



## Safety data sheet

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

#### 1.1. Product identifier

Code: YC---M403/-----  
Product name: HARDENER FOR WATERBORNE COATINGS

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

Intended use: HARDENER FOR WATERBORNE COATINGS

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

Name: RENNER ITALIA S.p.A.  
Full address: Via Ronchi Inferiore, 34  
District and Country: 40061 Minerbio BO  
Italia  
Tel. +39 051-6618211  
Fax +39 051-6606312

e-mail address of the competent person responsible for the Safety Data Sheet: [sds@renneritalia.com](mailto:sds@renneritalia.com)

Product distribution by:

#### 1.4. Emergency telephone number

For urgent inquiries refer to:

**RENNER ITALIA S.p.A. - Tel. +39 051-6618211 (dal lunedì al venerdì dalle 8.30 - 13.00 e dalle 14.00 - 17.30)**  
**ITALIA**  
Centro antiveleni Milano - Tel. +39 02-66101029  
Centro antiveleni Firenze - Tel. +39 055-7947819  
**CROATIA**  
Služba za izvanredna stanja (112)  
Centar za kontrolu otrovanja (01/2348-342)  
**HUNGARY**  
Egészségügyi Toxikológiai Tájékoztató Szolgálat (ETTSZ)  
1096 Budapest, Nagyvárad tér 2.  
Telefon: +36 1 476 6464 (8-16 óráig), +36 80 201 199 (éjjel-nappal hívható) magyar nyelven  
**LATVIA**  
Valsts ugunsdzesibas un glabšanas dienests: (+371) 112  
Saindešanas un zalu informacijas centrs: (+371) 67042473 (visu diennakti)  
**LITHUANIA**  
Apsinuodijimų kontrolės ir Informacijos biuras visą parą tel. (8 5) 236 2052  
Bendras pagalbos telefonas: 112  
**NORWAY**  
Emergency number: 113  
**POLSKA**  
Numer telefonu alarmowego: +48 22 615 27 51  
**PORTUGAL**  
Centro de Informação Anti-Venenos: +351 808 250 143  
**BULGARIA - България**  
Национален център по токсикология, МБАЛСМ "Пирогов"  
телефон: +359 2 9154 233

### SECTION 2. Hazards identification

#### 2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

**SECTION 2. Hazards identification ... / >>**

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

**Hazard classification and indication:**

|  |      |  |
|--|------|--|
| Acute toxicity, category 4   | H332 | Harmful if inhaled.                                |
| Serious eye damage, category 1                                     | H318 | Causes serious eye damage.                         |
| Skin irritation, category 2  | H315 | Causes skin irritation.                            |
| Specific target organ toxicity - single exposure, category 3       | H335 | May cause respiratory irritation.                  |
| Skin sensitization, category 1                                     | H317 | May cause an allergic skin reaction.               |
| Hazardous to the aquatic environment, chronic toxicity, category 3 | H412 | Harmful to aquatic life with long lasting effects. |

**2.2. Label elements**

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

**Hazard pictograms:**

Signal words: Danger

**Hazard statements:**

|               |   |
|---------------|---|
| <b>H332</b>   | Harmful if inhaled.   |
| <b>H318</b>   | Causes serious eye damage.  |
| <b>H315</b>   | Causes skin irritation.   |
| <b>H335</b>   | May cause respiratory irritation.   |
| <b>H317</b>   | May cause an allergic skin reaction.  |
| <b>H412</b>   | Harmful to aquatic life with long lasting effects.  |
| <b>EUH204</b> | Contains isocyanates. May produce an allergic reaction.   |
| <b>EUH208</b> | Contains: ISOPHORONE DIISOCYANATE<br>HEXAMETHYLENE-DI-ISOCYANATE<br>May produce an allergic reaction. |

**Precautionary statements:**

|                       |   |
|-----------------------|---|
| <b>P261</b>           | Avoid breathing dust / fume / gas / mist / vapours / spray.   |
| <b>P264</b>           | Wash hands thoroughly after handling.   |
| <b>P280</b>           | Wear protective gloves / eye protection / face protection.  |
| <b>P305+P351+P338</b> | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.<br>Continue rinsing. |
| <b>P310</b>           | Immediately call a POISON CENTER / doctor   |
| <b>P403+P233</b>      | Store in a well-ventilated place. Keep container tightly closed.  |

