

SAFETY DATA SHEET



Date of issue/Date of revision : 23 December 2020 Version : 2

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

1.1 Product identifier

Product name : SIGMADUR 1800 HARDENER

Product code : 00236078

Other means of identification

Not available.

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

Product use : Professional applications, Used by spraying.

**Use of the substance/
mixture** : Coating.

Uses advised against : Product is not intended, labelled or packaged for consumer use.

1.3 Details of the supplier of the safety data sheet

PPG Coatings Belgium BV/SRL
Tweemontstraat 104
B-2100 Deurne
Belgium
Telephone +32-33606311
Fax +32-33606435

**e-mail address of person
responsible for this SDS** : PMC.Safety@PPG.com

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number : National Poison Information Centre at Beaumont Hospital. Tel: +353 1 8092566,
email: npicdublin@beaumont.ie

Supplier

+31 20 4075210

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]

Fam. Liq. 3, H226

Acute Tox. 4, H332

Skin Sens. 1, H317

STOT SE 3, H335

Aquatic Chronic 3, H412

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

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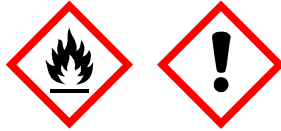
SECTION 2: Hazards identification

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

Hazard statements :

Flammable liquid and vapour.
 May cause an allergic skin reaction.
 Harmful if inhaled.
 May cause respiratory irritation.
 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention :

Wear protective gloves. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid release to the environment. Avoid breathing vapour.

Response :

IF INHALED: Call a POISON CENTER or doctor if you feel unwell.

Storage :

Store in a well-ventilated place. Keep container tightly closed.

Disposal :

Not applicable.

P280, P210, P273, P261, P304 + P312, P403 + P233

Hazardous ingredients :

Hexamethylene diisocyanate, oligomers (isocyanurate type)
 hexamethylene-di-isocyanate

Supplemental label elements :

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.

Special packaging requirements

Containers to be fitted with child-resistant fastenings :

Not applicable.

Tactile warning of danger :

Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB :

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 :

Prolonged or repeated contact may dry skin and cause irritation.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% by weight	Classification	
			Regulation (EC) No. 1272/2008 [CLP]	Type
Hexamethylene diisocyanate, oligomers (isocyanurate type)	REACH #: 01-2119485796-17 EC: 931-274-8 CAS: 28182-81-2	≥75 - ≤90	Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335	[1] [2]
n-butyl acetate	REACH #: 01-2119485493-29 EC: 204-658-1 CAS: 123-86-4 Index: 607-025-00-1	≥5.0 - <10	Flam. Liq. 3, H226 STOT SE 3, H336 EUH066	[1] [2]
Hydrocarbons, C9, aromatics	REACH #: 01-2119455851-35 EC: 918-668-5 CAS: 64742-95-6	≥5.0 - <10	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	[1]
hexamethylene-di-isocyanate	REACH #: 01-2119457571-37 EC: 212-485-8 CAS: 822-06-0 Index: 615-011-00-1	≤0.30	Acute Tox. 4, H302 Acute Tox. 1, H330 Skin Irrit. 2, H315 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.	[1] [2]

There are no additional 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.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

SUB codes represent substances without registered CAS Numbers.

SECTION 4: First aid measures

4.1 Description of first aid measures

- 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 recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

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SECTION 4: First aid measures

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

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : Harmful if inhaled. May cause respiratory irritation.
Skin contact : Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
Skin contact : Adverse symptoms may include the following:
 irritation
 redness
 dryness
 cracking
Ingestion : No specific data.

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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.
Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Flammable liquid and vapour. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products : Decomposition products may include the following materials:
 carbon oxides
 nitrogen oxides
 Cyanate and isocyanate.
 hydrogen cyanide

5.3 Advice for firefighters

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SECTION 5: Firefighting measures

- Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised 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

- : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.
- Special provisions** : 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). 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.

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SECTION 6: Accidental release measures

- 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).

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

- : Store between the following temperatures: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
- Precautions should be taken to minimise exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurisation.

