

# SAFETY DATA SHEET



Date of issue/Date of revision

: 28 April 2025

Version

: 1.04

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

### 1.1 Product identifier

**Product name** : SIGMALINE 855 (11) HARDENER

**Product code** : 000001091340

**Other means of identification**

00349941

### 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** : Hardener.

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

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

Sigma Paints Egypt  
Villa#8, street 279  
New Maadi, Cairo  
Egypt  
Tel: 00202 516 223 797  
Fax: 00202 516 38 04

**e-mail address of person  
responsible for this SDS** : PS.ACEMEA@ppg.com

**1.4 Emergency telephone  
number** : +20 2 6840902

## 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** :



**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

## 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**
- Prevention** : Wear protective gloves, protective clothing and eye or face protection. Do not breathe vapour.
- Response** : IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
- Storage** : 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.  
P280, P260, P304 + P340, P342 + P311, P403 + P233, P501
- Hazardous ingredients** : Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)]; 4,4'-methylenediphenyl diisocyanate; Isocyanic acid, polymethylenepolyphenylene ester and
- 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** :  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** : Not 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.
- Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

**3.2 Mixtures** : Mixture

**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

### SECTION 3: Composition/information on ingredients

| Product/ingredient name                                                                                                      | Identifiers                                                                           | %          | Classification                                                                                                                                                                                                        | Specific Conc. Limits, M-factors and ATEs                                                                                                                              | Type    |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)] | CAS: 53862-89-8                                                                       | ≥25 - ≤50  | Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT SE 3, H335<br>STOT RE 2, H373 (inhalation)                                      | ATE [Inhalation (vapours)] = 11 mg/l                                                                                                                                   | [1]     |
| 4,4'-methylenediphenyl diisocyanate                                                                                          | REACH #:<br>01-2119457014-47<br>EC: 202-966-0<br>CAS: 101-68-8<br>Index: 615-005-00-9 | ≥25 - ≤50  | Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT SE 3, H335<br>STOT RE 2, H373                                                   | ATE [Inhalation (dusts and mists)] = 1.5 mg/l<br>Skin Irrit. 2, H315: C ≥ 5%<br>Eye Irrit. 2, H319: C ≥ 5%<br>Resp. Sens. 1, H334: C ≥ 0.1%<br>STOT SE 3, H335: C ≥ 5% | [1] [2] |
| Isocyanic acid, polymethylenepolyphenylene ester                                                                             | REACH #:<br>01-2119457024-46<br>CAS: 9016-87-9                                        | ≥25 - ≤50  | Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Carc. 2, H351<br>STOT SE 3, H335<br>STOT RE 2, H373 (inhalation)                                      | ATE [Inhalation (dusts and mists)] = 1.5 mg/l                                                                                                                          | [1]     |
| methylenediphenyl diisocyanate, oligomers, polymer                                                                           | CAS: SUB137264                                                                        | ≥5.0 - ≤10 | Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Resp. Sens. 1A, H334<br>Skin Sens. 1A, H317<br>STOT SE 3, H335<br>Aquatic Chronic 4, H413<br><b>See Section 16 for the full text of the H statements declared above.</b> | ATE [Inhalation (dusts and mists)] = 1.5 mg/l                                                                                                                          | [1]     |

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.

[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.

Code : 000001091340

Date of issue/Date of revision

: 28 April 2025

SIGMALINE 855 (11) HARDENER

## 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.  
In case of accidental eye contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation or blistering occurs after contact.
- 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.  
In case of accidental skin contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation, rash or blistering occurs after contact.
- 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.

|                             |                                                       |
|-----------------------------|-------------------------------------------------------|
| <b>Code</b> : 000001091340  | <b>Date of issue/Date of revision</b> : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                                                       |

## 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.

Code : 000001091340

Date of issue/Date of revision

: 28 April 2025

SIGMALINE 855 (11) HARDENER

## 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** : Store between the following temperatures: 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.

