

# SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by UK REACH Regulation SI 2019/758

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

### 1.1 Product identifier

**Product identifier** : MS X 5-25  
**Product name** : STANDOX HARDENER MS X 5-25  
**Product type** : Liquid.  
**Other means of identification** : 4024669791273  
**Date of issue** : 23 January 2024  
**Version** : 1.05  
**Date of previous issue** : 15 January 2024

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

**Identified uses** : Coating component.  
**Uses advised against** : Not for sale to or use by consumers.

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

Axalta Coating Systems Germany GmbH & Co. KG  
Christbusch 25  
DE 42285 Wuppertal  
+49 (0)202 529-0

**e-mail address of person responsible for this SDS** : sds-competence@axalta.com

### 1.4 Emergency telephone number

#### Supplier

**Telephone number** : +(44)-870-8200418  
**Hours of operation** :

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to UK CLP/GHS

Flam. Liq. 3, H226  
Acute Tox. 4, H332  
Skin Irrit. 2, H315  
Eye Irrit. 2, H319  
Skin Sens. 1, H317  
STOT SE 3, H335  
STOT SE 3, H336  
STOT RE 2, H373  
Aquatic Chronic 3, H412

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 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.

## SECTION 2: Hazards identification

### 2.2 Label elements

**Hazard pictograms**



**Signal word**

: Warning

**Contains**

: Hexamethylene diisocyanate, oligomers  
n-butyl acetate  
Reaction mass of ethylbenzene and xylene  
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers

**Hazard statements**

: H226 - Flammable liquid and vapour.  
H315 - Causes skin irritation.  
H317 - May cause an allergic skin reaction.  
H319 - Causes serious eye irritation.  
H332 - Harmful if inhaled.  
H335 - May cause respiratory irritation.  
H336 - May cause drowsiness or dizziness.  
H373 - May cause damage to organs through prolonged or repeated exposure.  
H412 - Harmful to aquatic life with long lasting effects.

### Precautionary statements

**Prevention**

: P280 - Wear protective gloves. Wear eye or face protection.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273 - Avoid release to the environment.  
P260 - Do not breathe vapour.  
P264 - Wash hands thoroughly after handling.

**Response**

: P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage**

: Not applicable.

**Disposal**

: Not applicable.

**Supplemental label elements**

: EUH204 - Contains isocyanates. May produce an allergic reaction.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles**

: Not applicable.

### 2.3 Other hazards

**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

STANDOX HARDENER MS X 5-25

### SECTION 3: Composition/information on ingredients

| Product/ingredient name  | Identifiers  | %         | Classification  | Type    |
|--|--|-----------|---|---------|
| Hexamethylene diisocyanate, oligomers                              | REACH #:<br>01-2119485796-17<br>EC: 931-274-8<br>CAS: 28182-81-2 | ≥25 - ≤40 | Acute Tox. 4, H332<br>Skin Sens. 1, H317<br>STOT SE 3, H335   | [1] [2] |
| n-butyl acetate  | REACH #:<br>01-2119485493-29<br>EC: 204-658-1<br>CAS: 123-86-4   | ≥10 - ≤25 | Flam. Liq. 3, H226<br>STOT SE 3, H336<br>EUH066   | [1] [2] |
| Hydrocarbons, C9, aromatics  | REACH #:<br>01-2119455851-35<br>EC: 918-668-5                    | ≥10 - <25 | Flam. Liq. 3, H226<br>STOT SE 3, H335<br>STOT SE 3, H336<br>Asp. Tox. 1, H304<br>Aquatic Chronic 2, H411<br>EUH066  | [1]     |
| Reaction mass of ethylbenzene and xylene                           | REACH #:<br>01-2119539452-40<br>EC: 905-588-0                    | ≤14       | Flam. Liq. 3, H226<br>Acute Tox. 4, H312<br>Acute Tox. 4, H332<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335<br>STOT RE 2, H373<br>Asp. Tox. 1, H304<br>Aquatic Chronic 3, H412 | [1]     |
| 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers | REACH #:<br>01-2119488734-24<br>EC: 931-312-3<br>CAS: 53880-05-0 | ≤10       | Skin Sens. 1B, H317<br>STOT SE 3, H335  | [1] [2] |
| 2-methoxy-1-methylethyl acetate                                    | REACH #:<br>01-2119475791-29<br>EC: 203-603-9<br>CAS: 108-65-6   | ≤5        | Flam. Liq. 3, H226<br>STOT SE 3, H336   | [1] [2] |
| Propanol, 1(or 2)-ethoxy-, acetate                                 | REACH #:<br>01-2119475116-39<br>EC: 259-370-9<br>CAS: 98516-30-4 | ≤5        | Flam. Liq. 3, H226<br>STOT SE 3, H336   | [1]     |
|  |  |           | <b>See Section 16 for the full text of the H statements declared above.</b>   |         |