7.3 Specific end use(s)

See Section 1.2 for Identified uses.

SECTION 8: Exposure controls/personal protection

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).

8.1 Control parameters

Occupational exposure limits

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure limit values
Hexamethylene diisocyanate, oligomers (isocyanurate type)	NAOSH (Ireland, 8/2018). Skin sensitiser. OELV-8hr: 0.02 mg/m ³ , (as NCO) 8 hours. OELV-15min: 0.07 mg/m ³ , (as NCO) 15 minutes.
n-butyl acetate	NAOSH (Ireland, 8/2018). OELV-15min: 950 mg/m ³ 15 minutes. OELV-15min: 200 ppm 15 minutes. OELV-8hr: 710 mg/m ³ 8 hours. OELV-8hr: 150 ppm 8 hours.
hexamethylene-di-isocyanate	NAOSH (Ireland, 8/2018). Skin sensitiser. OELV-8hr: 0.005 ppm, (as NCO) 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. 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

Product/ingredient name	Type	Exposure	Value	Population	Effects
Hexamethylene diisocyanate, oligomers (isocyanurate type)	DNEL	Long term Inhalation	0.5 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	1 mg/m ³	Workers	Local
n-butyl acetate	DNEL	Long term Inhalation	300 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	300 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	600 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	600 mg/m ³	Workers	Systemic
Hydrocarbons, C9, aromatics	DNEL	Long term Dermal	11 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	150 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	25 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	32 mg/m ³	General population	Systemic
	DNEL	Long term Dermal	11 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	11 mg/kg bw/day	General population	Systemic
hexamethylene-di-isocyanate	DNEL	Long term Inhalation	0.035 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	0.035 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	0.07 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	0.07 mg/m ³	Workers	Systemic

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
Hexamethylene diisocyanate, oligomers (isocyanurate type)	-	Fresh water	0.127 mg/l	Assessment Factors
	-	Marine water	0.0127 mg/l	Assessment Factors
	-	Sewage Treatment Plant	88 mg/l	Assessment Factors
n-butyl acetate	-	Fresh water sediment	266701 mg/kg dwt	Equilibrium Partitioning
	-	Marine water sediment	26670 mg/kg dwt	Equilibrium Partitioning
	-	Soil	53182 mg/kg	Equilibrium Partitioning
	-	Fresh water	0.18 mg/l	-
	-	Marine water	0.018 mg/l	-
	-	Fresh water sediment	0.981 mg/kg	-
	-	Marine water sediment	0.0981 mg/kg	-
hexamethylene-di-isocyanate	-	Sewage Treatment Plant	35.6 mg/l	-
	-	Soil	0.0903 mg/kg	-
	-	Fresh water	0.0774 mg/l	Assessment Factors
	-	Marine water	0.00774 mg/l	Assessment Factors
	-	Sewage Treatment Plant	8.42 mg/l	Assessment Factors
	-	Fresh water sediment	0.01334 mg/kg dwt	Equilibrium Partitioning
	-	Marine water sediment	0.001334 mg/kg dwt	Equilibrium Partitioning
-	Soil	0.0026 mg/kg dwt	Equilibrium Partitioning	

8.2 Exposure controls

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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

: Safety glasses with side shields. Use eye protection according to EN 166.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. 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

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SECTION 8: Exposure controls/personal protection

- assessment.
- Gloves** : butyl rubber
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- 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. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators. Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Wear a respirator conforming to EN140. Filter type: organic vapour (Type A) and particulate filter P3
- Restrictions on use** : 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.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Amine-like.
- Odour threshold** : Not available.
- pH** : Not applicable.
- Melting point/freezing point** : May start to solidify at the following temperature: -51.3 to -28.4°C (-60.3 to -19.1°F) This is based on data for the following ingredient: Hexamethylene diisocyanate, oligomers (isocyanurate type). Weighted average: -43.59°C (-46.5°F)
- Initial boiling point and boiling range** : >37.78°C
- Flash point** : Closed cup: 55.7°C
- Evaporation rate** : 1 (n-butyl acetate) compared with butyl acetate
- Flammability (solid, gas)** : liquid
- Upper/lower flammability or explosive limits** : Greatest known range: Lower: 1.4% Upper: 7.6% (n-butyl acetate)
- Vapour pressure** : Highest known value: 1.5 kPa (11.3 mm Hg) (at 20°C) (n-butyl acetate). Weighted average: 0.09 kPa (0.68 mm Hg) (at 20°C)
- Vapour density** : Highest known value: 4.1 (Air = 1) (1,2,4-trimethylbenzene). Weighted average: 4.02 (Air = 1)

