

SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Commission Regulation (EU) 2020/878

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

1.1 Product identifier

Product identifier : S2039EV
Product name : SYSTEM 20 STANDARD EV HARDENER
Product type : Liquid.
Other means of identification : S2039EV/1; S2039EV/2.5; S2039EV/S
Date of issue/ Date of revision : 13 May 2025
Version : 1
Date of previous issue : No previous validation

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Coating component.
Uses advised against : Not for sale to or use by consumers.

1.3 Details of the supplier of the safety data sheet

U-POL Limited
Denington Road
Wellingborough, Northamptonshire, NN8 2QH
+44 (0) 1933 230310
technicalsupport@u-pol.com
e-mail address of person responsible for this SDS : sds-competence@axalta.com

National contact

U-POL Netherlands
B.V. Hoogoorddreef 15
Amsterdam, Netherlands 1101BA
+31 20 240 2216
technicalsupport@u-pol.com

1.4 Emergency telephone number

National advisory body/Poison Center

Telephone number : 010-456 6700 (9:00-17:00);112

Supplier

+(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226

Acute Tox. 4, H332

Skin Sens. 1, H317

STOT SE 3, H335

STOT SE 3, H336

Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Contains : Hexamethylene diisocyanate, oligomers
2-methoxy-1-methylethyl acetate
Hydrocarbons, C9, aromatics
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers
n-butyl acetate
hexamethylene-di-isocyanate

Hazard statements : H226 - Flammable liquid and vapor.
H317 - May cause an allergic skin reaction.
H332 - Harmful if inhaled.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : P280 - Wear protective gloves.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 - Avoid release to the environment.
P261 - Avoid breathing vapor.

Response : P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P302 + P352 - IF ON SKIN: Wash with plenty of water.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : EUH204 - Contains isocyanates. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : **As from August 24 2023 adequate training is required before industrial or professional use.**

SECTION 2: Hazards identification

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Hexamethylene diisocyanate, oligomers	REACH #: 01-2119485796-17 EC: 931-274-8 CAS: 28182-81-2	≥50 - ≤75	Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335	ATE [Inhalation (vapours)] = 11 mg/l	[1]
2-methoxy-1-methylethyl acetate	REACH #: 01-2119475791-29 EC: 203-603-9 CAS: 108-65-6	≥10 - ≤25	Flam. Liq. 3, H226 STOT SE 3, H336	-	[1] [2]
Hydrocarbons, C9, aromatics	REACH #: 01-2119455851-35 EC: 918-668-5	≤10	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	-	[1]
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	REACH #: 01-2119488734-24 EC: 931-312-3 CAS: 53880-05-0	≤10	Skin Sens. 1B, H317 STOT SE 3, H335	-	[1]
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4	≤3	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	-	[1] [2]
Reaction mass of ethylbenzene and xylene	REACH #: 01-2119539452-40 EC: 905-588-0	≤2	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l	[1]
hexamethylene-di-isocyanate	REACH #: 01-2119457571-37 EC: 212-485-8	<0.1	Acute Tox. 4, H302 Acute Tox. 1, H330 Skin Irrit. 2, H315	ATE [Oral] = 500 mg/kg ATE [Inhalation	[1] [2]

SECTION 3: Composition/information on ingredients

	CAS: 822-06-0 Index: 615-011-00-1		Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335 See Section 16 for the full text of the H statements declared above.	(vapours)] = 0.124 mg/l Resp. Sens. 1, H334: C ≥ 0.5% Skin Sens. 1, H317: C ≥ 0.5%	
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There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

[1] Substance classified with a physical, health or environmental hazard

[2] Substance with a workplace exposure limit

SECTION 4: First aid measures

4.1 Description of first aid measures

General	: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.
Eye contact	: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
Inhalation	: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
Skin contact	: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.
Ingestion	: If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition,

SECTION 4: First aid measures

wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Hexamethylene diisocyanate, oligomers, 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers, hexamethylene-di-isocyanate. May produce an allergic reaction.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Recommended: alcohol-resistant foam, CO₂, powders, water spray or mist.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
- Special protective equipment for fire-fighters** : Appropriate breathing apparatus may be required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Exclude sources of ignition and ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