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 physical, health or environmental hazard

[2] Substance with a workplace exposure limit

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

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

## SECTION 4: First aid measures

- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- 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

#### 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  
 nausea or vomiting  
 headache  
 drowsiness/fatigue  
 dizziness/vertigo  
 unconsciousness
- 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.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Recommended: alcohol-resistant foam, CO<sub>2</sub>, powders, water spray or mist.

**Unsuitable extinguishing media** : Do not use water jet.

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

**Hazards from the substance or mixture** : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.

**Hazardous combustion products** : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

### 5.3 Advice for firefighters

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

**Special protective equipment for fire-fighters** : Appropriate breathing apparatus may be required.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.

**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** : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

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

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.**

**Examination of lung function should be carried out on a regular basis on persons spraying this mixture.**

### 7.1 Precautions for safe handling

## SECTION 7: Handling and storage

Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.

In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.

Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing and floors should be of the conducting type.

Care should be taken when re-opening partly-used containers. Precautions should be taken to minimise exposure to atmospheric humidity or water. CO<sub>2</sub> will be formed, which, in closed containers, could result in pressurisation. Keep away from heat, sparks and flame. No sparking tools should be used.

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Put on appropriate personal protective equipment (see Section 8).

Never use pressure to empty. Container is not a pressure vessel.

Always keep in containers made from the same material as the original one.

Comply with the health and safety at work laws.

Do not allow to enter drains or watercourses.

**Information on fire and explosion protection**

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations.

#### Notes on joint storage

Keep away from: oxidising agents, strong alkalis, strong acids.

#### Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight.

Keep container tightly closed.

Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

#### Seveso Directive - Reporting thresholds

##### Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|----------|---------------------------------|-------------------------|
| P5c      | 5000 tonne                      | 50000 tonne             |

### 7.3 Specific end use(s)

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

| Product/ingredient name  | Exposure limit values  |
|--|--|
| Hexamethylene diisocyanate, oligomers                              | <b>EH40/2005 WELs (United Kingdom (UK), 1/2020). [isocyanates, all, except methyl isocyanate] Inhalation sensitiser.</b><br>STEL: 0.07 mg/m <sup>3</sup> , (as -NCO) 15 minutes.<br>TWA: 0.02 mg/m <sup>3</sup> , (as -NCO) 8 hours. |
| n-butyl acetate  | <b>EH40/2005 WELs (United Kingdom (UK), 1/2020).</b><br>STEL: 966 mg/m <sup>3</sup> 15 minutes.<br>STEL: 200 ppm 15 minutes.<br>TWA: 724 mg/m <sup>3</sup> 8 hours.<br>TWA: 150 ppm 8 hours.   |
| 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers | <b>EH40/2005 WELs (United Kingdom (UK), 1/2020). [isocyanates, all, except methyl isocyanate] Inhalation sensitiser.</b><br>STEL: 0.07 mg/m <sup>3</sup> , (as -NCO) 15 minutes.   |

STANDOX HARDENER MS X 5-25

## SECTION 8: Exposure controls/personal protection

|                                 |  |
|---------------------------------|--|
| 2-methoxy-1-methylethyl acetate | TWA: 0.02 mg/m <sup>3</sup> , (as -NCO) 8 hours.<br><b>EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.</b><br>STEL: 548 mg/m <sup>3</sup> 15 minutes.<br>TWA: 50 ppm 8 hours.<br>TWA: 274 mg/m <sup>3</sup> 8 hours.<br>STEL: 100 ppm 15 minutes. |
|---------------------------------|--|

### Biological exposure indices

No exposure indices known.