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SECTION 9: Physical and chemical properties

Relative density	: 1.13
Solubility(ies)	: Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/ water	: Not applicable.
Auto-ignition temperature	: 370°C
Decomposition temperature	: Stable under recommended storage and handling conditions (see Section 7).
Viscosity	: Kinematic (room temperature): >4 cm ² /s Kinematic (40°C): >0.21 cm ² /s
Viscosity	: 60 - 100 s (ISO 6mm)
Explosive properties	: The product itself is not explosive, but the formation of an explosible mixture of vapour or dust with air is possible.
Oxidising properties	: Product does not present an oxidizing hazard.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: In a fire, hazardous decomposition products may be produced. Refer to protective measures listed in sections 7 and 8.
10.5 Incompatible materials	: Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.
10.6 Hazardous decomposition products	: Depending on conditions, decomposition products may include the following materials: Cyanate and isocyanate. carbon oxides nitrogen oxides hydrogen cyanide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Hexamethylene diisocyanate, oligomers (isocyanurate type)	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat - Female	>2500 mg/kg	-
n-butyl acetate	LC50 Inhalation Vapour	Rat	>21.1 mg/l	4 hours
	LC50 Inhalation Vapour	Rat	2000 ppm	4 hours
	LD50 Dermal	Rabbit	>17600 mg/kg	-
Hydrocarbons, C9, aromatics	LD50 Oral	Rat	10.768 g/kg	-
	LD50 Dermal	Rabbit	>3160 mg/kg	-
	LD50 Oral	Rat - Female	3492 mg/kg	-
hexamethylene-di-isocyanate	LC50 Inhalation Dusts and	Rat	124 mg/m ³	4 hours

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SECTION 11: Toxicological information

	mists			
	LC50 Inhalation Vapour	Rat	151 mg/m ³	4 hours
	LC50 Inhalation Vapour	Rat	22 ppm	4 hours
	LD50 Dermal	Rabbit	0.57 g/kg	-
	LD50 Oral	Rat	0.71 g/kg	-

Conclusion/Summary : There are no data available on the mixture itself.

Acute toxicity estimates

Route	ATE value
Inhalation (vapours)	101.34 mg/l
Inhalation (dusts and mists)	1.67 mg/l

Irritation/Corrosion

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Eyes : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Sensitisation

Conclusion/Summary

Skin : There are no data available on the mixture itself.

Respiratory : There are no data available on the mixture itself.

Mutagenicity

Conclusion/Summary : There are no data available on the mixture itself.

Carcinogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Reproductive toxicity

Conclusion/Summary : There are no data available on the mixture itself.

Teratogenicity

Conclusion/Summary : There are no data available on the mixture itself.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Hexamethylene diisocyanate, oligomers (isocyanurate type)	Category 3	-	Respiratory tract irritation
n-butyl acetate	Category 3	-	Narcotic effects
Hydrocarbons, C9, aromatics	Category 3	-	Respiratory tract irritation
hexamethylene-di-isocyanate	Category 3	-	Narcotic effects
	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Product/ingredient name	Result
Hydrocarbons, C9, aromatics	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Not available.

Potential acute health effects

Inhalation : Harmful if inhaled. May cause respiratory irritation.