SECTION 6: Accidental release measures

- 6.3 Methods and materials for containment and cleaning up** : Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

- 7.1 Precautions for safe handling** : Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing and floors should be of the conducting type. Care should be taken when re-opening partly-used containers. Precautions should be taken to minimize exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurization. Keep away from heat, sparks and flame. No sparking tools should be used. Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Put on appropriate personal protective equipment (see Section 8). Never use pressure to empty. Container is not a pressure vessel. Always keep in containers made from the same material as the original one. Comply with the health and safety at work laws. Do not allow to enter drains or watercourses.
- Information on fire and explosion protection**
Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air.

7.2 Conditions for safe storage, including any incompatibilities

SECTION 7: Handling and storage

Store in accordance with local regulations.

Notes on joint storage

Keep away from: oxidizing agents, strong alkalis, strong acids.

Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight.

Keep container tightly closed.

Keep away from sources of ignition. No smoking. Prevent unauthorized access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c	5000 tonnes	50000 tonnes

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Identifiers	Exposure limit values
2-methoxy-1-methylethyl acetate	REACH #: 01-2119475791-29 EC: 203-603-9 CAS: 108-65-6	Work environment authority Regulation 2018:1 (Sweden, 11/2022) Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 275 mg/m ³ . STEL 15 minutes: 100 ppm. STEL 15 minutes: 550 mg/m ³ . EU OEL (Europe, 1/2022) Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 275 mg/m ³ . STEL 15 minutes: 100 ppm. STEL 15 minutes: 550 mg/m ³ .
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4	Work environment authority Regulation 2018:1 (Sweden, 11/2022) [butyl acetate] TWA 8 hours: 50 ppm. TWA 8 hours: 241 mg/m ³ . STEL 15 minutes: 150 ppm. STEL 15 minutes: 723 mg/m ³ . EU OEL (Europe, 1/2022) STEL 15 minutes: 150 ppm. STEL 15 minutes: 723 mg/m ³ . TWA 8 hours: 241 mg/m ³ . TWA 8 hours: 50 ppm.
hexamethylene-di-isocyanate	REACH #: 01-2119457571-37	Work environment authority Regulation 2018:1 (Sweden, 11/2022) Sensitizer.

SECTION 8: Exposure controls/personal protection

	EC: 212-485-8 CAS: 822-06-0 Index: 615-011-00-1	TWA 8 hours: 0.002 ppm. TWA 8 hours: 0.02 mg/m³. STEL 15 minutes: 0.005 ppm. STEL 15 minutes: 0.03 mg/m³. EU OEL (Europe, 3/2024) [diisocyanates] Absorbed through skin , Skin sensitizer , Inhalation sensitizer. STEL 15 minutes: 20 µg/m³ (as isocyanates functional groups of the diisocyanate compounds.). TWA 8 hours: 10 µg/m³ (as isocyanates functional groups of the diisocyanate compounds.).
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Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following:
European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Result
Hexamethylene diisocyanate, oligomers	DNEL - Workers - Long term - Inhalation 0.5 mg/m³ <u>Effects</u> : Local DNEL - Workers - Short term - Inhalation 1 mg/m³ <u>Effects</u> : Local
2-methoxy-1-methylethyl acetate	DNEL - Workers - Long term - Dermal 796 mg/kg bw/day <u>Effects</u> : Systemic DNEL - Workers - Long term - Inhalation 275 mg/m³ <u>Effects</u> : Systemic DNEL - Workers - Short term - Inhalation 550 mg/m³ <u>Effects</u> : Local
Hydrocarbons, C9, aromatics	DNEL - Workers - Long term - Inhalation 151 mg/m³ <u>Effects</u> : Systemic DNEL - Workers - Long term - Dermal 12.5 mg/kg bw/day <u>Effects</u> : Systemic
3-Isocyanatomethyl- 3,5,5-trimethylcyclohexyl isocyanate,	DNEL - Workers - Long term - Inhalation 0.29 mg/m³

