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

1.1 Product identifier
Product name: HARDENER 008 7605
Product description: Hardener.

1.2 Relevant identified uses of the substance or mixture and uses advised against
Recommended use: Painting work
Only for industrial and professional use. The product is not intended for consumer use.

1.3 Details of the supplier of the safety data sheet
Manufacturer or Distributor
Tikkurila Oyj
P.O. Box 53
FI-01301 VANTAA
FINLAND
Telephone +358 20 191 2000

1.4 Emergency telephone number
Telephone number: 112
(24h)

Supplier or Manufacturer
Tikkurila Oyj
Telephone number: +358 20 191 2000 (GMT +2) Mon-Fri 8-16

e-mail address of person responsible for this SDS: Tikkurila Oyj,
Product Safety,
e-mail: productssafety@tikkurila.com

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 Sens. 1, H317
STOT SE 3, H335
The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

2.2 Label elements
Hazard pictograms:

Signal word: Warning
Hazard statements: H332 - Harmful if inhaled.
H317 - May cause an allergic skin reaction.
H335 - May cause respiratory irritation.
Precautionary statements
General: Not applicable.

Response: P302 + P352 - IF ON SKIN: Wash with plenty of soap and water. P312 - Call a POISON CENTER or physician if you feel unwell.

Storage: Not applicable.

Disposal: Not applicable.

Hazardous ingredients: Hexamethylene diisocyanate, oligomers, hexamethylene diisocyanate

Supplemental label elements: Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

Other hazards which do not result in classification: None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures: Mixture

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene diisocyanate, oligomers</td>
<td>REACH #: 01-2119485796-17 EC: 500-060-2 CAS: 28182-81-2</td>
<td>≥50 - ≤85</td>
<td>Acute Tox. 4, H332 Skin Sens. 1, H317 STOT SE 3, H335</td>
<td>-</td>
</tr>
<tr>
<td>Butyl glycol acetate</td>
<td>REACH #: 01-2119475112-47 EC: 203-933-3 CAS: 112-07-2 Index: 607-038-00-2</td>
<td>≥25 - ≤44</td>
<td>Acute Tox. 4, H312 Acute Tox. 4, H332</td>
<td>-</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

SECTION 4: First aid measures

4.1 Description of first aid measures

General: In all cases of doubt, or when symptoms persist, seek medical attention. Show this safety data sheet or label to the doctor if possible.

Eye contact: Check for and remove any contact lenses. Immediately flush eyes with plenty of lukewarm water, keeping eyelids open. Continue to rinse for at least 15 minutes. Get medical attention if symptoms occur.

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. Get medical attention.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners. Get medical attention if symptoms occur.

Ingestion: If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Remove to fresh air and keep at rest in a position comfortable for breathing. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed
Harmful if inhaled.
May cause respiratory irritation.
May cause an allergic skin reaction.
See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed
None.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire. Recommended: Alcohol resistant foam, CO₂, powders or water spray/mist.

Unsuitable extinguishing media: Do not use a direct water jet that could spread the fire.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: In a fire or when exposed to high temperatures, hazardous decomposition products may be produced, such as carbon monoxide, smoke, oxides of nitrogen, hydrogen cyanide and isocyanate compounds.

5.3 Advice for firefighters
Special protective actions for fire-fighters: Use water spray to keep fire-exposed containers cool. Do not release runoff from fire to drains or watercourses.

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Provide adequate ventilation. Avoid breathing vapor or mist. Avoid direct skin contact with product. See Section 8 for information on appropriate personal protective equipment.

6.2 Environmental precautions: Do not allow to enter drains, water courses or soil.

6.3 Methods and materials 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 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 unssealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).
SECTION 7: Handling and storage

7.1 Precautions for safe handling

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. Skin contact with the product and exposure to spray mist and vapor should be avoided. Avoid inhalation of dust from sanding. Wear appropriate respirator when ventilation is inadequate. See Section 8 for information on appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled and stored. Wash hands before breaks and immediately after handling the product.

Precautions should be taken to minimize exposure to atmospheric humidity or water. CO₂ will be formed, which, in closed containers, could result in pressurization. Care should be taken when re-opening partly-used containers.

7.2 Conditions for safe storage, including any incompatibilities

Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Recommended storage temperature is +5°C …+25°C. Store in accordance with local regulations.

7.3 Specific end use(s)

None.
Hand protection : Always wear approved protective gloves against chemicals. Gloves should be replaced regularly and if there is any sign of damage to the glove material. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed. Recommended glove material (EN374):
< 1 hour (breakthrough time): nitrile rubber, fluor rubber
> 8 hours (breakthrough time): laminated foil
Not recommended: PVC or natural rubber (latex) gloves

Skin protection : Wear suitable protective clothing.

Respiratory protection : If ventilation is inadequate, use respirator that will protect against organic vapor and dust/mist. During spray-application use air-fed respirator (EN12941:1998). By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask (EN140:1998). Under cool, dry conditions, it is possible for the isocyanate to remain unreacted in the paint film over 30 hours after application. If dry filming is unavoidable, air-fed respiratory protective equipment (EN12941:1998) should be used during sanding. Be sure to use an approved/certified respirator or equivalent. Check that mask fits tightly and change filter regularly.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid.
Color : Clear.
Odor : Strong.

Odor threshold : Not relevant for the hazard assessment of the product.

pH : Not relevant for the hazard assessment of the product.

