

## 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** : SH9011  
**Product name** : STRONGHOLD ADHESIVE HARDENER  
**Product type** : Liquid.  
**Other means of identification** : SH9011; SH9012; SH9021; SH9022; SH9042  
**Date of issue/ Date of revision** : 13 May 2025  
**Version** : 1.02  
**Date of previous issue** : 13 May 2025

#### 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 Irrit. 2, H315

Eye Irrit. 2, H319

Resp. Sens. 1, H334

Skin Sens. 1, H317

Carc. 2, H351

STOT SE 3, H335

STOT RE 2, H373

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

**Ingredients of unknown toxicity** : 2.6 percent of the mixture consists of component(s) of unknown acute oral toxicity  
5.1 percent of the mixture consists of component(s) of unknown acute dermal toxicity

**Ingredients of unknown ecotoxicity** : Contains 5.1% of components with unknown hazards to the aquatic environment

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** : Isocyanic acid, polymethylenepolyphenylene ester  
4,4'-methylenediphenyl diisocyanate  
o-(p-isocyanatobenzyl)phenyl isocyanate  
2,2'-methylenediphenyl diisocyanate

**Hazard statements** : H225 - Highly flammable liquid and vapor.  
H315 - Causes skin irritation.  
H317 - May cause an allergic skin reaction.  
H319 - Causes serious eye irritation.  
H332 - Harmful if inhaled.  
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 - May cause respiratory irritation.  
H351 - Suspected of causing cancer.  
H373 - May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

**Prevention** : P201 - Obtain special instructions before use.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260 - Do not breathe vapor.

**Response** : P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## SECTION 2: Hazards identification

<b>Storage</b>	: Not applicable.
<b>Disposal</b>	: Not applicable.
<b>Supplemental label elements</b>	: EUH204 - Contains isocyanates. May produce an allergic reaction.
<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	: <b>As from August 24 2023 adequate training is required before industrial or professional use.</b>

### 2.3 Other hazards

<b>Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII</b>	: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
<b>Other hazards which do not result in classification</b>	: 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
Isocyanic acid, polymethylenepolyphenylene ester	CAS: 9016-87-9	≥50 - ≤75	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT SE 3, H335 STOT RE 2, H373 (respiratory system) (inhalation)	ATE [Inhalation (dusts and mists)] = 1.5 mg/l Skin Irrit. 2, H315: C ≥ 5% Eye Irrit. 2, H319: C ≥ 5% Resp. Sens. 1, H334: C ≥ 0.1% STOT SE 3, H335: C ≥ 5%	[1]
4,4'-methylenediphenyl diisocyanate	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8 Index: 615-005-00-9	≤10	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373	ATE [Inhalation (dusts and mists)] = 1.5 mg/l Skin Irrit. 2, H315: C ≥ 5% Eye Irrit. 2, H319: C ≥ 5% Resp. Sens. 1, H334: C ≥ 0.1% STOT SE 3, H335: C ≥ 5%	[1] [2]
o-(p-isocyanatobenzyl) phenyl isocyanate	REACH #: 01-2119480143-45 EC: 227-534-9 CAS: 5873-54-1 Index: 615-005-00-9	≤10	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317	ATE [Inhalation (dusts and mists)] = 1.5 mg/l Skin Irrit. 2, H315: C ≥ 5%	[1] [2]

### SECTION 3: Composition/information on ingredients

2,2'-methylenediphenyl diisocyanate	REACH #: 01-2119927323-43 EC: 219-799-4 CAS: 2536-05-2 Index: 615-005-00-9	≤0.2	<p>Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373</p> <p>Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373</p> <p><b>See Section 16 for the full text of the H statements declared above.</b></p>	<p>Eye Irrit. 2, H319: C ≥ 5% Resp. Sens. 1, H334: C ≥ 0.1% STOT SE 3, H335: C ≥ 5%</p> <p>ATE [Inhalation (dusts and mists)] = 1.5 mg/l Skin Irrit. 2, H315: C ≥ 5% Eye Irrit. 2, H319: C ≥ 5% Resp. Sens. 1, H334: C ≥ 0.1% STOT SE 3, H335: C ≥ 5%</p>	[1] [2]
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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

- |                                   |   |
|-----------------------------------|---|
| <b>General</b>                    | : 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.   |
| <b>Eye contact</b>                | : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.   |
| <b>Inhalation</b>                 | : 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.  |
| <b>Skin contact</b>               | : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.  |
| <b>Ingestion</b>                  | : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.   |
| <b>Protection of first-aiders</b> | : 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

## SECTION 4: First aid measures

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 Isocyanic acid, polymethylenepolyphenylene ester, 4,4'-methylenediphenyl diisocyanate, o-(p-isocyanatobenzyl)phenyl isocyanate, 2,2'-methylenediphenyl diisocyanate. May produce an allergic reaction.