SECTION 8: Exposure controls/personal protection

oligomers	<div>Effects: Local</div> <div>DNEL - Workers - Short term - Inhalation 0.58 mg/m³ Effects: Local</div>
n-butyl acetate	<div>DNEL - Workers - Short term - Dermal 11 mg/kg bw/day Effects: Systemic</div> <div>DNEL - General population - Long term - Oral 2 mg/kg bw/day Effects: Systemic</div> <div>DNEL - General population - Short term - Oral 2 mg/kg bw/day Effects: Systemic</div> <div>DNEL - General population - Long term - Dermal 3.4 mg/kg bw/day Effects: Systemic</div> <div>DNEL - General population - Short term - Dermal 6 mg/kg bw/day Effects: Systemic</div> <div>DNEL - Workers - Long term - Dermal 11 mg/kg bw/day Effects: Systemic</div> <div>DNEL - Workers - Short term - Dermal 11 mg/kg bw/day Effects: Systemic</div> <div>DNEL - General population - Long term - Inhalation 12 mg/m³ Effects: Systemic</div> <div>DNEL - General population - Long term - Inhalation 35.7 mg/m³ Effects: Local</div> <div>DNEL - Workers - Long term - Inhalation 300 mg/m³ Effects: Systemic</div> <div>DNEL - General population - Short term - Inhalation 300 mg/m³ Effects: Local</div> <div>DNEL - General population - Short term - Inhalation 300 mg/m³ Effects: Systemic</div> <div>DNEL - Workers - Long term - Inhalation 300 mg/m³ Effects: Local</div>

SECTION 8: Exposure controls/personal protection

	<div><div>DNEL - Workers - Short term - Inhalation</div><div>600 mg/m³</div><div>Effects: Local</div></div>
	<div><div>DNEL - Workers - Short term - Inhalation</div><div>600 mg/m³</div><div>Effects: Systemic</div></div>
Reaction mass of ethylbenzene and xylene	<div><div>DNEL - Workers - Long term - Dermal</div><div>212 mg/kg bw/day</div><div>Effects: Systemic</div></div>
	<div><div>DNEL - Workers - Long term - Inhalation</div><div>221 mg/m³</div><div>Effects: Systemic</div></div>
hexamethylene-di-isocyanate	<div><div>DNEL - Workers - Long term - Inhalation</div><div>0.035 mg/m³</div><div>Effects: Local</div></div>
	<div><div>DNEL - Workers - Short term - Inhalation</div><div>0.07 mg/m³</div><div>Effects: Local</div></div>
<div><div>PNECs</div><div><div>Product/ingredient name</div><div>Hexamethylene diisocyanate, oligomers</div></div></div>	
	<div><div>Result</div><div><div>Marine water</div><div>12.7 µg/l</div></div><div><div>Fresh water</div><div>1270 µg/l</div></div><div><div>Sediment</div><div>266700 mg/kg</div></div><div><div>Soil</div><div>53200 mg/kg</div></div><div><div>Sewage Treatment Plant</div><div>38.28 mg/kg</div></div></div>
2-methoxy-1-methylethyl acetate	<div><div><div>Fresh water</div><div>0.635 mg/l</div></div><div><div>Marine water</div><div>0.0635 mg/l</div></div><div><div>Sewage Treatment Plant</div><div>100 mg/l</div></div><div><div>Fresh water sediment</div><div>3.29 mg/kg dwt</div></div><div><div>Marine water sediment</div><div>0.329 mg/kg dwt</div></div><div><div>Soil</div></div></div>

SECTION 8: Exposure controls/personal protection

n-butyl acetate	0.29 mg/kg dwt
	Soil 0.09 mg/kg
	Fresh water 0.18 mg/l
	Sewage Treatment Plant 35.6 mg/l
	Marine water 0.018 mg/l
	Fresh water sediment 0.981 mg/kg
	Marine water sediment 0.098 mg/kg
Reaction mass of ethylbenzene and xylene	Fresh water 0.327 mg/l
	Marine water 0.327 mg/l
	Sewage Treatment Plant 6.58 mg/l
	Fresh water sediment 12.46 mg/kg dwt
	Marine water sediment 12.46 mg/kg dwt
	Soil 2.31 mg/kg
	Sewage Treatment Plant 8.42 mg/l

8.2 Exposure controls

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

Appropriate engineering controls : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapors below the OEL, suitable respiratory protection must be worn. (See Occupational exposure controls.)

