

# SAFETY DATA SHEET

Date of issue/Date of revision

: 3 March 2025

Version

: 2.02



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

### 1.1 Product identifier

**Product name** : SIGMALINE 859 HARDENER

**Product code** : 00155314

**Other means of identification**

Not available.

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

**Product use** : Consumer applications, Professional applications, Used by spraying.

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

### 1.3 Details of the supplier of the safety data sheet

Sigma Paint Saudi Arabia Ltd.  
PO Box 7509  
Dammam 31472  
Saudi Arabia  
Tel: 00966 138 47 31 00  
Fax: 00966 138 47 17 34

**e-mail address of person  
responsible for this SDS** : ndpic@sfga.gov.sa

**1.4 Emergency telephone  
number** : 00966 138473100 extn 1001

## 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]**

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.

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** :



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## SECTION 2: Hazards identification

**Signal word** : Danger

**Hazard statements** : 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.

### Precautionary statements

**General** : Keep out of reach of children. If medical advice is needed, have product container or label at hand.

**Prevention** : Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Wear respiratory protection. Use only outdoors or in a well-ventilated area. Do not breathe vapour. Wash thoroughly after handling.

**Response** : If exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

**Storage** : Store locked up. Store in a well-ventilated place. Keep container tightly closed.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.  
P102, P101, P201, P280, P284, P271, P260, P264, P308 + P313, P304 + P340, P312, P342 + P311, P302 + P352, P333 + P313, P362 + P364, P305 + P351 + P338, P337 + P313, P405, P403 + P233, P501

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

**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** : Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

**As from August 24 2023 adequate training is required before industrial or professional use.**

### Special packaging requirements

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Yes, applicable.

### 2.3 Other hazards

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

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## SECTION 2: Hazards identification

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
Isocyanic acid, polymethylenepolyphenylene ester	REACH #: 01-2119457024-46 CAS: 9016-87-9	≥75 - ≤90	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 (inhalation)	ATE [Inhalation (dusts and mists)] = 1.5 mg/l	[1]
4,4'-methylenediphenyl diisocyanate	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8 Index: 615-005-00-9	≥10 - ≤15	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 - ≤15	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]
2,2'-methylenediphenyl diisocyanate	REACH #: 01-2119927323-43 EC: 219-799-4 CAS: 2536-05-2 Index: 615-005-00-9	<0.10	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  See Section 16 for the full text of the H statements declared above.	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]

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## SECTION 3: Composition/information on ingredients

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

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

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- 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.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

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

**Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous combustion products** : Decomposition products may include the following materials:  
carbon oxides  
nitrogen oxides  
Cyanate and isocyanate.  
hydrogen cyanide

### 5.3 Advice for firefighters

**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.

**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. 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).

### 6.3 Methods and material for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. 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. 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.

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## SECTION 6: Accidental release measures

- 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.
- 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). 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. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- 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** : Storage temperature: 0 to 35°C (32 to 95°F). Store in accordance with local regulations. 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. 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. CO<sub>2</sub> will be formed, which, in closed containers, could result in pressurisation.

### 7.3 Specific end use(s)

See Section 1.2 for Identified uses.



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## 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

Product/ingredient name	Exposure limit values
4,4'-methylenediphenyl diisocyanate	<b>Abu Dhabi - OSHAD - Occupational air quality threshold limit values (United Arab Emirates, 7/2016)</b> TWA 8 hours: 0.051 mg/m <sup>3</sup> . TWA 8 hours: 0.005 ppm. <b>Cabinet Decree (12) of 2006 Regarding Regulation Concerning Protection of Air from Pollution (United Arab Emirates, 5/2006)</b> TWA 8 hours: 0.051 mg/m <sup>3</sup> . TWA 8 hours: 0.005 ppm. <b>ACGIH TLV (United States, 1/2007)</b> TWA 8 hours: 0.05 mg/m <sup>3</sup> .

**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.

### 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.

#### 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** : Chemical splash goggles.

#### 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 assessment.

**Gloves** : butyl rubber

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## SECTION 8: Exposure controls/personal protection

- 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.
- 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** :
- 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

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.
- Colour** : Not available.
- Odour** : Characteristic.
- Odour threshold** : Not available.
- Melting point/freezing point** : Not determined.
- Initial boiling point and boiling range** : >37.78°C
- Flammability** : Not determined. There are no data available on the mixture itself.
- Upper/lower flammability or explosive limits** : Not available.
- Flash point** : Closed cup: 220°C
- Auto-ignition temperature** :

Ingredient name	°C	°F	Method
4'-methylenediphenyl diisocyanate	>601	>1113.8	EU A.15

- Decomposition temperature** : Stable under recommended storage and handling conditions (see Section 7).
- pH** : Not applicable. insoluble in water.
- Viscosity** : Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): >21 mm<sup>2</sup>/s

#### Solubility(ies)

Media	Result
cold water	Not soluble

- Partition coefficient: n-octanol/ water** : Not applicable.

#### Vapour pressure

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
(p-isocyanatobenzyl) phenyl isocyanate	0.00001	0.0000013	EU A.4			

- Relative density** : 1.24



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

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SECTION 9: Physical and chemical properties

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.