**Recommended monitoring procedures** : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

| Product/ingredient name               | Type   | Exposure              | Value                  | Population             | Effects  |          |
|---------------------------------------|--|-----------------------|------------------------|------------------------|----------|----------|
| Hexamethylene diisocyanate, oligomers | DNEL   | Long term Inhalation  | 0.5 mg/m <sup>3</sup>  | Workers                | Local    |          |
|                                       | DNEL   | Short term Inhalation | 1 mg/m <sup>3</sup>    | Workers                | Local    |          |
| n-butyl acetate                       | DNEL   | Short term Dermal     | 11 mg/kg bw/day        | Workers                | Systemic |          |
|                                       | DNEL   | Long term Oral        | 2 mg/kg bw/day         | General population     | Systemic |          |
|                                       | DNEL   | Short term Oral       | 2 mg/kg bw/day         | General population     | Systemic |          |
|                                       | DNEL   | Long term Dermal      | 3.4 mg/kg bw/day       | General population     | Systemic |          |
|                                       | DNEL   | Short term Dermal     | 6 mg/kg bw/day         | General population     | Systemic |          |
|                                       | DNEL   | Long term Dermal      | 7 mg/kg bw/day         | Workers                | Systemic |          |
|                                       | DNEL   | Short term Dermal     | 11 mg/kg bw/day        | Workers                | Systemic |          |
|                                       | DNEL   | Long term Inhalation  | 12 mg/m <sup>3</sup>   | General population     | Systemic |          |
|                                       | DNEL   | Long term Inhalation  | 35.7 mg/m <sup>3</sup> | General population     | Local    |          |
|                                       | DNEL   | Long term Inhalation  | 48 mg/m <sup>3</sup>   | Workers                | Systemic |          |
| Hydrocarbons, C9, aromatics           | DNEL   | Short term Inhalation | 300 mg/m <sup>3</sup>  | General population     | Local    |          |
|                                       | DNEL   | Short term Inhalation | 300 mg/m <sup>3</sup>  | General population     | Systemic |          |
|                                       | DNEL   | Long term Inhalation  | 300 mg/m <sup>3</sup>  | Workers                | Local    |          |
|                                       | DNEL   | Short term Inhalation | 600 mg/m <sup>3</sup>  | Workers                | Local    |          |
|                                       | DNEL   | Short term Inhalation | 600 mg/m <sup>3</sup>  | Workers                | Systemic |          |
|                                       | DNEL   | Long term Inhalation  | 150 mg/m <sup>3</sup>  | Workers                | Systemic |          |
|                                       | DNEL   | Long term Dermal      | 25 mg/kg bw/day        | Workers                | Systemic |          |
|                                       | Reaction mass of ethylbenzene and xylene                           | DNEL                  | Long term Dermal       | 212 mg/kg bw/day       | Workers  | Systemic |
|                                       |  | DNEL                  | Long term Inhalation   | 221 mg/m <sup>3</sup>  | Workers  | Systemic |
|                                       | 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers | DNEL                  | Long term Inhalation   | 0.29 mg/m <sup>3</sup> | Workers  | Local    |
| DNEL                                  |  | Short term Inhalation | 0.58 mg/m <sup>3</sup> | Workers                | Local    |          |

STANDOX HARDENER MS X 5-25

## SECTION 8: Exposure controls/personal protection

|                                    |      |                       |                       |         |          |
|------------------------------------|------|-----------------------|-----------------------|---------|----------|
| 2-methoxy-1-methylethyl acetate    | DNEL | Long term Dermal      | 796 mg/kg bw/day      | Workers | Systemic |
|                                    | DNEL | Long term Inhalation  | 275 mg/m <sup>3</sup> | Workers | Systemic |
|                                    | DNEL | Short term Inhalation | 550 mg/m <sup>3</sup> | Workers | Local    |
|                                    | DNEL | Long term Inhalation  | 49.785 ppm            | Workers | Systemic |
|                                    | DNEL | Long term Dermal      | 103 mg/kg bw/day      | Workers | Systemic |
| Propanol, 1(or 2)-ethoxy-, acetate | DNEL | Long term Inhalation  | 49.785 ppm            | Workers | Systemic |
|                                    | DNEL | Long term Dermal      | 103 mg/kg bw/day      | Workers | Systemic |