Individual protection measures

SECTION 8: Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Use safety eyewear designed to protect against splash of liquids.

Skin protection

Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.

The breakthrough time must be greater than the end use time of the product.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

Always ensure that gloves are free from defects and that they are stored and used correctly.

The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Gloves : Duration / breakthrough time: <1 hour,
Glove material: NBR, nitrile rubber, material thickness as splash protection: at least 0.2 mm, (EN374)
Glove material: NBR, nitrile rubber, material thickness for short-term contact: at least 0.5 mm, (EN374)
The recommendation for the type or types of glove to use when handling this product is based on information from the following source:
Expert judgment
The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

Body protection : Personnel should wear antistatic clothing made of natural fibers or of high-temperature-resistant synthetic fibers.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : By spraying: air-fed respirator.
By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask.

Environmental exposure controls : Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.
Color : Clear.
Odor : Not available.
Odor threshold : Not available.

SECTION 9: Physical and chemical properties

Melting point/freezing point	: Technically not possible to measure
Boiling point or initial boiling point and boiling range	: 104.4 to 200°C
Flammability	: Not available.
Lower and upper explosion limit	: Lower: 0.7% Upper: 7%
Lower and upper explosive (flammable) limits	: Not available.
Flash point	: Closed cup: 50°C
Auto-ignition temperature	: 280°C
Decomposition temperature	: Not applicable.
pH	: Not applicable.
Justification	: Not available.
Viscosity	: Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available.
Vapor pressure	0.13 kPa (1 mm Hg)
Density	: 1.104 g/cm ³
Weight volatiles	: 21.7 % (w/w)
VOC content	: 21.7 % (w/w) (2010/75/EU)

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Further information Not available.

9.2.2 Other safety characteristics

Miscible with water : Yes.

Further information Not available.

room temperature (=20°C)

SECTION 10: Stability and reactivity

10.1 Reactivity	: The product reacts slowly with water, resulting in the production of carbon dioxide.
10.2 Chemical stability	: Stable under recommended storage and handling conditions (see Section 7).
10.3 Possibility of hazardous reactions	: In closed containers, pressure buildup could result in distortion, expansion and, in extreme cases, bursting of the container.
10.4 Conditions to avoid	: In a fire, hazardous decomposition products may be produced.
10.5 Incompatible materials	: Keep away from: oxidizing agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products

: Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

SECTION 11: Toxicological information

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

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Hexamethylene diisocyanate, oligomers, 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers, hexamethylene-di-isocyanate. May produce an allergic reaction.

Acute toxicity	
Product/ingredient name	Result
Hexamethylene diisocyanate, oligomers	Rat - Inhalation - LC50 Dusts and mists 18500 mg/m³ [1 hours]
Hydrocarbons, C9, aromatics	Rat - Female - Oral - LD50 3492 mg/kg OECD 401 Rabbit - Dermal - LD50 >3160 mg/kg OECD 402
n-butyl acetate	Rat - Oral - LD50 10768 mg/kg <u>Toxic effects:</u> Behavioral - Somnolence (general depressed activity) Lung, Thorax, or Respiration - Other changes Liver - Other changes Rabbit - Dermal - LD50 >17600 mg/kg Rat - Inhalation - LC50 Vapor 21.1 mg/l [4 hours]

SECTION 11: Toxicological information

Reaction mass of ethylbenzene and xylene

Rat - Oral - LD50

3523 to 4000 mg/kg

Rabbit - Dermal - LD50

121236 mg/kg

Rat - Inhalation - LC50 Vapor

6350 to 6700 ppm [4 hours]

hexamethylene-di-isocyanate

Rat - Inhalation - LC50 Vapor

124 mg/m³ [4 hours]

Rat - Inhalation - LC50 Dusts and mists

462 mg/m³ [4 hours]

Toxic effects: Lung, Thorax, or Respiration - Changes in lung weight Metabolism (intermediary) - Other proteins