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SECTION 11: Toxicological information**Ingestion** : No known significant effects or critical hazards.**Skin contact** : Defatting to the skin. May cause skin dryness and irritation. May cause an allergic skin reaction.**Eye contact** : No known significant effects or critical hazards.**Symptoms related to the physical, chemical and toxicological characteristics****Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing**Ingestion** : No specific data.**Skin contact** : Adverse symptoms may include the following:
irritation
redness
dryness
cracking**Eye contact** : No specific data.**Delayed and immediate effects as well as 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 : 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.**Reproductive toxicity** : No known significant effects or critical hazards.**Other information** : Not available.

Prolonged or repeated contact may dry skin and cause irritation. Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Inhalation of vapour/aerosol concentrations above the recommended exposure limits causes headaches, drowsiness and nausea and may lead to unconsciousness or death. Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitisation of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Repeated exposure may lead to permanent respiratory disability. Moisture-sensitive material. Avoid contact with skin and clothing.

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SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Hexamethylene diisocyanate, oligomers (isocyanurate type)	Acute EC50 >1000 mg/l	Algae - scenedesmus subspicatus	72 hours
	Acute EC50 >100 mg/l	Daphnia - daphnia magna	48 hours
	Acute LC50 >100 mg/l	Fish - Danio rerio (zebra fish)	96 hours
n-butyl acetate Hydrocarbons, C9, aromatics	Acute LC50 18 mg/l	Fish	96 hours
	EC50 3.2 mg/l	Daphnia	48 hours
	LC50 9.2 mg/l	Fish	96 hours

Conclusion/Summary : There are no data available on the mixture itself.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
n-butyl acetate Hydrocarbons, C9, aromatics	TEPA and OECD 301D	83 % - Readily - 28 days	-	-
	-	75 % - Readily - 28 days	-	-

Conclusion/Summary : There are no data available on the mixture itself.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Hexamethylene diisocyanate, oligomers (isocyanurate type)	-	-	Not readily
n-butyl acetate	-	-	Readily
Hydrocarbons, C9, aromatics	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Hexamethylene diisocyanate, oligomers (isocyanurate type)	-	3.2	low
n-butyl acetate	1.78	-	low
hexamethylene-di-isocyanate	1.08	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects : No known significant effects or critical hazards.

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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 minimised 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.

European waste catalogue (EWC)

Waste code	Waste designation
08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Type of packaging	European waste catalogue (EWC)
Container	15 01 06 mixed packaging

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. Vapour 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN 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
14.5 Environmental hazards	No.	Yes.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.	Not applicable.

Additional information

ADR/RID : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.2.3.1.5.1.

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14. Transport information

Tunnel code : (D/E)

ADN : The product is only regulated as an environmentally hazardous substance when transported in tank vessels. This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.2.3.1.5.1.

IMDG : This class 3 viscous liquid is not subject to regulation in packagings up to 450 L according to 2.3.2.5.

IATA : None identified.

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 Transport in bulk according to IMO instruments : Not applicable.

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 authorisation

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 : Not applicable.

Ozone depleting substances (1005/2009/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

P5c

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

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SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

ATE = Acute Toxicity Estimate

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]

DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement

PNEC = Predicted No Effect Concentration

RRN = REACH Registration Number

PBT = Persistent, Bioaccumulative and Toxic

vPvB = Very Persistent and Very Bioaccumulative

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway

IMDG = International Maritime Dangerous Goods

IATA = International Air Transport Association

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

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

Full text of abbreviated H statements

H226 H302 H304 H315 H317 H319 H330 H332 H334 H335 H336 H411 H412 EUH066	Flammable liquid and vapour. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Fatal if inhaled. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects. Harmful 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. 1 Acute Tox. 4 Aquatic Chronic 2 Aquatic Chronic 3 Asp. Tox. 1 Eye Irrit. 2 Flam. Liq. 3 Resp. Sens. 1 Skin Irrit. 2 Skin Sens. 1 STOT SE 3	ACUTE TOXICITY - Category 1 ACUTE TOXICITY - Category 4 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 ASPIRATION HAZARD - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 3 RESPIRATORY SENSITISATION - Category 1 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITISATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3
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SECTION 16: Other information

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Prepared by : EHS

Version : 2

Disclaimer

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