

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 : S2033
Product name : SYSTEM 20 SLOW HARDENER
Product type : Liquid.
Other means of identification : S2033/1; S2033/25; S2033/M
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. 2, H225

Acute Tox. 4, H332

Skin Sens. 1, H317

STOT SE 3, H335

STOT SE 3, H336

Aquatic Chronic 2, H411

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 : Danger

Contains : Hexamethylene diisocyanate, oligomers
Hydrocarbons, C9, aromatics
2-methoxy-1-methylethyl acetate

Hazard statements : H225 - Highly 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.
H411 - Toxic 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 : P391 - Collect spillage.
P302 + P352 - IF ON SKIN: Wash with plenty of water.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : EUH066 - Repeated exposure may cause skin dryness or cracking.
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 : Not applicable.

2.3 Other hazards

SECTION 2: Hazards identification

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	≥25 - ≤50	Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335	ATE [Inhalation (vapours)] = 11 mg/l	[1]
Hydrocarbons, C9, aromatics	REACH #: 01-2119455851-35 EC: 918-668-5	≥25 - ≤50	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	-	[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]
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4	≤10	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066 See Section 16 for the full text of the H statements declared above.	-	[1] [2]

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.

SECTION 4: First aid measures

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, 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. 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, CO ₂ , powders, water spray or mist.
Unsuitable extinguishing media	: Do not use water jet.

5.2 Special hazards arising from the substance or mixture

SECTION 5: Firefighting measures

- 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.

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.

SECTION 7: Handling and storage

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

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 E2	5000 tonnes 200 tonnes	50000 tonnes 500 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.

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

Hexamethylene diisocyanate, oligomers

Result

DNEL - Workers - Long term - Inhalation

0.5 mg/m³

Effects: Local

DNEL - Workers - Short term - Inhalation

1 mg/m³

Effects: Local

Hydrocarbons, C9, aromatics

DNEL - Workers - Long term - Inhalation

151 mg/m³

SECTION 8: Exposure controls/personal protection

Effects: Systemic

DNEL - Workers - Long term - Dermal

12.5 mg/kg bw/day

Effects: Systemic

2-methoxy-1-methylethyl acetate

DNEL - Workers - Long term - Dermal

796 mg/kg bw/day

Effects: Systemic

DNEL - Workers - Long term - Inhalation

275 mg/m³

Effects: Systemic

DNEL - Workers - Short term - Inhalation

550 mg/m³

Effects: Local

n-butyl acetate

DNEL - Workers - Short term - Dermal

11 mg/kg bw/day

Effects: Systemic

DNEL - General population - Long term - Oral

2 mg/kg bw/day

Effects: Systemic

DNEL - General population - Short term - Oral

2 mg/kg bw/day

Effects: Systemic

DNEL - General population - Long term - Dermal

3.4 mg/kg bw/day

Effects: Systemic

DNEL - General population - Short term - Dermal

6 mg/kg bw/day

Effects: Systemic

DNEL - Workers - Long term - Dermal

11 mg/kg bw/day

Effects: Systemic

DNEL - Workers - Short term - Dermal

11 mg/kg bw/day

Effects: Systemic

DNEL - General population - Long term - Inhalation

12 mg/m³

Effects: Systemic

DNEL - General population - Long term - Inhalation

35.7 mg/m³

Effects: Local

DNEL - Workers - Long term - Inhalation

300 mg/m³

Effects: Systemic

SECTION 8: Exposure controls/personal protection

	DNEL - General population - Short term - Inhalation 300 mg/m³ Effects: Local
	DNEL - General population - Short term - Inhalation 300 mg/m³ Effects: Systemic
	DNEL - Workers - Long term - Inhalation 300 mg/m³ Effects: Local
	DNEL - Workers - Short term - Inhalation 600 mg/m³ Effects: Local
	DNEL - Workers - Short term - Inhalation 600 mg/m³ Effects: Systemic
PNECs Product/ingredient name Hexamethylene diisocyanate, oligomers	Result Marine water 12.7 µg/l Fresh water 1270 µg/l Sediment 266700 mg/kg Soil 53200 mg/kg Sewage Treatment Plant 38.28 mg/kg
2-methoxy-1-methylethyl acetate	Fresh water 0.635 mg/l Marine water 0.0635 mg/l Sewage Treatment Plant 100 mg/l Fresh water sediment 3.29 mg/kg dwt Marine water sediment 0.329 mg/kg dwt Soil 0.29 mg/kg dwt
n-butyl acetate	Soil 0.09 mg/kg

SECTION 8: Exposure controls/personal protection

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

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

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.