Conclusion/Summary [Product] : Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
mixture	N/A	81481.5	N/A	15.0	2.1
Hexamethylene diisocyanate, oligomers	N/A	N/A	N/A	11	1.5
Hydrocarbons, C9, aromatics	3492	N/A	N/A	N/A	N/A
n-butyl acetate	10768	N/A	N/A	21.1	N/A
Reaction mass of ethylbenzene and xylene	N/A	1100	N/A	11	N/A
hexamethylene-di-isocyanate	500	N/A	N/A	0.124	0.462

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Product/ingredient name	Result
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SECTION 11: Toxicological information

Hexamethylene diisocyanate, oligomers

Mouse - skin

OECD [Skin Sensitization: Local Lymph Node Assay]

Result: Sensitizing

Skin

Conclusion/Summary [Product] : Not available.

Respiratory

Conclusion/Summary [Product] : Not available.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name

Hexamethylene diisocyanate, oligomers

2-methoxy-1-methylethyl acetate

Hydrocarbons, C9, aromatics

3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl
isocyanate, oligomers

n-butyl acetate

Reaction mass of ethylbenzene and xylene

hexamethylene-di-isocyanate

Result

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H336 (Narcotic effects)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H336 (Narcotic effects)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H336 (Narcotic effects)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H335 (Respiratory tract irritation)

Specific target organ toxicity (repeated exposure)

Product/ingredient name

Reaction mass of ethylbenzene and xylene

Result

STOT RE 2, H373

Aspiration hazard

Product/ingredient name

Hydrocarbons, C9, aromatics

Reaction mass of ethylbenzene and xylene

Result

ASPIRATION HAZARD - Category 1

ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Not available.

Potential acute health effects

SECTION 11: Toxicological information

Eye contact	: No known significant effects or critical hazards.
Inhalation	: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
Skin contact	: May cause an allergic skin reaction.
Ingestion	: Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: No specific data.
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	: Adverse symptoms may include the following: irritation redness
Ingestion	: No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] : Not available.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

There are no data available on the mixture itself.
Do not allow to enter drains or watercourses.

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

Product/ingredient name

Hexamethylene diisocyanate, oligomers

Result**Acute - LC50**

Fish - *danio rerio*
>100 mg/l [96 hours]

Acute - EC50

Daphnia - *Daphnia magna*
>100 mg/l [48 hours]

Hydrocarbons, C9, aromatics

Acute - LC50

OECD 203
Fish - Trout - *Oncorhynchus mykiss*
9.2 mg/l [96 hours]

n-butyl acetate

Acute - LC50 - Marine water

Fish - Inland silverside - *Menidia beryllina*
185 ppm [96 hours]
Effect: Mortality

Reaction mass of ethylbenzene and xylene

Acute - LC50

OECD 203
Fish - Trout - *Oncorhynchus mykiss*
2.6 mg/l [96 hours]

Acute - LC50

OECD 202
Daphnia - Daphnia - *Daphnia magna*
1 mg/l [24 hours]

Acute - EC50

OECD 201
Algae - Algae - *Selenastrum capricornutum*
2.2 mg/l [73 hours]

Chronic - NOEC

OECD 301F
Micro-organism - Activated sludge - *Activated sludge*
16 mg/l [28 days]

Conclusion/Summary [Product] : Not available.

12.2 Persistence and degradability

Product/ingredient name

Hexamethylene diisocyanate, oligomers

Result**Aerobic**

1% [28 days] - Not readily

Conclusion/Summary [Product] : Not available.

SECTION 12: Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hexamethylene diisocyanate, oligomers	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Hexamethylene diisocyanate, oligomers	5.54	367.7	Low
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	14.48	-	High
n-butyl acetate	2.3	-	Low
Reaction mass of ethylbenzene and xylene	3.16	-	Low
hexamethylene-di-isocyanate	0.02	57.63	Low

12.4 Mobility in soil

Soil/Water partition coefficient

Product/ingredient name	logK _{oc}	K _{oc}
n-butyl acetate	1.52	33.2139
hexamethylene-di-isocyanate	1.38	23.8009

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
Hexamethylene diisocyanate, oligomers	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	No	No	No	No	No	No	No
n-butyl acetate	No	No	Yes	No	No	No	Yes
Reaction mass of ethylbenzene and xylene	No	No	No	No	No	No	No
hexamethylene-di-isocyanate	No	No	Yes	No	No	No	Yes

Mobility : Not available.