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	: 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.
<b>Specific treatments</b>	: No specific treatment.

See toxicological information (Section 11)

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: Recommended: alcohol-resistant foam, CO <sub>2</sub> , powders, water spray or mist.
<b>Unsuitable extinguishing media</b>	: Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

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

### 5.3 Advice for firefighters

<b>Special protective actions for fire-fighters</b>	: Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
<b>Special protective equipment for fire-fighters</b>	: 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.**

**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. CO<sub>2</sub> 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).

## SECTION 7: Handling and storage

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	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
4,4'-methylenediphenyl diisocyanate	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8 Index: 615-005-00-9	<b>Work environment authority Regulation 2018:1 (Sweden, 11/2022)</b> Sensitizer. TWA 8 hours: 0.002 ppm. TWA 8 hours: 0.03 mg/m <sup>3</sup> . STEL 15 minutes: 0.005 ppm. STEL 15 minutes: 0.05 mg/m <sup>3</sup> . <b>EU OEL (Europe, 3/2024) [diisocyanates]</b> Absorbed through skin , Skin sensitizer , Inhalation sensitizer. STEL 15 minutes: 20 µg/m <sup>3</sup> (as isocyanates functional groups of the diisocyanate compounds.). TWA 8 hours: 10 µg/m <sup>3</sup> (as isocyanates functional groups of the diisocyanate compounds.).
o-(p-isocyanatobenzyl)phenyl isocyanate	REACH #: 01-2119480143-45	<b>Work environment authority Regulation 2018:1</b>

SECTION 8: Exposure controls/personal protection

2,2'-methylenediphenyl diisocyanate	EC: 227-534-9 CAS: 5873-54-1 Index: 615-005-00-9	(Sweden, 11/2022) [diisocyanates] Sensitizer. TWA 8 hours: 0.002 ppm. STEL 15 minutes: 0.005 ppm. <b>EU OEL (Europe, 3/2024) [diisocyanates]</b> 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.).
	REACH #: 01-2119927323-43 EC: 219-799-4 CAS: 2536-05-2 Index: 615-005-00-9	<b>Work environment authority Regulation 2018:1 (Sweden, 11/2022) [diisocyanates]</b> Sensitizer. TWA 8 hours: 0.002 ppm. STEL 15 minutes: 0.005 ppm. <b>EU OEL (Europe, 3/2024) [diisocyanates]</b> 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.).

**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
4,4'-methylenediphenyl diisocyanate	<b>DNEL - Workers - Long term - Inhalation</b> 0.05 mg/m³ <u>Effects:</u> Local
	<b>DNEL - Workers - Short term - Inhalation</b> 0.1 mg/m³ <u>Effects:</u> Local
	<b>DNEL - General population - Long term - Inhalation</b> 0.025 mg/m³ <u>Effects:</u> Local
	<b>DNEL - General population - Short term - Inhalation</b> 0.05 mg/m³ <u>Effects:</u> Local
	<b>DNEL - Workers - Long term - Inhalation</b> 0.05 mg/m³ <u>Effects:</u> Local
	<b>DNEL - Workers - Short term - Inhalation</b>



## SECTION 8: Exposure controls/personal protection

o-(p-isocyanatobenzyl)phenyl isocyanate	0.1 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - General population - Long term - Inhalation</b> 0.025 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - General population - Short term - Inhalation</b> 0.05 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - Workers - Long term - Inhalation</b> 0.05 mg/m <sup>3</sup> <u>Effects:</u> Local
2,2'-methylenediphenyl diisocyanate	<b>DNEL - Workers - Short term - Inhalation</b> 0.1 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - General population - Long term - Inhalation</b> 0.025 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - General population - Short term - Inhalation</b> 0.05 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - Workers - Long term - Inhalation</b> 0.05 mg/m <sup>3</sup> <u>Effects:</u> Local
	<b>DNEL - Workers - Short term - Inhalation</b> 0.1 mg/m <sup>3</sup> <u>Effects:</u> Local

### PNECs

#### Product/ingredient name

4,4'-methylenediphenyl diisocyanate

#### Result

##### Fresh water

1 mg/l

##### Marine water

0.1 mg/l

##### Sewage Treatment Plant

1 mg/l

##### Soil

1 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.

