inhalative - systemic effects 4.8 mg / m³ air

Most critical endpoint: repeated dose toxicity orally

DNEL Dermal - local effects Medium risk (no limit value derived) Most critical endpoint: Sensitization (skin)

DNEL Dermal - systemic effects 1.4 mg / kg body weight / day Most critical endpoint: repeated dose toxicity orally

DNEL Oral - systemic effects 1.4 mg / kg body weight / day Most critical endpoint: repeated dose toxicity orally

General population

DNEL eye contact - local effects No hazard identified

· PNECs

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

Fresh water 0.00013 mg / l

Sea water 0.000013 mg / l

Water: Temporary release not applicable

Fresh water sediment 0.21 mg / kg dry weight

Marine sediment 0.02 mg / kg dry weight

Sewage treatment plant 31.1 mg / l

Soil 0.1 mg / kg dry weight

Air No hazard identified

Secondary poisoning Does not bioaccumulate

· Additional information: The lists valid during the making were used as basis.

· 8.2 Exposure controls

· Personal protective equipment:

· General protective and hygienic measures:

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

· Respiratory protection:

Respiratory protection required at workplaces that are not adequately ventilated and when spraying

· Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Suitable materials for protective gloves; EN 374:

Multilayer glove - PE / EVAL / PE; Breakthrough time > = 480 min.

Recommendation: Dispose of contaminated gloves.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:** Goggles recommended during refilling**SECTION 9: Physical and chemical properties**· **9.1 Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· Form:	Fluid
· Colour:	According to product specification
· Odour:	Weak, characteristic
· Odour threshold:	Not determined.

· **pH-value:** Not determined.· **Change in condition**

· Melting point/freezing point:	Undetermined.
· Initial boiling point and boiling range:	>200 °C

· **Flash point:** 98 °C· **Flammability (solid, gas):** Not applicable.· **Ignition temperature:** 350 °C· **Decomposition temperature:** Not determined.· **Auto-ignition temperature:** Product is not selfigniting.· **Explosive properties:** Product does not present an explosion hazard.· **Explosion limits:**

· Lower:	Not determined.
· Upper:	Not determined.

· **Vapour pressure at 20 °C:** 0.1 hPa

· Density at 20 °C:	1.2 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.· **Partition coefficient: n-octanol/water:** Not determined.· **Viscosity:**

· Dynamic at 20 °C:	3,500 mPas
· Kinematic:	Not determined.

· **9.2 Other information** No further relevant information available.**SECTION 10: Stability and reactivity**· **10.1 Reactivity** No further relevant information available.· **10.2 Chemical stability**· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.· **10.3 Possibility of hazardous reactions** No dangerous reaction when used as intended.· **10.4 Conditions to avoid** No further relevant information available.· **10.5 Incompatible materials:** No further relevant information available.

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· **10.6 Hazardous decomposition products:**

No dangerous decomposition products if stored and handled properly.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**

Acute toxicity, oral

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

LD50 rat: > 2,000 mg / kg

Method: Directive 67/548 / EEC, Annex V, B.1.

Toxicological studies on a comparable product.

Acute toxicity, dermal

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

LD50 rat: > 2,000 mg / kg

Method: Directive 67/548 / EEC, Annex V, B.3.

Toxicological studies on a comparable product.

Acute toxicity, inhalation

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

LC50 rat, male / female: > 4.224 mg / l, 4 h

Test atmosphere: dust / mist

Method: OECD Test Guideline 403

Toxicological studies on a comparable product.

Assessment: The substance or mixture has no acute inhalation toxicity

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

· **Primary irritant effect:**

· **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 an allergic skin reaction.

· **Additional toxicological information:**

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

· **Carcinogenicity** Based on available data, the classification criteria are not met.

· **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.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **12.2 Persistence and degradability**

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

Biodegradation: 13%, 28 days, i.e. not easily degradable

Method: OECD Test Guideline 301 F

Ecotoxicological studies on a comparable product

Biodegradation: 0%, 28 d, i.e. not potentially degradable

Method: OECD Test Guideline 302 C

Ecotoxicological studies on the product

· **12.3 Bioaccumulative potential**

Aspartic acid, N, N' - (methylenedi-4,1-cyclohexanediyl) bis-, 1,1', 4,4'-tetraethyl ester

Bioconcentration factor (BCF): 1,872

Species: calculated value.