### PNECs

| Product/ingredient name                  | Compartment Detail     | Value           | Method Detail |
|--|------------------------|-----------------|---------------|
| Hexamethylene diisocyanate, oligomers    | Marine water           | 12.7 µg/l       | -             |
|  | Fresh water            | 1270 µg/l       | -             |
|  | Sediment               | 266700 mg/kg    | -             |
|  | Soil                   | 53200 mg/kg     | -             |
|  | Sewage Treatment Plant | 38.28 mg/kg     | -             |
| n-butyl acetate                          | Soil                   | 0.09 mg/kg      | -             |
|  | Fresh water            | 0.18 mg/l       | -             |
|  | Sewage Treatment Plant | 35.6 mg/l       | -             |
|  | Marine water           | 0.018 mg/l      | -             |
| Reaction mass of ethylbenzene and xylene | Fresh water sediment   | 0.981 mg/kg     | -             |
|  | Marine water sediment  | 0.098 mg/kg     | -             |
|  | Fresh water            | 0.327 mg/l      | -             |
|  | Marine water           | 0.327 mg/l      | -             |
|  | Sewage Treatment Plant | 6.58 mg/l       | -             |
| 2-methoxy-1-methylethyl acetate          | Fresh water sediment   | 12.46 mg/kg dwt | -             |
|  | Marine water sediment  | 12.46 mg/kg dwt | -             |
|  | Soil                   | 2.31 mg/kg      | -             |
|  | Fresh water            | 0.635 mg/l      | -             |
|  | Marine water           | 0.0635 mg/l     | -             |
|  | Sewage Treatment Plant | 100 mg/l        | -             |
|  | Fresh water sediment   | 3.29 mg/kg dwt  | -             |
|  | Marine water sediment  | 0.329 mg/kg dwt | -             |
|  | Soil                   | 0.29 mg/kg dwt  | -             |
|  |                        |                 |               |

### 8.2 Exposure controls

**Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.**

**Examination of lung function should be carried out on a regular basis on persons spraying this mixture.**

**Appropriate engineering controls** : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn. (See Occupational exposure controls.)

#### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Use safety eyewear designed to protect against splash of liquids.



## SECTION 8: Exposure controls/personal protection

### Skin protection

#### Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.

The breakthrough time must be greater than the end use time of the product.

The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.

Gloves should be replaced regularly and if there is any sign of damage to the glove material.

Always ensure that gloves are free from defects and that they are stored and used correctly.

The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

- Gloves** : Duration / breakthrough time: <1 hour,  
 Glove material: NBR, nitrile rubber, material thickness as splash protection: at least 0.2 mm, (EN374)  
 Glove material: NBR, nitrile rubber Material thickness for short-term contact: at least 0.5 mm, (EN374)
- The recommendation for the type or types of glove to use when handling this product is based on information from the following source:  
 Expert judgment
- The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

- Body protection** : Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.

- 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.

Under cool, dry conditions, it is possible for the isocyanate to remain unreacted in the paint film for up to 30 hours after application. If dry flatting is unavoidable, air-fed respiratory protective equipment should be used.

- Environmental exposure controls** : Do not allow to enter drains or watercourses.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Colour** : Clear.
- Odour** : Not available.
- Odour threshold** : Not available.
- Melting point/freezing point** : Technically not possible to measure
- Initial boiling point and boiling range** : 125 to 203°C (257 to 397.4°F)
- Flammability (solid, gas)** : Not available.
- Upper/lower flammability or explosive limits** : Lower: 0.7%  
Upper: 7.5%
- Flash point** : Closed cup: 30°C (86°F)
- Auto-ignition temperature** : 280°C (536°F)

STANDOX HARDENER MS X 5-25

## SECTION 9: Physical and chemical properties

|  |                           |              |
|--|---------------------------|--------------|
| <b>Decomposition temperature</b>               | : Not applicable.         |              |
| <b>pH</b>                                      | : Not applicable.         |              |
| <b>Viscosity</b>                               | : Not available.          |              |
| <b>Solubility in water</b>                     | : Not available.          |              |
| <b>Miscible with water</b>                     | : No.                     |              |
| <b>Partition coefficient: n-octanol/ water</b> | : Not applicable.         |              |
| <b>Vapour pressure</b>                         | : 0.61 kPa (4.6 mm Hg)    |              |
| <b>Relative density</b>                        | : Not available.          |              |
| <b>Density</b>                                 | : 0.975 g/cm <sup>3</sup> |              |
| <b>Vapour density</b>                          | : Not available.          |              |
| <b>Explosive properties</b>                    | : Not available.          |              |
| <b>Oxidising properties</b>                    | : Not available.          |              |
| <b>Weight volatiles</b>                        | : 60.8 % (w/w)            |              |
| <b>VOC content</b>                             | : 60.8 % (w/w)            | (2010/75/EU) |