## SECTION 8: Exposure controls/personal protection

**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.

**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.
Melting point/freezing point	: Technically not possible to measure
Boiling point or initial boiling point and boiling range	: 301 to 368°C
Flammability	: Not available.
Lower and upper explosion limit	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Flash point	: Closed cup: -4°C
Auto-ignition temperature	: 501°C
Decomposition temperature	: Not applicable.
pH	: Not applicable.
Justification	: Product is non-soluble (in water).
Viscosity	: Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C): Not available.
Vapor pressure	: Not available.
Density	: 1.197 g/cm <sup>3</sup>
Weight volatiles	: 0 % (w/w)
VOC content	: 0 % (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 : No.

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.

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 Isocyanic acid, polymethylenepolyphenylene ester, 4,4'-methylenediphenyl diisocyanate, o-(p-isocyanatobenzyl)phenyl isocyanate, 2,2'-methylenediphenyl diisocyanate. May produce an allergic reaction.

#### Acute toxicity

Product/ingredient name	Result
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Isocyanic acid, polymethylenepolyphenylene ester	<b>Rat - Oral - LD50</b> 49 g/kg <u>Toxic effects:</u> Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Changes in Chemistry or Temperature - Body temperature decrease  <b>Rabbit - Dermal - LD50</b>
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## SECTION 11: Toxicological information

>9400 mg/kg

4,4'-methylenediphenyl diisocyanate

**Rat - Oral - LD50**

9200 mg/kg

Toxic effects: Behavioral - Somnolence (general depressed activity) Behavioral - Ataxia Changes in Chemistry or Temperature - Body temperature decrease

**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	N/A	2.3
Isocyanic acid, polymethylenepolyphenylene ester	49000	N/A	N/A	N/A	1.5
4,4'-methylenediphenyl diisocyanate	9200	N/A	N/A	N/A	1.5
o-(p-isocyanatobenzyl)phenyl isocyanate	N/A	N/A	N/A	N/A	1.5
2,2'-methylenediphenyl diisocyanate	N/A	N/A	N/A	N/A	1.5

### Skin corrosion/irritation

**Product/ingredient name**

Isocyanic acid, polymethylenepolyphenylene ester

**Result**

**Mammal - species unspecified - Skin - Moderate irritant**

**Conclusion/Summary [Product]** : Not available.

### Serious eye damage/eye irritation

**Product/ingredient name**

Isocyanic acid, polymethylenepolyphenylene ester

**Result**

**Rabbit - Eyes - Mild irritant**

Amount/concentration applied: 100 mg

**Mammal - species unspecified - Eyes - Moderate irritant**

4,4'-methylenediphenyl diisocyanate

**Rabbit - Eyes - Moderate irritant**

Amount/concentration applied: 100 mg

**Conclusion/Summary [Product]** : Not available.

### Respiratory corrosion/irritation

Not available.

**Conclusion/Summary [Product]** : Not available.

### Respiratory or skin sensitization

**Product/ingredient name**

**Result**

## SECTION 11: Toxicological information

Isocyanic acid, polymethylenepolyphenylene ester

**Mammal - species unspecified - skin**

Result: Sensitizing

**Mammal - species unspecified - Respiratory**

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**

Isocyanic acid, polymethylenepolyphenylene ester

4,4'-methylenediphenyl diisocyanate

o-(p-isocyanatobenzyl)phenyl isocyanate

2,2'-methylenediphenyl diisocyanate

#### **Result**

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H335 (Respiratory tract irritation)

STOT SE 3, H335 (Respiratory tract irritation)

### **Specific target organ toxicity (repeated exposure)**

#### **Product/ingredient name**

Isocyanic acid, polymethylenepolyphenylene ester

4,4'-methylenediphenyl diisocyanate

o-(p-isocyanatobenzyl)phenyl isocyanate

2,2'-methylenediphenyl diisocyanate

#### **Result**

STOT RE 2, H373 (respiratory system) (inhalation)

STOT RE 2, H373

STOT RE 2, H373

STOT RE 2, H373

### **Aspiration hazard**

Not available.

### **Information on the likely routes of exposure**

Not available.

### **Potential acute health effects**

## SECTION 11: Toxicological information

<b>Eye contact</b>	: Causes serious eye irritation.
<b>Inhalation</b>	: Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<b>Skin contact</b>	: Causes skin irritation. May cause an allergic skin reaction.
<b>Ingestion</b>	: No known significant effects or critical hazards.