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Hexamethylene diisocyanate, oligomers	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	No	No	No	No	No	No	No
n-butyl acetate	No	No	No	No	No	No	No
Reaction mass of ethylbenzene and xylene	No	No	No	No	No	No	No
hexamethylene-di-isocyanate	No	No	No	No	No	No	No

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Hexamethylene diisocyanate, oligomers	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	No	No	No	No	No	No	No
n-butyl acetate	No	No	No	No	No	No	No
Reaction mass of ethylbenzene and xylene	No	No	No	No	No	No	No
hexamethylene-di-isocyanate	No	No	No	No	No	No	No

Conclusion/Summary : The product does not meet the criteria to be considered as a PBT or vPvB.

Regulation (EC) No. 1272/2008 [CLP]

12.6 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

SECTION 13: Disposal considerations

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.
- Disposal considerations** : Do not allow to enter drains or watercourses. Residues in empty containers should be neutralized with a decontaminant (see section 6).
Dispose of according to all federal, state and local applicable regulations.
If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.
For further information, contact your local waste authority.





Packaging

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Disposal considerations** : Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers.
Empty containers must be scrapped or reconditioned.
Dispose of containers contaminated by the product in accordance with local or national legal provisions.

Type of packaging	European waste catalogue (EWC)	
CEPE Guidelines	15 01 10*	packaging containing residues of or contaminated by hazardous substances

- Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1263	UN1263	UN1263	UN1263
14.2 UN proper shipping name	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL
14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	III	III	III	III

SECTION 14: Transport information

14.5 Environmental hazards	No.	Yes.	No.	No.
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Additional information

ADR/RID	: Tunnel code (D/E)
ADN	: The product is only regulated as an environmentally hazardous substance when transported in tank vessels.
Marine pollutant	Not available.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not applicable.

The actual shipping description for this product may vary based several factors including, but not limited to, the volume of material, size of the container, mode of transport and use of exemptions or exceptions found in the applicable regulations. The information provided in Section 14 is one possible shipping description for this product. Consult your shipping specialist or supplier for appropriate assignment information.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : **As from August 24 2023 adequate training is required before industrial or professional use.**

Other EU regulations

Explosive precursors : Not applicable.

Seveso Directive

This product may add to the calculation for determining whether a site is within the scope of the Seveso Directive on major accident hazards.

National regulations

Industrial use : The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

SECTION 15: Regulatory information

Flammable liquid class : 2b
(SRVFS 2005:10)

15.2 Chemical Safety Assessment : No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

CEPE code : 5

Indicates information that has changed from previously issued version.

Abbreviations and acronyms :

- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- B = Bioaccumulative
- BCF = Bioconcentration Factor
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- IATA = International Air Transport Association
- IMDG = International Maritime Dangerous Goods
- IMO = International Maritime Organization
- M = Mobile
- N/A = Not available
- P = Persistent
- PBT = Persistent, Bioaccumulative and Toxic
- PMT = Persistent, Mobile and Toxic
- PNEC = Predicted No Effect Concentration
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- RRN = REACH Registration Number
- SGG = Segregation Group
- T = Toxic
- vB = Very Bioaccumulative
- vM = Very Mobile
- vP = Very Persistent
- vPvB = Very Persistent and Very Bioaccumulative
- vPvM = Very Persistent and Very Mobile

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226	On basis of test data
Acute Tox. 4, H332	Calculation method
Skin Sens. 1, H317	Calculation method
STOT SE 3, H335	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

SECTION 16: Other information

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful 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.
H336	May cause drowsiness or dizziness.
H373	May cause 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.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 1	ACUTE TOXICITY - Category 1
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Resp. Sens. 1	RESPIRATORY SENSITIZATION - Category 1
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITIZATION - Category 1
Skin Sens. 1B	SKIN SENSITIZATION - Category 1B
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Date of issue/ Date of revision : 13 May 2025

Version : 1

Date of previous issue : No previous validation

Notice to reader

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SECTION 16: Other information

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