Melting point/freezing point : < -70°C (butyl glycol acetate)
Initial boiling point and boiling range : 193 to 194°C (butyl glycol acetate)

Flash point : Closed cup: 71°C
Evaporation rate : 0,03 (butyl acetate = 1) (butyl glycol acetate)
Flammability (solid, gas) : Not applicable. Product is a liquid.
Upper/lower flammability or explosive limits : Lower: 1,3% (butyl glycol acetate)
Upper: 6,8% (butyl glycol acetate)
Vapor pressure : 0,031 kPa [room temperature] (butyl glycol acetate)
Vapor density : 5,5 (butyl glycol acetate)
Density : 0,06 g/cm³
Solubility(ies) : insoluble in water.
Partition coefficient: n-octanol/water : Not available.
Auto-ignition temperature : 340°C (butyl glycol acetate)
Decomposition temperature : Not relevant for the hazard assessment of the product.
Viscosity : Not relevant for the hazard assessment of the product.
Explosive properties : No explosive ingredients present.
Oxidizing properties : No oxidizing ingredients present.

9.2 Other information
No additional information.
SECTION 10: Stability and reactivity

10.1 Reactivity : See Section 10.5.

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

10.3 Possibility of hazardous reactions : Reacts slowly with water, resulting in the production of carbon dioxide. In closed containers, pressure buildup could result in bursting of the container.

10.4 Conditions to avoid : Avoid extreme heat and freezing.

10.5 Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions:
- oxidizing agents
- strong acids
- strong alkalis
- amines
- alcohols

10.6 Hazardous decomposition products : When exposed to high temperatures, hazardous decomposition products may be produced, such as carbon monoxide and dioxide, smoke, oxides of nitrogen etc. Fire will produce dense black smoke. Welding, grinding and other hot work on the already-coated substrate may cause free isocyanates to be formed and released.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There is no testdata available on the product itself. The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Exposure to component solvent vapor 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. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged skin contact may lead to allergic contact dermatitis. If splashed in the eyes, the liquid may cause irritation and irreversible damage. Ingestion may cause nausea, diarrhea and vomiting.

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate, oligomers</td>
<td>LC50 Inhalation Ducts and mists</td>
<td>Rat</td>
<td>18500 mg/m³</td>
<td>1 hours</td>
</tr>
<tr>
<td>butyl glycol acetate</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>1500 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>hexamethylene diisocyanate</td>
<td>LC50 Inhalation Ducts and mists</td>
<td>Rat</td>
<td>124 mg/m³</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

Harmful if inhaled.
Irritation/Corrosion
Not classified.
Sensitization
May cause an allergic skin reaction.
Contains small amounts of sensitizing substances:
hexamethylene diisocyanate

Mutagenicity
Not classified.
Carcinogenicity
Not classified.
Reproductive toxicity
Not classified.
Teratogenicity
Not classified.
Specific target organ toxicity (single exposure)
May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)
Not classified.
Aspiration hazard
Not classified.

SECTION 12: Ecological information

Ecological testing has not been conducted on this product.
Do not allow to enter drains, water courses or soil.

The product is not classified as environmentally hazardous according to Regulation (EC) 1272/2008.

12.1 Toxicity
: No specific data.
Not available.

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate, oligomers</td>
<td>-</td>
<td>50%; 10.3 day(s)</td>
<td>Not readily</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>Bioconcentration factor [BCF]</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>hexamethylene diisocyanate</td>
<td>0.02</td>
<td>57.63</td>
<td>low</td>
</tr>
<tr>
<td>butyl glycol acetate</td>
<td>1.51</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>hexamethylene diisocyanate, oligomers</td>
<td>5.54</td>
<td>367.7</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

<table>
<thead>
<tr>
<th>Soil/water partition coefficient (K&lt;sub&gt;oc&lt;/sub&gt;)</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

12.5 Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>PBT</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>vPvB</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

12.6 Other adverse effects
: Not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : Residues in empty containers should be neutralized with a decontaminant (see section 6). Liquid residue and cleaning liquids are hazardous waste and must not be emptied into drains or sewage system, but handled in accordance with national regulations. Product residues should be left at special companies which have permission for gathering this kind of wastes.

European waste catalogue (EWC)
**SECTION 14: Transport information**

This product is not regulated for carriage according to ADR/RID, IMDG, IATA.

<table>
<thead>
<tr>
<th>14.1 UN number</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>No.</td>
<td>No.</td>
<td>No.</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td><strong>Transport within user's premises</strong>: 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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)

Other EU regulations

Europe inventory: All components are listed or exempted.

15.2 Chemical Safety Assessment: This product contains substances for which Chemical Safety Assessments are still required.

**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]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

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

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4, H332</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Sens. 1, H317</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 3, H335</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements:
- H302: Harmful if swallowed.
- H312: Harmful in contact with skin.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H319: Causes serious eye irritation.
- H330: Fatal if inhaled.
- H332: Harmful if inhaled.
- H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335: May cause respiratory irritation.

Full text of classifications [CLP/GHS]:
- Acute Tox. 1, H330: ACUTE TOXICITY (inhalation) - Category 1
- Acute Tox. 4, H302: ACUTE TOXICITY (oral) - Category 4
- Acute Tox. 4, H312: ACUTE TOXICITY (dermal) - Category 4
- Acute Tox. 4, H332: ACUTE TOXICITY (inhalation) - Category 4
- Eye Irrit. 2, H319: SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
- Resp. Sens. 1, H334: RESPIRATORY SENSITIZATION - Category 1
- Skin Irrit. 2, H315: SKIN CORROSION/IRRITATION - Category 2
- Skin Sens. 1, H317: SKIN SENSITIZATION - Category 1
- STOT SE 3, H335: SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Date of issue/Date of revision: 01-03-2017
Date of previous issue: 23-05-2015
Version: 2

Notice to reader
This Safety Data Sheet is prepared in accordance with Annex II to Regulation (EC) No 1907/2006 (REACH). The information contained in this Safety Data Sheet is based on the present state of knowledge and current EU and national legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.