**Contains:** (Ethoxylated Tridecyl Alcohol) Phosphate  
HDI oligomers, isocyanurate  
OLIGO(ISOPHORONE DIISOCYANATE)  
N,N-DIMETHYLCYCLOHEXYLAMINE

**2.3. Other hazards**

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

**SECTION 3. Composition/information on ingredients****3.1. Substances**

Information not relevant

**SECTION 3. Composition/information on ingredients ... / >>****3.2. Mixtures****Contains:****Identification**                      **x = Conc. %**                      **Classification 1272/2008 (CLP)****HDI oligomers, isocyanurate**

CAS                      35 &lt;= x &lt; 50                      Acute Tox. 4 H332, STOT SE 3 H335, Skin Sens. 1 H317

EC                      931-274-8

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Reg. no. 01-2119485796-17-XXXX

**OLIGO(ISOPHORONE DIISOCYANATE)**

CAS                      53880-05-0                      15 &lt;= x &lt; 20                      STOT SE 3 H335, Skin Sens. 1 H317

EC                      500-125-5

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Reg. no. 01-2119488734-24-xxxx

**(Ethoxylated Tridecyl Alcohol) Phosphate**

CAS                      9046-01-9                      5 &lt;= x &lt; 10                      Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Chronic 2 H411

EC

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Reg. no.

**N,N-DIMETHYLCYCLOHEXYLAMINE**CAS                      98-94-2                      1 <= x < 2,5                      Flam. Liq. 3 H226, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331,  
Skin Corr. 1B H314, Aquatic Chronic 2 H411

EC                      202-715-5

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Reg. no. 01-2119533030-60-xxxx

**ISOPHORONE DIISOCYANATE**CAS                      4098-71-9                      0,1 <= x < 0,25                      Acute Tox. 2 H330, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Resp. Sens. 1 H334,  
Skin Sens. 1 H317, Aquatic Chronic 2 H411, Note 2

EC                      223-861-6

INDEX                      615-008-00-5

Reg. no. 01-2119490408-31-xxxx

**HEXAMETHYLENE-DI-ISOCYANATE**CAS                      822-06-0                      0,1 <= x < 0,25                      Acute Tox. 1 H330, Acute Tox. 4 H302, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335,  
Resp. Sens. 1 H334, Skin Sens. 1 H317, Note 2

EC                      212-485-8

INDEX                      615-011-00-1

Reg. no. 01-2119457571-37-xxxx

The full wording of hazard (H) phrases is given in section 16 of the sheet.

**SECTION 4. First aid measures****4.1. Description of first aid measures**

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully.

Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

**4.2. Most important symptoms and effects, both acute and delayed**

Specific information on symptoms and effects caused by the product are unknown.

**4.3. Indication of any immediate medical attention and special treatment needed**

Information not available



## SECTION 5. Firefighting measures

### 5.1. Extinguishing media

#### SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide, foam, chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

#### UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water. Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

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

#### HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Excess pressure may form in containers exposed to fire at a risk of explosion. Do not breathe combustion products.

### 5.3. Advice for firefighters

#### GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

#### SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

## SECTION 6. Accidental release measures

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

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

### 6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

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

Collect the leaked product into a suitable container. If the product is flammable, use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

### 6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

## SECTION 7. Handling and storage

### 7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

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

Store only in the original container. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.



### SECTION 7. Handling and storage ... / >>

#### 7.3. Specific end use(s)

Information not available

### SECTION 8. Exposure controls/personal protection

#### 8.1. Control parameters

Regulatory References:

|     |                 |  |
|-----|-----------------|--|
| BGR | България        | МИНИСТЕРСТВО НА ТРУДА И СОЦИАЛНАТА ПОЛИТИКА МИНИСТЕРСТВО НА ЗДРАВЕОПАЗВАНЕТО НАРЕДБА No 13 от 30 декември 2003 г                             |
| CZE | Česká Republika | Nařízení vlády č. 361/2007 Sb. kterým se stanoví podmínky ochrany zdraví při práci   |
| DEU | Deutschland     | MAK-und BAT-Werte-Liste 2012   |
| DNK | Danmark         | Graensevaerdier per stoffer og materialer  |
| ESP | España          | INSHT - Límites de exposición profesional para agentes químicos en España 2015   |
| EST | Eesti           | Töökeskkonna keemiliste ohutegurite piirnormid 1. Vastu võetud 18.09.2001 nr 293 RT I 2001, 77, 460 - Redaktsiooni jõustumise kp: 01.01.2008 |
| FRA | France          | JORF n°0109 du 10 mai 2012 page 8773 texte n° 102  |
| GBR | United Kingdom  | EH40/2005 Workplace exposure limits  |
| GRC | Ελλάδα          | ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ - ΤΕΥΧΟΣ ΠΡΩΤΟ Αρ. Φύλλου 19 - 9 Φεβρουαρίου 2012   |
| HUN | Magyarország    | 50/2011. (XII. 22.) NGM rendelet a munkahelyek kémiai biztonságáról  |
| LTU | Lietuva         | DĖL LIETUVOS HIGIENOS NORMOS HN 23:2007 CHEMINIŲ MEDŽIAGŲ 2007 m. spalio 15 d. Nr. V-827/A1-287  |
| LVA | Latvija         | Ķīmisko vielu aroda ekspozīcijas robežvērtības (AER) darba vides gaisā 2012  |
| NLD | Nederland       | Databank of the social and Economic Council of Netherlands (SER) Values, AF 2011:18  |
| NOR | Norge           | Veiledning om Administrative normer for forurensning i arbeidsatmosfære  |
| POL | Polska          | ROZPORZĄDZENIE MINISTRA PRACY I POLITYKI SPOŁECZNEJ z dnia 16 grudnia 2011r  |
| SVK | Slovensko       | NARIADENIE VLÁDY Slovenskej republiky z 20. júna 2007  |
| SVN | Slovenija       | Uradni list Republike Slovenije 15. 6. 2007  |
| SWE | Sverige         | Occupational Exposure Limit Values, AF 2011:18   |
|     | TLV-ACGIH       | ACGIH 2016   |

#### HDI oligomers, isocyanurate

##### Predicted no-effect concentration - PNEC

|  |        |       |
|--|--------|-------|
| Normal value in fresh water                  | 0,127  | mg/l  |
| Normal value in marine water                 | 0,0127 | mg/l  |
| Normal value for fresh water sediment        | 266700 | mg/kg |
| Normal value for marine water sediment       | 266700 | mg/kg |
| Normal value for water, intermittent release | 1,27   | mg/l  |
| Normal value of STP microorganisms           | 38,3   | mg/l  |
| Normal value for the terrestrial compartment | 53182  | mg/kg |

##### Health - Derived no-effect level - DNEL / DMEL

| Route of exposure | Effects on consumers |                |               |                  | Effects on workers |                |               |                  |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
|                   | Acute local          | Acute systemic | Chronic local | Chronic systemic | Acute local        | Acute systemic | Chronic local | Chronic systemic |
| Inhalation        |                      |                |               |                  | 1 mg/m3            | VND            | 0,5 mg/m3     | VND              |

#### OLIGO(ISOPHORONE DIISOCYANATE)

##### Predicted no-effect concentration - PNEC

|  |         |      |
|--|---------|------|
| Normal value in fresh water                  | 0,0015  | mg/l |
| Normal value in marine water                 | 0,00015 | mg/l |
| Normal value for water, intermittent release | 0,015   | mg/l |
| Normal value of STP microorganisms           | 100     | mg/l |

##### Health - Derived no-effect level - DNEL / DMEL

| Route of exposure | Effects on consumers |                |               |                  | Effects on workers |                |               |                  |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
|                   | Acute local          | Acute systemic | Chronic local | Chronic systemic | Acute local        | Acute systemic | Chronic local | Chronic systemic |
| Inhalation        |                      |                |               |                  | 0,58 mg/m3         | VND            | 0,29 mg/m3    | VND              |



### SECTION 8. Exposure controls/personal protection ... / >>

#### N,N-DIMETHYLCYCLOHEXYLAMINE

##### Predicted no-effect concentration - PNEC

|  |         |       |
|--|---------|-------|
| Normal value in fresh water                  | 0,002   | mg/l  |
| Normal value in marine water                 | 0,0002  | mg/l  |
| Normal value for fresh water sediment        | 0,0211  | mg/kg |
| Normal value for marine water sediment       | 0,00211 | mg/kg |
| Normal value of STP microorganisms           | 20,6    | mg/l  |
| Normal value for the terrestrial compartment | 0,003   | mg/l  |