**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

## 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>Law Number 4 of 1994, Environmental Law, Annex 8 - Maximum limits for air pollutants inside workplaces (Egypt, 8/2011)</b><br>TWA 8 hours: 0.051 mg/m <sup>3</sup> .<br>TWA 8 hours: 0.005 ppm. |

**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** : polyethylene 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.

**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.

|                             |                                                       |
|-----------------------------|-------------------------------------------------------|
| <b>Code</b> : 000001091340  | <b>Date of issue/Date of revision</b> : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                                                       |

**SECTION 8: Exposure controls/personal protection**

|                                        |   |                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Respiratory protection</b>          | : |                                                                                                                                                                                                                                                                                                                      |
| <b>Restrictions on use</b>             | : | 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.                                                                                                                                                         |
| <b>Environmental exposure controls</b> | : | 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

Colour

Odour

Odour threshold

Melting point/freezing point

Initial boiling point and boiling range

Flammability

Upper/lower flammability or explosive limits

Flash point

Auto-ignition temperature

: Liquid.

: Colourless.

: Aromatic.

: Not available.

: Not determined.

: >37.78°C

: Not determined. There are no data available on the mixture itself.

: Not available.

: Closed cup: Not applicable.

:

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

Decomposition temperature

pH

Viscosity

Solubility(ies)

: Stable under recommended storage and handling conditions (see Section 7).

: Not applicable. insoluble in water.

: Dynamic (room temperature): Not available.  
Kinematic (room temperature): Not available.  
Kinematic (40°C): >21 mm²/s

:

| Media      | Result      |
|------------|-------------|
| cold water | Not soluble |

Partition coefficient: n-octanol/ water

Vapour pressure

: Not applicable.

:

| Ingredient name                                  | Vapour Pressure at 20°C |           |        | Vapour pressure at 50°C |     |        |
|--------------------------------------------------|-------------------------|-----------|--------|-------------------------|-----|--------|
|                                                  | mm Hg                   | kPa       | Method | mm Hg                   | kPa | Method |
| Isocyanic acid, polymethylenepolyphenylene ester | <0.000007501            | <0.000001 |        |                         |     |        |

Relative density

Explosive properties

Oxidising properties

Particle characteristics

Median particle size

: 1.17

: The product itself is not explosive, but the formation of an explosible mixture of vapour or dust with air is possible.

: Product does not present an oxidizing hazard.

:

: Not applicable.

|                             |                |                                |                 |
|-----------------------------|----------------|--------------------------------|-----------------|
| Code                        | : 000001091340 | Date of issue/Date of revision | : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                |                                |                 |

SECTION 9: Physical and chemical properties

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.<br>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.<br>Uncontrolled exothermic reactions occur with amines and alcohols.  |
| 10.6 Hazardous decomposition products   | : Depending on conditions, decomposition products may include the following materials:<br>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 |
|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 4,4'-methylenediphenyl diisocyanate<br><br>diphenylmethanediisocyanate, isomeres and homologues | Rat - Oral - LD50<br><i>Toxic effects:</i> Behavioral - Somnolence (general depressed activity) Behavioral - Ataxia Changes in Chemistry or Temperature - Body temperature decrease                        | 9200 mg/kg      |
|                                                                                                 | Rat - Oral - LD50<br><i>Toxic effects:</i> Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Changes in Chemistry or Temperature - Body temperature decrease | 49 g/kg         |
|                                                                                                 | Rabbit - Dermal - LD50                                                                                                                                                                                     | >9400 mg/kg     |

Acute toxicity estimates

**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

| Route                        | ATE value  |
|------------------------------|------------|
| Inhalation (vapours)         | 34.39 mg/l |
| Inhalation (dusts and mists) | 2.21 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<br>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, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy (methyl-1,2-ethanediyl)] | Category 3 | -                 | Respiratory tract irritation |
| 4,4'-methylenediphenyl diisocyanate                                                                                           | Category 3 | -                 | Respiratory tract irritation |
| Isocyanic acid, polymethylenepolyphenylene ester                                                                              | Category 3 | -                 | Respiratory tract irritation |
| methylenediphenyl diisocyanate, oligomers, polymer                                                                            | Category 3 | -                 | Respiratory tract irritation |

#### Conclusion/Summary (Product) :

May cause respiratory irritation.