SECTION 8: Exposure controls/personal protection

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	: Transparent.
Odor	: Not available.
Odor threshold	: Not available.
Melting point/freezing point	: Technically not possible to measure
Boiling point or initial boiling point and boiling range	: 125 to 200°C
Flammability	: Not available.
Lower and upper explosion limit	: Lower: 0.7% Upper: 7.5%
Lower and upper explosive (flammable) limits	: Not available.
Flash point	: Closed cup: -3.889°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.
Solubility	:

SECTION 9: Physical and chemical properties

Media	Result
cold water	Soluble

Vapor pressure	0.41 kPa (3.1 mm Hg)
Density	: 0.984 g/cm ³
Weight volatiles	: 63.5 % (w/w)
VOC content	: 63.4 % (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.
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.

SECTION 11: Toxicological information

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. May produce an allergic reaction.

Acute toxicity

Product/ingredient name

Hexamethylene diisocyanate, oligomers

Result

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

Toxic effects: 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]

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	N/A	N/A	30.2	4.1
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

Skin corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

SECTION 11: Toxicological information

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

Hexamethylene diisocyanate, oligomers

Result

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

Hydrocarbons, C9, aromatics

2-methoxy-1-methylethyl acetate

n-butyl acetate

Result

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H336 (Narcotic effects)

STOT SE 3, H336 (Narcotic effects)

STOT SE 3, H336 (Narcotic effects)

SECTION 11: Toxicological information

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name

Hydrocarbons, C9, aromatics

Result

ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Not available.

Potential acute health effects

- 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** : Defatting to the skin. May cause skin dryness and irritation. 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
dryness
cracking
- 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 : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis. 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.

SECTION 11: Toxicological information

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

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.

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

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Hexamethylene diisocyanate, oligomers	5.54	367.7	Low
n-butyl acetate	2.3	-	Low

12.4 Mobility in soil

Soil/Water partition coefficient

Product/ingredient name	logK _{oc}	K _{oc}
n-butyl acetate	1.52	33.2139

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
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
n-butyl acetate	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]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Hexamethylene diisocyanate, oligomers	No	No	No	No	No	No	No
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
n-butyl acetate	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
Hydrocarbons, C9, aromatics	No	No	No	No	No	No	No
2-methoxy-1-methylethyl acetate	No	No	No	No	No	No	No
n-butyl acetate	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.

SECTION 12: Ecological information

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

- 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** : Yes.
- 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.

European waste catalogue (EWC)

The European Waste Catalogue classification of this product, when disposed of as waste, is:

Waste code	Waste designation
08 05 01*	waste isocyanates

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 13: Disposal considerations

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	II	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

ADR/RID

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Special provisions 640 (C)
Tunnel code (D/E)

ADN

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Special provisions 640 (C)

IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Marine pollutant

: solvent naphtha (petroleum), light aromatic

IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.

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 : Not applicable.
**on the manufacture,
placing on the market
and use of certain
dangerous substances,
mixtures and articles**

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.

Flammable liquid class : 1
(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

SECTION 16: Other information

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. 2, H225 Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335 STOT SE 3, H336 Aquatic Chronic 2, H411	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H225 H226 H304 H317 H332 H335 H336 H411 EUH066	Highly flammable liquid and vapor. Flammable liquid and vapor. May be fatal if swallowed and enters airways. May cause an allergic skin reaction. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects. Repeated exposure may cause skin dryness or cracking.
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Full text of classifications [CLP/GHS]

Acute Tox. 4 Aquatic Chronic 2 Asp. Tox. 1 Flam. Liq. 2 Flam. Liq. 3 Skin Sens. 1 STOT SE 3	ACUTE TOXICITY - Category 4 AQUATIC HAZARD (LONG-TERM) - Category 2 ASPIRATION HAZARD - Category 1 FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3
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Date of issue/ Date of revision : 13 May 2025

Version : 1

Date of previous issue : No previous validation

Notice to reader

SECTION 16: Other information

This product is intended for industrial use only.

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