*room temperature (=20°C)*

## SECTION 10: Stability and reactivity

|  |  |
|--|--|
| <b>10.1 Reactivity</b>                         | : The product reacts slowly with water, resulting in the production of carbon dioxide.   |
| <b>10.2 Chemical stability</b>                 | : Stable under recommended storage and handling conditions (see Section 7).  |
| <b>10.3 Possibility of hazardous reactions</b> | : In closed containers, pressure build-up could result in distortion, expansion and, in extreme cases, bursting of the container.  |
| <b>10.4 Conditions to avoid</b>                | : In a fire, hazardous decomposition products may be produced.   |
| <b>10.5 Incompatible materials</b>             | : Keep away from: oxidising agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.                             |
| <b>10.6 Hazardous decomposition products</b>   | : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.<br><br>Not applicable |

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and

STANDOX HARDENER MS X 5-25

## SECTION 11: Toxicological information

immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or 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. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Hexamethylene diisocyanate, oligomers, 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers. May produce an allergic reaction.

### Acute toxicity

| Product/ingredient name                                  | Result                          | Species      | Dose                    | Exposure |
|--|---------------------------------|--------------|-------------------------|----------|
| Hexamethylene diisocyanate, oligomers<br>n-butyl acetate | LC50 Inhalation Dusts and mists | Rat          | 18500 mg/m <sup>3</sup> | 1 hours  |
|  | LC50 Inhalation Vapour          | Rat          | 21.1 mg/l               | 4 hours  |
|  | LD50 Dermal                     | Rabbit       | >17600 mg/kg            | -        |
| Hydrocarbons, C9, aromatics                              | LD50 Oral                       | Rat          | 10768 mg/kg             | -        |
|  | LD50 Dermal                     | Rabbit       | >3160 mg/kg             | -        |
| Reaction mass of ethylbenzene and xylene                 | LD50 Oral                       | Rat - Female | 3492 mg/kg              | -        |
|  | LC50 Inhalation Vapour          | Rat          | 6350 to 6700 ppm        | 4 hours  |
|  | LD50 Dermal                     | Rabbit       | 121236 mg/kg            | -        |
|  | LD50 Oral                       | Rat          | 3523 to 4000 mg/kg      | -        |

### Acute toxicity estimates

| Product/ingredient name                  | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|--|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| Mixture                                  | N/A          | 9166.7         | N/A                      | 24.3                        | 4.5                                 |
| Hexamethylene diisocyanate, oligomers    | N/A          | N/A            | N/A                      | 11                          | 1.5                                 |
| n-butyl acetate                          | 10768        | N/A            | N/A                      | 21.1                        | N/A                                 |
| Hydrocarbons, C9, aromatics              | 3492         | N/A            | N/A                      | N/A                         | N/A                                 |
| Reaction mass of ethylbenzene and xylene | N/A          | 1100           | N/A                      | 11                          | N/A                                 |

### Irritation/Corrosion

### Sensitisation

| Product/ingredient name               | Route of exposure | Species | Result      |
|---------------------------------------|-------------------|---------|-------------|
| Hexamethylene diisocyanate, oligomers | skin              | Mouse   | Sensitising |

### Mutagenicity

### Carcinogenicity

### Reproductive toxicity

### Teratogenicity

### Specific target organ toxicity (single exposure)

| Product/ingredient name                  | Category   | Route of exposure | Target organs                |
|--|------------|-------------------|------------------------------|
| Hexamethylene diisocyanate, oligomers    | Category 3 | -                 | Respiratory tract irritation |
| n-butyl acetate                          | Category 3 | -                 | Narcotic effects             |
| Hydrocarbons, C9, aromatics              | Category 3 | -                 | Respiratory tract irritation |
| Reaction mass of ethylbenzene and xylene | Category 3 | -                 | Narcotic effects             |
|  | Category 3 | -                 | Respiratory tract irritation |

STANDOX HARDENER MS X 5-25

## SECTION 11: Toxicological information

|  |            |   |                              |
|--|------------|---|------------------------------|
| 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers | Category 3 | - | Respiratory tract irritation |
| 2-methoxy-1-methylethyl acetate                                    | Category 3 | - | Narcotic effects             |
| Propanol, 1(or 2)-ethoxy-, acetate                                 | Category 3 | - | Narcotic effects             |

### Specific target organ toxicity (repeated exposure)

| Product/ingredient name                  | Category   | Route of exposure | Target organs |
|--|------------|-------------------|---------------|
| Reaction mass of ethylbenzene and xylene | Category 2 | -                 | -             |

### Aspiration hazard

| Product/ingredient name                  | Result                         |
|--|--------------------------------|
| Hydrocarbons, C9, aromatics              | ASPIRATION HAZARD - Category 1 |
| Reaction mass of ethylbenzene and xylene | ASPIRATION HAZARD - Category 1 |

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

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Can cause central nervous system (CNS) depression.