##### Health - Derived no-effect level - DNEL / DMEL

| Route of exposure | Effects on consumers |                |               |                  | Effects on workers |                |               |                  |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
|                   | Acute local          | Acute systemic | Chronic local | Chronic systemic | Acute local        | Acute systemic | Chronic local | Chronic systemic |
| Inhalation        |                      |                |               |                  | 8,3 mg/m3          | VND            | 8,3 mg/m3     | 0,53 mg/m3       |
| Skin              |                      |                |               |                  |                    |                |               | 0,6 mg/kg bw/d   |

#### HEXAMETHYLENE-DI-ISOCYANATE

##### Threshold Limit Value

| Type      | Country | TWA/8h |       | STEL/15min |           |
|-----------|---------|--------|-------|------------|-----------|
|           |         | mg/m3  | ppm   | mg/m3      | ppm       |
| TLV       | BGR     | 0,1    |       |            |           |
| TLV       | CZE     | 0,035  |       | 0,07       |           |
| AGW       | DEU     | 0,035  | 0,005 | 0,035      | 0,005     |
| MAK       | DEU     | 0,035  | 0,005 | 0,035      | 0,005     |
| TLV       | DNK     | 0,035  | 0,005 |            |           |
| VLA       | ESP     | 0,035  | 0,005 |            |           |
| TLV       | EST     | 0,03   | 0,005 | 0,07 (C)   | 0,01 (C)  |
| VLEP      | FRA     | 0,075  | 0,01  | 0,15       | 0,02      |
| WEL       | GBR     | 0,02   |       | 0,07       |           |
| AK        | HUN     | 0,035  |       | 0,035      |           |
| RD        | LTU     | 0,03   | 0,005 | 0,07 (C)   | 0,01 (C)  |
| RV        | LVA     | 0,05   |       |            |           |
| TLV       | NOR     | 0,035  | 0,005 |            |           |
| NDS       | POL     | 0,04   |       | 0,08       |           |
| NPHV      | SVK     | 0,035  | 0,005 | 0,035      |           |
| MV        | SVN     | 0,035  | 0,005 |            |           |
| MAK       | SWE     | 0,02   | 0,002 | 0,03 (C)   | 0,005 (C) |
| TLV-ACGIH |         | 0,034  | 0,005 |            |           |

##### Predicted no-effect concentration - PNEC

|  |          |       |
|--|----------|-------|
| Normal value in fresh water                  | 0,0774   | mg/l  |
| Normal value in marine water                 | 0,00774  | mg/l  |
| Normal value for fresh water sediment        | 0,01334  | mg/kg |
| Normal value for marine water sediment       | 0,001334 | mg/kg |
| Normal value of STP microorganisms           | 8,42     | mg/l  |
| Normal value for the terrestrial compartment | 0,0026   | mg/kg |

##### Health - Derived no-effect level - DNEL / DMEL

| Route of exposure | Effects on consumers |                |               |                  | Effects on workers |                |               |                  |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
|                   | Acute local          | Acute systemic | Chronic local | Chronic systemic | Acute local        | Acute systemic | Chronic local | Chronic systemic |
| Inhalation        |                      |                |               |                  | 0,07 mg/m3         |                | 0,035 mg/m3   | VND              |