The substance hydrolyzes rapidly in water.

An accumulation in aquatic organisms is not to be expected.

· **12.4 Mobility in soil** No further relevant information available.

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- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

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.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary with the addition of cleaning agents.

SECTION 14: Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · 14.1 UN-Number · ADR, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA · Class | Void |
| <ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA | Void |
| <ul style="list-style-type: none"> · 14.5 Environmental hazards: | Not applicable. |
| <ul style="list-style-type: none"> · 14.6 Special precautions for user | Not applicable. |
| <ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |
| <ul style="list-style-type: none"> · Transport/Additional information: | Not dangerous according to the above specifications. |
| <ul style="list-style-type: none"> · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Keiner der Inhaltsstoffe ist enthalten.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

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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.

· **National regulations:**

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **Other regulations, limitations and prohibitive regulations**

· **VOC (EU)**

The product is subject to RL 2004/42 / EG.

The EU limit value for this product is in the ready-to-use state: 140 g / l (2010). The product contains in ready-to-use condition: max. 10 g / l VOC.

· **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**

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H412 Harmful to aquatic life with long lasting effects.

· **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

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity - oral – Category 4

Skin Sens. 1: Skin sensitisation – Category 1

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

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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

- **1.1 Product identifier**
- **Trade name:** **HADALAN Velo-Seal, Komp.B**
- **Article number:** 41109B
- **UFI:** YC13-E0AJ-U00D-TDMM
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture**
Solvent-free, 2-component, high-speed sealing and wear layer, Comp. B
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Sievert Baustoffe GmbH & Co. KG
Mühlenschweg 6
D-49090 Osnabrück
Tel.: +49 2363 5663-0
- **Further information obtainable from:**
Abteilung: Produktsicherheit
Tel.: +49 2363 5663-0
info-hahne@sievert.de
- **1.4 Emergency telephone number:**
Giftinformationszentrum Nord (GIZ Nord) Universität Göttingen,
Tel.: 0551-19240

SECTION 2: Hazards identification

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



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4	H332 Harmful if inhaled.
Skin Sens. 1	H317 May cause an allergic skin reaction.
STOT SE 3	H335 May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS07 GHS09

- **Signal word** Warning

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Hazard-determining components of labelling:

2-Oxepanone, polymer with 1,6-diisocyanatohexane and 1,6-hexanediol

Hexanedioic acid, polymer with 1,4-butanediol, 1,6-diisocyanatohexane, 2,2-dimethyl-1,3-propanediol and 1,6-hexanediol

Hexamethylene diisocyanate, oligomers

hexamethylene diisocyanate

Hazard statements

H332 Harmful if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves / eye protection.

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

P304+P312 IF INHALED: Call a POISON CENTER/doctor if you feel unwell.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

Additional information:

Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**SECTION 3: Composition/information on ingredients****3.2 Chemical characterisation: Mixtures****Description:** Preparation based on aliphatic polyisocyanates.**Dangerous components:**

CAS: 164250-92-4	2-Oxepanone, polymer with 1,6-diisocyanatohexane and 1,6-hexanediol ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H332; Skin Sens. 1B, H317; STOT SE 3, H335	50-100%
CAS: 29891-05-2	Hexanedioic acid, polymer with 1,4-butanediol, 1,6-diisocyanatohexane, 2,2-dimethyl-1,3-propanediol and 1,6-hexanediol ⚠ Acute Tox. 4, H332; Skin Sens. 1B, H317; STOT SE 3, H335; Aquatic Chronic 3, H412	10-25%
CAS: 28182-81-2	Hexamethylene diisocyanate, oligomers ⚠ Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	2.5-10%
CAS: 822-06-0 EINECS: 212-485-8	hexamethylene diisocyanate ⚠ Acute Tox. 3, H311; Acute Tox. 1, H330; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	<0.25%

Additional information:

For the wording of the listed hazard phrases refer to section 16.