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

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
nausea or vomiting  
headache  
drowsiness/fatigue  
dizziness/vertigo  
unconsciousness
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : 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.

STANDOX HARDENER MS X 5-25

**SECTION 11: Toxicological information**

|                              |  |
|------------------------------|--|
| <b>General</b>               | : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. |
| <b>Carcinogenicity</b>       | : No known significant effects or critical hazards.  |
| <b>Mutagenicity</b>          | : No known significant effects or critical hazards.  |
| <b>Reproductive toxicity</b> | : No known significant effects or critical hazards.  |

**Other information** : Not available.

**SECTION 12: Ecological information****12.1 Toxicity**

| Product/ingredient name                  | Result                          | Species   | Exposure |
|--|---------------------------------|---|----------|
| Hexamethylene diisocyanate, oligomers    | Acute EC50 >100 mg/l            | Daphnia - <i>Daphnia magna</i>                              | 48 hours |
|  | Acute LC50 >100 mg/l            | Fish - <i>danio rerio</i>                                   | 96 hours |
| n-butyl acetate                          | Acute LC50 185 ppm Marine water | Fish - Inland silverside - <i>Menidia beryllina</i>         | 96 hours |
|  |                                 | Fish - Trout - <i>Oncorhynchus mykiss</i>                   | 96 hours |
| Hydrocarbons, C9, aromatics              | Acute LC50 9.2 mg/l             | Algae - Algae - <i>Selenastrum capricornutum</i>            | 73 hours |
|  |                                 | Daphnia - Daphnia - <i>Daphnia magna</i>                    | 24 hours |
| Reaction mass of ethylbenzene and xylene | Acute EC50 2.2 mg/l             | Fish - Trout - <i>Oncorhynchus mykiss</i>                   | 96 hours |
|  | Acute LC50 1 mg/l               | Micro-organism - Activated sludge - <i>Activated sludge</i> | 28 days  |
|  | Acute LC50 2.6 mg/l             |   |          |
|  | Chronic NOEC 16 mg/l            |   |          |

**Conclusion/Summary** : Not available.

**12.2 Persistence and degradability**

| Product/ingredient name               | Test | Result                      | Dose | Inoculum         |
|---------------------------------------|------|-----------------------------|------|------------------|
| Hexamethylene diisocyanate, oligomers | -    | 1 % - Not readily - 28 days | -    | Activated sludge |

**Conclusion/Summary** : Not available.

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

**12.3 Bioaccumulative potential**

| Product/ingredient name  | LogP <sub>ow</sub> | BCF   | Potential |
|--|--------------------|-------|-----------|
| Hexamethylene diisocyanate, oligomers                              | 5.54               | 367.7 | Low       |
| n-butyl acetate  | 2.3                | -     | Low       |
| Reaction mass of ethylbenzene and xylene                           | 3.16               | -     | Low       |
| 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers | 14.48              | -     | High      |
| Propanol, 1(or 2)-ethoxy-, acetate                                 | 0.76               | -     | Low       |

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

STANDOX HARDENER MS X 5-25

## SECTION 12: Ecological information

**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.

## 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** : The classification of the product may meet the criteria for a hazardous waste.





#### 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 | Waste catalogue  |
|-------------------|--|
|                   | 15 01 10* packaging containing residues of or contaminated by hazardous substances |

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. 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.

## SECTION 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<br> | 3<br> | 3<br> | 3<br> |
| 14.4 Packing group              | III  | III  | III   | III  |
| 14.5 Environmental hazards      | No.  | Yes.   | No.   | No.  |

#### Additional information

**ADR/RID** : **Tunnel code** (D/E)

STANDOX HARDENER MS X 5-25

## SECTION 14: Transport information

**ADN** : The product is only regulated as an environmentally hazardous substance when transported in tank vessels.

**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 available.

## SECTION 15: Regulatory information

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

### UK (GB)/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.

#### Seveso Directive

This product is controlled under the Seveso Directive.

