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

· **1.1 Product identifier**

· **Trade name: HADALAN Topcoat-Flex**

· **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**
1-component, elastic PU coating

UFI: 0473-A0K5-C00J-48NX

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
Sievert Baustoffe SE & Co. KG
Mühleneschweg 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**

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.
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 GB CLP regulation.

· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labelling:**
Hexamethylene diisocyanate, oligomers
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

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hexamethylene diisocyanate

· **Hazard statements**
H332 Harmful if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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: 28182-81-2	Hexamethylene diisocyanate, oligomers Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	25-50%
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	10-25%
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	2.5-10%
CAS: 14035-94-0	pentanedioic acid, 2-methyl-, 1,5-dimethyl ester	10-25%
CAS: 77-58-7 EINECS: 201-039-8	dibutyltin dilaurate Acute Tox. 3, H301; Muta. 2, H341; Repr. 1B, H360FD; STOT RE 1, H372	<0.25%
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	<0.1%

· **Additional information:**
For the wording of the listed hazard phrases refer to section 16.
GISCODE: PU50
The wording of the listed risk phrases can be found in 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

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Specific Limit Concentrations (GHS):
Resp. Sens. 1 H334 ³ 0.5%
Skin Sens. 1 H317 ³ 0.5%

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. Then consult a doctor.
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:**
Adapt fire extinguishing measures to the environment.
Foam, carbon dioxide, dry chemical, water fog, spray jet.
· **For safety reasons unsuitable extinguishing agents:** Full jet of water.
· **5.2 Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
In case of fire: release of carbon monoxide, nitrogen oxides and isocyanate vapors and traces of hydrogen cyanide possible.
· **5.3 Advice for firefighters**
· **Protective equipment:**
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 gear. Keep unprotected people away.
· **6.2 Environmental precautions:** 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 adequate ventilation at the workplace.
Avoid contact with skin and eyes.
· **Information about fire - and explosion protection:** Keep respiratory protective device available.

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· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store cool and dry.
· **Information about storage in one common storage facility:** Keep away from food.
· **Further information about storage conditions:**
Seal opened containers carefully to prevent reaction with atmospheric moisture.
· **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:**	
77-58-7 dibutyltin dilaurate (<0.25%)	
WEL	Short-term value: 0.2 mg/m³ Long-term value: 0.1 mg/m³ as Sn; Sk
822-06-0 hexamethylene diisocyanate (<0.1%)	
WEL	Short-term value: 0.07 mg/m³ Long-term value: 0.02 mg/m³ Sen; as -NCO

· **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:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Not necessary 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: butyl rubber, nitrile latex, PVC
· **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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Goggles recommended during refilling

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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:	215.6 °C
· **Flash point:**	98 °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:**	Not determined.
· **Density at 20 °C:**	1.05 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Product reacts with water
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Solids content:	80.0 %
· **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**
Exothermic reactions with amines and alcohols. CO2 development with water - pressure build-up in closed containers, 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.

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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, inhalative:
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 substance was tested in a form (i.e. specific particle size distribution) different from the forms such as they are marketed and likely to be used. Based on split entry concept and the available particle size data during the end-use of the substance is one modified classification of acute inhalation toxicity 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 concentration tolerated without damage (NOEL),
14.7 mg/m³ lung weight increase,
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: Chromosomal 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 irritant effect on the eyes, nose, throat and airways. delayed Occurrence of symptoms and development of hypersensitivity (difficulty breathing, cough, asthma) are possible. In the case of hypersensitive persons, reactions can occur as early as very low isocyanate concentrations, even below the MAK value.
Longer contact with the skin may cause tanning and irritation.
Animal experiments and other studies indicate that skin contact with Diisocyanates play a role in isocyanate sensitization and respiratory reactions could.

· **Acute toxicity**
Harmful if inhaled.

· **LD/LC50 values relevant for classification:**		
77-58-7 dibutyltin dilaurate		
Oral	LD50	175 mg/kg (rat)

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822-06-0 hexamethylene diisocyanate		
Oral	LD50	746 mg/kg (rat)
Dermal	LD50	599 mg/kg (rab)

· **Primary irritant effect:**
· **Skin corrosion/irritation** slightly irritating
· **Serious eye damage/irritation** slightly irritating
· **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
· **Additional toxicological information:**
· **CMR effects (carcinogenity, 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**
Acute fish toxicity:
Hexamethylene-1,6-diisocyanate homopolymer
LC50 > 100 mg/l
Species: Danio rerio (zebrafish)
Duration of exposure: 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 (Big water flea)
Duration of exposure: 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 on: 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 d, i.e. not readily 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

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and insoluble reaction product (polyurea). This reaction is greatly promoted by surface-active substances (e.g. liquid soap) or water-soluble solvents. Based on previous experience, polyurea is inert and non-degradable

· **12.4 Mobility in soil** No further relevant information available.
· **Other information:** Harmful to aquatic organisms.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
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.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR**	Void
· **IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **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 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	No dangerous goods.
· **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** None of the ingredients is listed.

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· **National regulations:**

· **Waterhazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **Other regulations, limitations and prohibitive regulations**
EU limit value for the VOC content of this product in the ready-to-use state is: Cat. A/i 500 g/l (2010). When ready for use, the product contains max. 230 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**
H301 Toxic if swallowed.
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.
H341 Suspected of causing genetic defects.
H360FD May damage fertility. May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

· **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)
ICAO: International Civil Aviation Organisation
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
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)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 1: Acute toxicity – Category 1
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
Skin Sens. 1B: Skin sensitisation – Category 1B
Muta. 2: Germ cell mutagenicity – Category 2
Repr. 1B: Reproductive toxicity – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
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