Hexamethylene-1,6-diisocyanate homopolymer

EC no.: 500-060-2

REACH registration number: 01-2119485796-17-0000, 01-2119485796-17-0001

CAS No.: 28182-81-2

Hexamethylene-1,6-diisocyanate

INDEX no.: 615-011-00-1

REACH registration number: 01-2119457571-37-0000

CAS No.: 822-06-0

Specific limit concentrations (GHS):

Resp. Sens. 1 H334> = 0.5%

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Skin Sens. 1 H317> = 0.5%

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SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **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:** 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.
- **After swallowing:** Drink plenty of water and provide fresh air. 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:**
Use fire extinguishing methods suitable to surrounding conditions.
Foam, carbon dioxide, dry chemical, water mist, spray jet.
- **For safety reasons unsuitable extinguishing agents:** Full jet of water.
- **5.2 Special hazards arising from the substance or mixture**
In case of fire: Formation of carbon monoxide, nitrogen oxides and isocyanate vapors and traces of hydrogen cyanide possible.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Mount respiratory protective device.
Do not inhale explosion and fire gases.
Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected people away.
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

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Prevent formation of aerosols.

Avoid contact with skin and eyes.

· **Information about fire - and explosion protection:** No special measures required.· **7.2 Conditions for safe storage, including any incompatibilities**· **Storage:**· **Requirements to be met by storerooms and receptacles:** Store in a cool and dry place.· **Information about storage in one common storage facility:** Keep away from food.· **Further information about storage conditions:**

Keep container tightly sealed.

Close opened containers carefully to prevent reaction with humidity.

· **Storage class:** Storage class (TRGS 510): 10: Flammable liquids· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**· **Additional information about design of technical facilities:** No further data; see item 7.· **Ingredients with limit values that require monitoring at the workplace:****822-06-0 hexamethylene diisocyanate (<0.25%)**WEL Short-term value: 0.07 mg/m³Long-term value: 0.02 mg/m³

Sen; as -NCO

· **DNELs**

Hexamethylene diisocyanate, oligomerization product (uretdione type):

Workers inhalation Long-term local effects 0.35 mg / m³ Most critical endpoint: irritation (respiratory tract)Workers Inhalation Acute - local effects 0.7 mg / m³ Most critical endpoint: irritation (respiratory tract)

Workers

Dermal long-term local effects No quantitative risk assessment possible. Most critical endpoint: Sensitization (skin) worker Dermal acute - local effects No quantitative risk assessment possible. Most critical endpoint: sensitization (skin)

· **PNECs**

Hexamethylene diisocyanate, oligomerization product (uretdione type):

Fresh water > 0.05 mg / l

Fresh water sediment > 1.33 mg / kg dry weight

Sea water > 0.005 mg / l

Marine sediment > 0.133 mg / kg dry weight

Wastewater treatment plant 55.6 mg / l

Soil > 0.066 mg / kg dry weight

Oral Not relevant

· **Additional information:** The lists valid during the making were used as basis.· **8.2 Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

· **Respiratory protection:** Not required with good ventilation.· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Suitable materials for protective gloves; EN 374:

Butyl rubber - IIR: thickness > = 0.5mm; Breakthrough time > = 480min.

Fluororubber - FKM: thickness > = 0.4mm; Breakthrough time > = 480min.

Multilayer glove - PE / EVAL / PE; Breakthrough time > = 480 min.

Recommendation: Dispose of contaminated gloves.

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Goggles recommended during refilling

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Fluid
Colour:	Colourless
Odour:	Weak, characteristic
Odour threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	>300 °C

· **Flash point:** 184 °C

· **Flammability (solid, gas):** Not applicable.

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Product is not selfigniting.

· **Explosive properties:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapour pressure at 20 °C:** 16 hPa

· **Density at 20 °C:** 1.12 g/cm³

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with water:**

reagiert mit Wasser

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

· **Viscosity:**

Dynamic at 20 °C:	3500 mPas
Kinematic:	Not determined.

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

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.