### **Symptoms related to the physical, chemical and toxicological characteristics**

<b>Eye contact</b>	: Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma
<b>Skin contact</b>	: Adverse symptoms may include the following: irritation redness
<b>Ingestion</b>	: No specific data.

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

#### **Short term exposure**

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

#### **Long term exposure**

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

### **Potential chronic health effects**

Not available.

**Conclusion/Summary [Product]** : Not available.

<b>General</b>	: May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
<b>Carcinogenicity</b>	: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: 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 not classified as hazardous to the environment.

**Product/ingredient name**

Isocyanic acid, polymethylenepolyphenylene ester

**Result**
**Acute - NOEC**

Aquatic plants - Algae  
1640 mg/l [72 hours]

**Conclusion/Summary [Product]** : Not available.

### 12.2 Persistence and degradability

**Product/ingredient name**

Isocyanic acid, polymethylenepolyphenylene ester

**Result**

0% [28 days] - Not readily

**Conclusion/Summary [Product]** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Isocyanic acid, polymethylenepolyphenylene ester	-	-	Not readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
4,4'-methylenediphenyl diisocyanate	4.51	200	Low
o-(p-isocyanatobenzyl) phenyl isocyanate	4.51	200	Low
2,2'-methylenediphenyl diisocyanate	5.22	200	Low

### 12.4 Mobility in soil

**Soil/Water partition coefficient**

Product/ingredient name	logK <sub>oc</sub>	K <sub>oc</sub>
4,4'-methylenediphenyl diisocyanate	3.07	1167.83
o-(p-isocyanatobenzyl)phenyl isocyanate	2.86	720.413
2,2'-methylenediphenyl diisocyanate	2.16	143.527

**Results of PMT and vPvM assessment**



## SECTION 12: Ecological information

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
Isocyanic acid, polymethylenepolyphenylene ester	No	No	No	Yes	No	No	No
4,4'-methylenediphenyl diisocyanate	No	No	No	Yes	No	No	No
o-(p-isocyanatobenzyl) phenyl isocyanate	No	No	Yes	Yes	No	No	No
2,2'-methylenediphenyl diisocyanate	No	No	Yes	Yes	No	No	No

**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
Isocyanic acid, polymethylenepolyphenylene ester	No	No	No	Yes	No	No	No
4,4'-methylenediphenyl diisocyanate	No	No	No	Yes	No	No	No
o-(p-isocyanatobenzyl) phenyl isocyanate	No	No	No	Yes	No	No	No
2,2'-methylenediphenyl diisocyanate	No	No	No	Yes	No	No	No

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

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Isocyanic acid, polymethylenepolyphenylene ester	No	No	No	Yes	No	No	No
4,4'-methylenediphenyl diisocyanate	No	No	No	Yes	No	No	No
o-(p-isocyanatobenzyl) phenyl isocyanate	No	No	No	Yes	No	No	No
2,2'-methylenediphenyl diisocyanate	No	No	No	Yes	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

- 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
<b>14.1 UN number or ID number</b>	UN1263	UN1263	UN1263	UN1263
<b>14.2 UN proper shipping name</b>	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL	PAINT RELATED MATERIAL

## SECTION 14: Transport information

14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	II	II	II	II
14.5 Environmental hazards	No.	No.	No.	No.

### Additional information

ADR/RID : **Special provisions** 640 (C)  
**Tunnel code** (D/E)

ADN : **Special provisions** 640 (C)

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.

## SECTION 15: Regulatory information

### 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 (SRVFS 2005:10)** : 1

**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]**

**SECTION 16: Other information**

Classification	Justification
Flam. Liq. 2, H225 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373	On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method

**Full text of abbreviated H statements**

H225 H315 H317 H319 H332 H334  H335 H351 H373	Highly flammable liquid and vapor. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.  May cause respiratory irritation. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.
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**Full text of classifications [CLP/GHS]**

Acute Tox. 4 Carc. 2 Eye Irrit. 2 Flam. Liq. 2 Resp. Sens. 1 Skin Irrit. 2 Skin Sens. 1 STOT RE 2  STOT SE 3	ACUTE TOXICITY - Category 4 CARCINOGENICITY - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 2 RESPIRATORY SENSITIZATION - Category 1 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3
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**Date of issue/ Date of revision** : 13 May 2025

**Version** : 1.02

**Date of previous issue** : 13 May 2025

**Notice to reader**

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## SECTION 16: Other information

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