## SECTION 8. Exposure controls/personal protection ... / >>

### ISOPHORONE DIISOCYANATE

#### Threshold Limit Value

| Type      | Country | TWA/8h            |       | STEL/15min        |           |      |
|-----------|---------|-------------------|-------|-------------------|-----------|------|
|           |         | mg/m <sup>3</sup> | ppm   | mg/m <sup>3</sup> | ppm       |      |
| TLV       | BGR     | 0,1               |       |                   |           | SKIN |
| AGW       | DEU     | 0,046             | 0,005 | 0,046             | 0,005     |      |
| MAK       | DEU     | 0,046             | 0,005 | 0,046             | 0,005     |      |
| TLV       | DNK     | 0,045             | 0,005 |                   |           |      |
| VLA       | ESP     | 0,046             | 0,005 |                   |           |      |
| TLV       | EST     | 0,05              | 0,005 | 0,09 (C)          | 0,01 (C)  |      |
| VLEP      | FRA     | 0,09              | 0,01  | 0,18              | 0,02      |      |
| WEL       | GBR     | 0,02              |       | 0,07              |           |      |
| TLV       | GRC     | 0,09              |       | 0,18              |           |      |
| RD        | LTU     | 0,05              | 0,005 | 0,09 (C)          | 0,01 (C)  |      |
| RV        | LVA     | 0,05              | 0,005 |                   |           |      |
| OEL       | NLD     | 0,05              | 5     | 0,19              | 20        |      |
| TLV       | NOR     | 0,045             | 0,005 |                   |           |      |
| NDS       | POL     | 0,04              |       |                   |           |      |
| MV        | SVN     | 0,092             | 0,01  |                   |           |      |
| MAK       | SWE     | 0,018             | 0,002 | 0,046 (C)         | 0,005 (C) |      |
| TLV-ACGIH |         | 0,045             | 0,005 |                   |           |      |

#### Predicted no-effect concentration - PNEC

|  |       |       |
|--|-------|-------|
| Normal value in fresh water                  | 0,06  | mg/l  |
| Normal value in marine water                 | 0,006 | mg/l  |
| Normal value for fresh water sediment        | 218,9 | mg/kg |
| Normal value for marine water sediment       | 21,89 | mg/kg |
| Normal value for water, intermittent release | 0,04  | mg/l  |
| Normal value of STP microorganisms           | 10,6  | mg/l  |
| Normal value for the terrestrial compartment | 44,01 | mg/kg |

#### Health - Derived no-effect level - DNEL / DMEL

| Route of exposure | Effects on consumers |                |               |                  | Effects on workers       |                |                          |                  |
|-------------------|----------------------|----------------|---------------|------------------|--------------------------|----------------|--------------------------|------------------|
|                   | Acute local          | Acute systemic | Chronic local | Chronic systemic | Acute local              | Acute systemic | Chronic local            | Chronic systemic |
| Inhalation        |                      |                |               |                  | 0,0456 mg/m <sup>3</sup> | VND            | 0,0453 mg/m <sup>3</sup> | VND              |

#### Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.  
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

### 8.2. Exposure controls

Take the normal precautions for handling chemicals and apply an adequate standard of workplace hygiene.

Users must assess the risks in their workplace and adopt:

- Primary collective protective measures such as adequate natural ventilation and local extraction
- Personal protective equipment to manage the combination of residual risks

Personal protective equipment varies according to the possible exposure and hazardousness of the working conditions, so the final choice depends on the risk assessment.

#### HAND PROTECTION

Use category III chemical resistant gloves according to the EN 374 standard

Brief contact (splash protection) – non-exhaustive list

Suitable material: NITRILE RUBBER (NBR)

Glove thickness: greater than 0.4 mm

Breakthrough time: from 30 to 60 minutes

Breakthrough index: at least 2

The gloves must be replaced if there are signs of deterioration. In any case, users must assess the risks to determine the most suitable type of glove for the conditions of use.

#### SKIN PROTECTION

Wear work clothes and safety footwear that complies with EN ISO 20344

#### EYE PROTECTION

Wear safety mask glasses (EN 166).



### SECTION 8. Exposure controls/personal protection ... / >>

#### RESPIRATORY PROTECTION

Use a mask with EN140 and/or EN136 approval, with an ABEK type filter (EN 14387)

#### ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

### SECTION 9. Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

|  |                  |
|--|------------------|
| Appearance                             | Liquid           |
| Colour                                 | clear            |
| Odour                                  | pungent          |
| Odour threshold                        | Not available    |
| pH                                     | Not applicable   |
| Melting point / freezing point         | Not available    |
| Initial boiling point                  | > 65 °C          |
| Boiling range                          | Not available    |
| Flash point                            | 76 °C            |
| Evaporation speed                      | Not available    |
| Flammability (solid, gas)              | not applicable   |
| Lower inflammability limit             | Not available    |
| Upper inflammability limit             | Not available    |
| Lower explosive limit                  | Not available    |
| Upper explosive limit                  | Not available    |
| Vapour pressure                        | Not available    |
| Vapour density                         | Not available    |
| Relative density                       | 1,08             |
| Solubility                             | soluble in water |
| Partition coefficient: n-octanol/water | Not available    |
| Auto-ignition temperature              | Not available    |
| Decomposition temperature              | Not available    |
| Viscosity                              | Not available    |
| Explosive properties                   | not applicable   |
| Oxidising properties                   | not applicable   |