· **10.2 Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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10.3 Possibility of hazardous reactions

Exothermic reactions with amines and alcohols. With water CO₂ development in closed containers, pressure build-up, risk of bursting.

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.**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

Acute toxicity, oral:

Hexamethylene 1,6-diisocyanate homopolymer

LD₅₀ rat: > 5,000 mg / kg

Acute toxicity, inhalation:

Hexamethylene-1,6-diisocyanate homopolymer:

LC₅₀ rat, male: 543 mg / m³, 4 h

Method: OECD Test Guideline 403

LC₅₀ rat, female: 390 mg / m³, 4 h

Method: OECD Test Guideline 403

The fabric has been tested in a form (i.e. special particle size distribution) that is different from the forms as marketed and likely to be used. On the basis of the "split-entry" concept and the available data on particle size during the end use of the substance, a modified classification of acute inhalation toxicity is justified.

Subacute, subchronic and long-term toxicity:

Hexamethylene 1,6-diisocyanate homopolymer

Application Route: Subacute Inhalation Toxicity, Rat

Method: OECD Test Guideline 412

Test concentrations - 4.3; 14.7 and 89.8 mg aerosol / m³

Exposure time - 3 weeks

(6 hours a day, 5 days a week)

4.3 mg / m³ harmlessly tolerated concentration (NOEL),

14.7 mg / m³ increase in lung weight,

89.8 mg / m³ inflammatory changes in the respiratory tract.

There were no indications of other organ damage apart from the respiratory organs.

Genotoxicity in vitro:

Hexamethylene 1,6-diisocyanate homopolymer

Test type: Salmonella / microsome test (Ames test)

Result: No evidence of a mutagenic effect.

Method: OECD Test Guideline 471

Test type: Chromosome aberration test in vitro

Result: negative

Method: OECD Test Guideline 473

Test type: point mutation in mammalian cells (HPRT test)

Result: negative

Method: OECD Test Guideline 476

More information:

Hexamethylene 1,6-diisocyanate homopolymer

Special properties / effects: In case of overexposure - especially when spraying of isocyanate-containing paints without protective measures - there is a risk of Concentration-dependent irritation to eyes, nose, throat and airways. Delayed Appearance of symptoms and development of hypersensitivity (breathing difficulties, Cough, asthma) are possible. In hypersensitive people, reactions can already occur at very low isocyanate concentrations can be triggered, even below the MAK value.

Long-term contact with the skin can cause tanning and irritation effects.

Animal experiments and other studies indicate that skin contact with

Diisocyanates play a role in isocyanate sensitization and respiratory reactions could.

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- **Acute toxicity**
Harmful if inhaled.
- **Primary irritant effect:**
- **Skin corrosion/irritation** weakly irritating
- **Serious eye damage/irritation** weakly irritating
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **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.

SECTION 12: Ecological information

· 12.1 Toxicity

toxicity

Acute fish toxicity:

Hexamethylene 1,6-diisocyanate homopolymer

LC50> 100 mg / l

Species: *Danio rerio* (zebrafish)

Exposure time: 96 h

Method: OECD test guideline 203

Sample preparation due to the reactivity of the substance with water:

Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.

Acute daphnia toxicity:

Hexamethylene 1,6-diisocyanate homopolymer

EC50> 100 mg / l

Species: *Daphnia magna* (large water flea)

Exposure time: 48 h

Method: OECD Test Guideline 202

Sample preparation due to the reactivity of the substance with water:

Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.

Acute algae toxicity:

Hexamethylene 1,6-diisocyanate homopolymer

IC50> 100 mg / l

Tested at: *Scenedesmus subspicatus* Test duration: 72 h

Method: OECD Test Guideline 201

Sample preparation due to the reactivity of the substance with water:

Ultra turrax: 60 sec. 8000 rpm; 24h magnetic stirrer; Filtration.

Acute bacterial toxicity:

Hexamethylene 1,6-diisocyanate homopolymer

EC50> 1,000 mg / l

Tested on: activated sludge Test duration: 3 h

Method: OECD Test Guideline 209

- **Aquatic toxicity:** No further relevant information available.

- **12.2 Persistence and degradability** No further relevant information available.