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

**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

| Product/ingredient name                                                                                                       | Category   | Route of exposure | Target organs |
|-------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|---------------|
| Isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy (methyl-1,2-ethanediyl)] | Category 2 | inhalation        | -             |
| 4,4'-methylenediphenyl diisocyanate                                                                                           | Category 2 | -                 | -             |
| Isocyanic acid, polymethylenepolyphenylene ester                                                                              | Category 2 | inhalation        | -             |

**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.

**Code** : 000001091340 **Date of issue/Date of revision** : 28 April 2025  
SIGMALINE 855 (11) HARDENER

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. Acrylate components of the mixture have irritating properties. Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms, such as redness, blistering, dermatitis etc. May cause allergic skin reactions with repeated exposure. The inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract. Ingestion may cause nausea, weakness and central nervous system effects. In case of accidental skin contact, avoid direct exposure to the sun or other sources of UV light as severe irritation including burns may result. These reactions can be delayed – get medical attention if pain, irritation, rash or blistering occurs after contact.

## 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      |
| methylenediphenyl diisocyanate, oligomers, polymer | 6.17               | -   | High      |

### 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         |

### 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.

|                             |                                                       |
|-----------------------------|-------------------------------------------------------|
| <b>Code</b> : 000001091340  | <b>Date of issue/Date of revision</b> : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                                                       |

**SECTION 12: Ecological information**

**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 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            |
|----------------------------------------|-----------------|-----------------|-----------------|
| <b>14.1 UN number or ID number</b>     | Not regulated.  | Not regulated.  | Not regulated.  |
| <b>14.2 UN proper shipping name</b>    | -               | -               | -               |
| <b>14.3 Transport hazard class(es)</b> | -               | -               | -               |
| <b>14.4 Packing group</b>              | -               | -               | -               |
| <b>14.5 Environmental hazards</b>      | No.             | No.             | No.             |
| <b>Marine pollutant substances</b>     | Not applicable. | Not applicable. | Not applicable. |

**Additional information**  
**ADR/RID** : None identified.

|                             |                |                                |                 |
|-----------------------------|----------------|--------------------------------|-----------------|
| Code                        | : 000001091340 | Date of issue/Date of revision | : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                |                                |                 |

SECTION 14: Transport information

|      |                    |
|------|--------------------|
| IMDG | : None identified. |
| 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](#) :  **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.  
H413 May cause long lasting harmful effects to aquatic life.

|                             |                |                                |                 |
|-----------------------------|----------------|--------------------------------|-----------------|
| Code                        | : 000001091340 | Date of issue/Date of revision | : 28 April 2025 |
| SIGMALINE 855 (11) HARDENER |                |                                |                 |

SECTION 16: Other information

|                                        |                   |                                                                 |
|----------------------------------------|-------------------|-----------------------------------------------------------------|
| Full text of classifications [CLP/GHS] | : Acute Tox. 4    | ACUTE TOXICITY - Category 4                                     |
|                                        | Aquatic Chronic 4 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 4                 |
|                                        | Carc. 2           | CARCINOGENICITY - Category 2                                    |
|                                        | Eye Irrit. 2      | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2                  |
|                                        | Resp. Sens. 1     | RESPIRATORY SENSITISATION - Category 1                          |
|                                        | Resp. Sens. 1A    | RESPIRATORY SENSITISATION - Category 1A                         |
|                                        | Skin Irrit. 2     | SKIN CORROSION/IRRITATION - Category 2                          |
|                                        | Skin Sens. 1      | SKIN SENSITISATION - Category 1                                 |
|                                        | Skin Sens. 1A     | SKIN SENSITISATION - Category 1A                                |
|                                        | 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 | : 28 April 2025  |
| Date of previous issue          | : 9 October 2024 |
| Prepared by                     | : EHS            |
| Version                         | : 1.04           |

Disclaimer

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