#### 9.2. Other information

|                              |         |
|------------------------------|---------|
| Total solids (250°C / 482°F) | 70,40 % |
| VOC (Directive 2010/75/EC) : | 0       |
| VOC (volatile carbon) :      | 0       |

### SECTION 10. Stability and reactivity

#### OLIGO(ISOPHORONE DIISOCYANATE)

OLIGO(ISOPHORONE DIISOCYANATE) - Incompatible materials: water, amines, strong bases, strong oxidising agents, heavy metal salts, alcohols. Be careful: dangerous polymerization.

#### 10.1. Reactivity

The product may react exothermically on contact with strong oxidising or reducing agents, strong acids or bases.

#### HEXAMETHYLENE-DI-ISOCYANATE

Decomposes at 255°C/491°F. Polymerises at temperatures above 200°C/392°F.

#### 10.2. Chemical stability

Excessively high temperatures can cause thermal decomposition.

#### 10.3. Possibility of hazardous reactions

See paragraph 10.1.

#### HEXAMETHYLENE-DI-ISOCYANATE

May form explosive mixtures with: alcohols, bases. May react violently with: alcohols, amines, strong bases, oxidising agents, strong acids, water.





### SECTION 10. Stability and reactivity ... / >>

#### 10.4. Conditions to avoid

Avoid overheating.

HEXAMETHYLENE-DI-ISOCYANATE

Avoid exposure to: high temperatures, moisture.

#### 10.5. Incompatible materials

Oxidising or reducing agents. Strong acids or bases.

HEXAMETHYLENE-DI-ISOCYANATE

Incompatible with: alcohols, carboxylic acids, amines, strong bases.

#### 10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

HEXAMETHYLENE-DI-ISOCYANATE

May develop: nitric oxide, hydrogen cyanide.

### SECTION 11. Toxicological information

OLIGO(ISOPHORONE DIISOCYANATE)

OLIGO(ISOPHORONE DIISOCYANATE) - It may cause skin allergic reactions and respiratory allergic reactions. Target organs:

kidneys, liver, nerves. Chronic exposure: it may cause problems to the reproductive system

#### 11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

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

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

|   |             |
|---|-------------|
| LC50 (Inhalation - vapours) of the mixture:         | > 20 mg/l   |
| LC50 (Inhalation - mists / powders) of the mixture: | 3,0 mg/l    |
| LD50 (Oral) of the mixture:                         | >2000 mg/kg |
| LD50 (Dermal) of the mixture:                       | >2000 mg/kg |

ISOPHORONE DIISOCYANATE

|                   |              |
|-------------------|--------------|
| LD50 (Oral)       | 4814 mg/kg   |
| LC50 (Inhalation) | 0,04 mg/l/4h |

HEXAMETHYLENE-DI-ISOCYANATE

|                   |               |
|-------------------|---------------|
| LD50 (Oral)       | 959 mg/kg     |
| LD50 (Dermal)     | > 7000 mg/kg  |
| LC50 (Inhalation) | 0,124 mg/l/4h |

N,N-DIMETHYLCYCLOHEXYLAMINE

|                   |              |
|-------------------|--------------|
| LD50 (Oral)       | > 272 mg/kg  |
| LD50 (Dermal)     | 380 mg/kg    |
| LC50 (Inhalation) | 4,45 mg/l/4h |



### SECTION 11. Toxicological information ... / >>

HDI oligomers, isocyanurate  
LD50 (Oral) > 2500 mg/kg ratto - rat  
LD50 (Dermal) > 2000 mg/kg ratto - rat  
LC50 (Inhalation) 0,39 mg/l ratto - rat

#### SKIN CORROSION / IRRITATION

Causes skin irritation

#### SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

#### RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin  
May produce an allergic reaction.

Contains:

ISOPHORONE DIISOCYANATE  
HEXAMETHYLENE-DI-ISOCYANATE

#### GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

#### CARCINOGENICITY

Does not meet the classification criteria for this hazard class

#### REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

#### STOT - SINGLE EXPOSURE

May cause respiratory irritation

#### STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

#### ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

### SECTION 12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it have negative effects on aquatic environment.

#### 12.1. Toxicity

HEXAMETHYLENE-DI-ISOCYANATE

LC50 - for Fish > 22 mg/l/96h Danio rerio  
EC50 - for Crustacea > 89,1 mg/l/48h Daphnia magna  
EC50 - for Algae / Aquatic Plants > 77,4 mg/l/72h Desmodesmus subspicatus

N,N-DIMETHYLCYCLOHEXYLAMINE

EC50 - for Crustacea 75 mg/l/48h Daphnia magna  
EC50 - for Algae / Aquatic Plants > 2 mg/l/72h Algae  
LC10 for Fish < 46 mg/l/96h Fish

HDI oligomers, isocyanurate

EC10 for Algae / Aquatic Plants 370 mg/l/72h Desmodesmus subspicatus

#### 12.2. Persistence and degradability



### SECTION 12. Ecological information ... / >>

ISOPHORONE DIISOCYANATE  
NOT rapidly biodegradable

HEXAMETHYLENE-DI-ISOCYANATE  
NOT rapidly biodegradable

#### 12.3. Bioaccumulative potential

ISOPHORONE DIISOCYANATE  
Partition coefficient: n-octanol/water 0,99

HEXAMETHYLENE-DI-ISOCYANATE  
Partition coefficient: n-octanol/water 3,2  
BCF 3,2

#### 12.4. Mobility in soil

Information not available

#### 12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

#### 12.6. Other adverse effects

Information not available

### SECTION 13. Disposal considerations

#### 13.1. Waste treatment methods

For disposal or recovery in EU countries, use the relevant waste code (EWC code) identified in the European Waste Catalogue. The producer of the waste must assign the EWC code according to the sector and type of process. Disposal must be carried out by an authorised waste management company.

After the producer of the waste has assigned the EWC code, the contaminated packaging must be sent for recovery or disposal in compliance with the European waste management regulations. Disposal must be carried out by an authorised waste management company.

For waste disposal or recovery in countries outside the EU, comply with the national or local regulations in force. For disposal or recovery of contaminated packaging in countries outside the EU, comply with the national or local regulations in force.

Waste transportation may be subject to regulations on transportation of hazardous goods.

### SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

#### 14.1. UN number

Not applicable

#### 14.2. UN proper shipping name

Not applicable

#### 14.3. Transport hazard class(es)

Not applicable

#### 14.4. Packing group

Not applicable

#### 14.5. Environmental hazards

Not applicable





### SECTION 16. Other information ... / >>

|               |  |
|---------------|--|
| <b>H332</b>   | Harmful if inhaled.  |
| <b>H314</b>   | Causes severe skin burns and eye damage.                                   |
| <b>H318</b>   | Causes serious eye damage.   |
| <b>H319</b>   | Causes serious eye irritation.   |
| <b>H315</b>   | Causes skin irritation.  |
| <b>H335</b>   | May cause respiratory irritation.  |
| <b>H334</b>   | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| <b>H317</b>   | May cause an allergic skin reaction.                                       |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects.                           |
| <b>H412</b>   | Harmful to aquatic life with long lasting effects.                         |
| <b>EUH204</b> | Contains isocyanates. May produce an allergic reaction.                    |

#### LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

#### GENERAL BIBLIOGRAPHY

1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
  2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
  3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
  4. Regulation (EU) 2015/830 of the European Parliament
  5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
  6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
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  9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
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  11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
  - Handling Chemical Safety
  - INRS - Fiche Toxicologique (toxicological sheet)
  - Patty - Industrial Hygiene and Toxicology
  - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
  - IFA GESTIS website
  - ECHA website
  - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy



### SECTION 16. Other information ... / >>

#### Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

#### Changes to previous review:

The following sections were modified:

02 / 03 / 04 / 05 / 08 / 09 / 11 / 12 / 13 / 15 / 16.