#### Danger criteria

##### **Category**

P5c

#### National regulations

| Product/ingredient name | List name | Name on list | Classification | Notes |
|-------------------------|-----------|--------------|----------------|-------|
|                         |           |              |                |       |

#### International regulations

##### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

##### Montreal Protocol

Not listed.

##### Stockholm Convention on Persistent Organic Pollutants

Not listed.

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments are still required.

STANDOX HARDENER MS X 5-25

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

### Abbreviations and acronyms

: ATE = Acute Toxicity Estimate  
 GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EUH statement = GB CLP-specific Hazard statement  
 N/A = Not available  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number  
 SGG = Segregation Group  
 vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification

| Classification          | Justification         |
|-------------------------|-----------------------|
| Flam. Liq. 3, H226      | On basis of test data |
| Acute Tox. 4, H332      | Calculation method    |
| Skin Irrit. 2, H315     | Calculation method    |
| Eye Irrit. 2, H319      | Calculation method    |
| Skin Sens. 1, H317      | Calculation method    |
| STOT SE 3, H335         | Calculation method    |
| STOT SE 3, H336         | Calculation method    |
| STOT RE 2, H373         | Calculation method    |
| Aquatic Chronic 3, H412 | Calculation method    |

### Full text of abbreviated H statements

|        |  |
|--------|--|
| H226   | Flammable liquid and vapour.                                       |
| H304   | May be fatal if swallowed and enters airways.                      |
| H312   | Harmful in contact with skin.                                      |
| H315   | Causes skin irritation.  |
| H317   | May cause an allergic skin reaction.                               |
| H319   | Causes serious eye irritation.                                     |
| H332   | Harmful if inhaled.  |
| H335   | May cause respiratory irritation.                                  |
| H336   | May cause drowsiness or dizziness.                                 |
| H373   | May cause damage to organs through prolonged or repeated exposure. |
| H411   | Toxic to aquatic life with long lasting effects.                   |
| H412   | Harmful to aquatic life with long lasting effects.                 |
| EUH066 | Repeated exposure may cause skin dryness or cracking.              |

### Full text of classifications

|                   |   |
|-------------------|---|
| Acute Tox. 4      | ACUTE TOXICITY - Category 4                                     |
| Aquatic Chronic 2 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2                 |
| Aquatic Chronic 3 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3                 |
| Asp. Tox. 1       | ASPIRATION HAZARD - Category 1                                  |
| Eye Irrit. 2      | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2                  |
| Flam. Liq. 3      | FLAMMABLE LIQUIDS - Category 3                                  |
| Skin Irrit. 2     | SKIN CORROSION/IRRITATION - Category 2                          |
| Skin Sens. 1      | SKIN SENSITISATION - Category 1                                 |
| Skin Sens. 1B     | SKIN SENSITISATION - Category 1B                                |
| STOT RE 2         | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |
| STOT SE 3         | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3   |

**Date of printing** : 1/23/2024

**Date of issue/ Date of revision** : 1/23/2024

**Date of previous issue** : 1/15/2024

**Version** : 1.05

### Notice to reader



STANDOX HARDENER MS X 5-25

## SECTION 16: Other information

This product is intended for industrial use only.

Safety Data Sheet (SDS) content is believed to be accurate as of its issue date, but is subject to change as new information is received by Axalta Coatings Systems, LLC or any of its subsidiaries or affiliates (Axalta). This SDS may incorporate information that has been provided to Axalta by its suppliers. Users should ensure that they are referring to the most current version of the SDS. Users are responsible for following the precautions identified in this SDS. It is the users' responsibility to comply with all laws and regulations applicable to the safe handling, use, and disposal of the product.

Users of Axalta products should read all relevant product information prior to use, and make their own determination as to the suitability of the products for their intended use. Except as otherwise required by applicable law, AXALTA MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The information on this SDS relates only to the specific product identified in Section 1, Identification, and does not relate to its possible use in combination with any other material or in any specific process. If this product is to be used in combination with other products, Axalta encourages you to read and understand the SDS for all products prior to use.

© 2022 Axalta Coating Systems, LLC and all affiliates. All rights reserved. Copies may be made only for those using Axalta Coating Systems products.