Particle characteristics

Median particle size

: Not applicable.

9.2 Other information

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.

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

The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly.

Harmful if inhaled.

Causes serious eye irritation.

Causes skin irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

Suspected of causing cancer.

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure.

Acute toxicity

Product/ingredient name	Result	Dose / Exposure
diphenylmethanediisocyanate, isomeres and homologues	Rat - Oral - LD50 Toxic effects: Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Changes in Chemistry or Temperature - Body temperature decrease	49 g/kg
4,4'-methylenediphenyl diisocyanate	Rabbit - Dermal - LD50 Rat - Oral - LD50 Toxic effects: Behavioral - Somnolence (general	>9400 mg/kg 9200 mg/kg

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depressed activity) Behavioral - Ataxia Changes in Chemistry or Temperature - Body temperature decrease

#### Acute toxicity estimates

Route	ATE value
Inhalation (dusts and mists)	1.5 mg/l

Conclusion/Summary : Harmful if inhaled.

#### Irritation/Corrosion

Product/ingredient name	Result
4,4'-methylenediphenyl diisocyanate	Rabbit - Skin - Irritant

#### Conclusion/Summary

Skin : Causes skin irritation.

Eyes : Causes serious eye irritation.

Respiratory : Based on available data, the classification criteria are not met.

#### Respiratory or skin sensitization

Product/ingredient name	Test	Result
4,4'-methylenediphenyl diisocyanate	Mouse - skin OECD 429	Result: Sensitising
-	Guinea pig - Respiratory	Result: Sensitising

#### Conclusion/Summary

Skin : May cause an allergic skin reaction.

Respiratory : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### Mutagenicity

Based on available data, the classification criteria are not met.

#### Carcinogenicity

Product/ingredient name	Result	Species / Route of exposure	Dose / Exposure
4,4'-methylenediphenyl diisocyanate	Result: Positive	Rat - Inhalation - TC	0 to 6 mg/m <sup>3</sup> [5 days per week] [2 years]

Suspected of causing cancer.

#### Reproductive toxicity

Based on available data, the classification criteria are not met.

#### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Isocyanic acid, polymethylenepolyphenylene ester	Category 3	-	Respiratory tract irritation
4,4'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 3	-	Respiratory tract irritation
2,2'-methylenediphenyl diisocyanate	Category 3	-	Respiratory tract irritation

Conclusion/Summary (Product) :

May cause respiratory irritation.

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

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Product/ingredient name	Category	Route of exposure	Target organs
Isocyanic acid, polymethylenepolyphenylene ester	Category 2	inhalation	-
4,4'-methylenediphenyl diisocyanate	Category 2	-	-
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 2	-	-
2,2'-methylenediphenyl diisocyanate	Category 2	-	-

**Conclusion/Summary (Product) :**

May cause damage to organs through prolonged or repeated exposure.

Based on available data, the classification criteria are not met.

**Information on likely routes of exposure** : Not available.

**Potential acute health effects**

**Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Ingestion** : No known significant effects or critical hazards.

**Skin contact** : Causes skin irritation. May cause an allergic skin reaction.

**Eye contact** : Causes serious eye irritation.

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

**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
wheezing and breathing difficulties  
asthma

**Ingestion** : No specific data.

**Skin contact** : Adverse symptoms may include the following:  
irritation  
redness

**Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Short term exposure**

**Potential immediate effects** : No known significant effects or critical hazards.

**Potential delayed effects** : No known significant effects or critical hazards.

**Long term exposure**

**Potential immediate effects** : No known significant effects or critical hazards.

**Potential delayed effects** : No known significant effects or critical hazards.

**Potential chronic health effects**

**General** : 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.

**Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity** : No known significant effects or critical hazards.

**Reproductive toxicity** : No known significant effects or critical hazards.

**Other information** : Not available.

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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.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

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

Not available.

Conclusion/Summary : Based on available data, the classification criteria are not met.

12.2 Persistence and degradability

Based on available data, the classification criteria are not met.

12.3 Bioaccumulative potential

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

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
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

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 Endocrine disrupting properties

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.

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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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.
Marine pollutant substances	Not applicable.	Not applicable.	Not applicable.

### Additional information

**ADR/RID** : None identified.

**IMDG** : None identified.

**IATA** : None identified.

### 14.6 Special precautions for user

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SECTION 14: Transport information

: **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** :  Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.  
  
**As from August 24 2023 adequate training is required before industrial or professional use.**

Other national and international regulations.  
**Explosive precursors** :  Not applicable.  
Ozone depleting substances (EU 2024/590)  
Not listed.

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

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

**Full text of abbreviated H statements** : 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.

**Full text of classifications [CLP/GHS]**



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SECTION 16: Other information

: Acute Tox. 4	ACUTE TOXICITY - Category 4
Carc. 2	CARCINOGENICITY - Category 2
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Resp. Sens. 1	RESPIRATORY SENSITISATION - Category 1
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

History

Date of issue/ Date of revision	: 3 March 2025
Date of previous issue	: 28 February 2022
Prepared by	: EHS
Version	: 2.02

Disclaimer

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