· 12.3 Bioaccumulative potential

Hexamethylene 1,6-diisocyanate homopolymer

Biodegradation: 0%, 28 days, i.e. not easily degradable

Method: OECD test guideline 301 C

Further information on ecotoxicology:

The resin reacts with water at the interface with the formation of carbon dioxide to form a solid, high-melting and insoluble reaction product (polyurea). This reaction is strongly promoted by surface-active substances (e.g. liquid soaps) or water-soluble solvents. According to previous experience, polyurea is inert and not

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degradable.

· **12.4 Mobility in soil** No further relevant information available.· **Ecotoxicological effects:**· **Remark:** Toxic for fish· **Additional ecological information:**· **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

WGK: 1

· **12.5 Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **12.6 Other adverse effects** No further relevant information available.

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 hazardous substances
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· **Uncleaned packaging:**· **Recommendation:** Disposal must be made according to official regulations.· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· **14.1 UN-Number**· **ADR, IMDG, IATA**

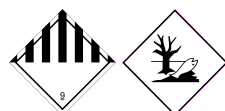
UN3082

· **14.2 UN proper shipping name**· **ADR**

3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAMETHYLENE DIISOCYANATE, 2-Oxepanone, polymer with 1,6-diisocyanatohexane and 1,6-hexanediol)

· **IMDG, IATA**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAMETHYLENE DIISOCYANATE, 2-Oxepanone, polymer with 1,6-diisocyanatohexane and 1,6-hexanediol)

· **14.3 Transport hazard class(es)**· **ADR, IATA**· **Class**

9 Miscellaneous dangerous substances and articles.

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· Label	9
· IMDG	
	
· Class	9 Miscellaneous dangerous substances and articles.
· Label	9
· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	Product contains environmentally hazardous substances: 2-Oxepanone, polymer with 1,6-diisocyanatohexane and 1,6-hexanediol
· Special marking (ADR):	Symbol (fish and tree)
· Special marking (IATA):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Miscellaneous dangerous substances and articles.
· Hazard identification number (Kemler code):	90
· EMS Number:	F-A,S-F
· Stowage Category	A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	No dangerous good in the sense of the transport regulations.
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	-
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAMETHYLENE DIISOCYANATE, 2-OXEPANONE, POLYMER WITH 1,6-DIISOCYANATOHXANE AND 1,6-HEXANEDIOL), 9, III

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **Seveso category E2** Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

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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.

· **National regulations:**

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **Other regulations, limitations and prohibitive regulations**

· **VOC (EU)**

The product is subject to RL 2004/42 / EG.

The EU limit value for this product is in the ready-to-use state: 140 g / l (2010). The product contains in ready-to-use condition: max. 10 g / l VOC.

· **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**

H302 Harmful if swallowed.

H311 Toxic in contact with skin.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H330 Fatal if inhaled.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

· **Recommended restriction of use**

Vom Europäischen Ausschuss der Verbände der Lack-, Druckfarben und Künstlerfarbenfabrikanten - CEPE - wird für isocyanathaltige Anstrichstoffe folgende Information gegeben: Verarbeitungsfertige Anstrichstoffe, die Isocyanate enthalten, können Reizwirkungen auf die Schleimhäute - besonders auf die Atmungsorgane - ausüben und Überempfindlichkeitsreaktionen auslösen. Beim Einatmen von Dämpfen oder Spritznebel besteht Gefahr einer Sensibilisierung. Beim Umgang mit isocyanathaltigen Anstrichstoffen sind alle Maßnahmen für lösemittelhaltige Anstrichstoffe sorgfältig zu beachten. Insbesondere dürfen Spritznebel und Dämpfe nicht eingeatmet werden. Allergiker, Asthmatiker sowie Personen, die zu Erkrankungen der Atemwege neigen, dürfen für Arbeiten mit isocyanathaltigen Anstrichstoffen nicht herangezogen werden.

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

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

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 3: Acute toxicity - dermal - Category 3

Acute Tox. 1: Acute toxicity - inhalation - Category 1

Acute Tox. 4: Acute toxicity - inhalation - Category 4

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*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**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3**Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2**Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3*

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