1 Identification

- Product identifier
  - Product number: TF25
  - Trade name: POLYURETHANE BARRIER COAT
    - Application of the substance / the mixture: For professional use

- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier: IVM Chemicals srl
    Viale della Stazione 3 -27020 Parona (PV) Italy tel +39 038425441
  - 1.3.2 Importer
    Name I.C.& S. DISTRIBUTING CO.
    Address P.O.BOX 10845
    LANCASTER, PA
    USA
    E-Mail: nelson@ics-company.com
  - Information department:
    Environmental Health and safety office
    hseoffice@ivmchemicals.com
  - Emergency telephone number:
    ChemTel Expert Assistance Hotline/MSDS Fax Access by dialing 1-800-255-3924 or for International +1-813-248-0585.

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS02 Flame
    Flam. Liq. 2 H225 Highly flammable liquid and vapor.
  - GHS08 Health hazard
    Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
    Carc. 2 H351 Suspected of causing cancer.
    Repr. 2 H361 Suspected of damaging fertility or the unborn child.
    STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
    Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.
  - GHS07
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Irrit. 2A H319 Causes serious eye irritation.
    Skin Sens. 1 H317 May cause an allergic skin reaction.
    STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

- Label elements
  - GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).


- **Hazard pictograms**

  - GHS02
  - GHS07
  - GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - Toluene
  - 4,4’-methylene diphenyl diisocyanate
  - Ethyl acetate
  - Aromatic polyisocyanate

- **Hazard statements**
  - H225 Highly flammable liquid and vapor.
  - H315 Causes skin irritation.
  - H319 Causes serious eye irritation.
  - H317 May cause an allergic skin reaction.
  - H311 May cause an allergic skin reaction.
  - H351 Suspected of causing cancer.
  - H361 Suspected of damaging fertility or the unborn child.
  - H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
  - H373 May cause damage to organs through prolonged or repeated exposure.
  - H304 May be fatal if swallowed and enters airways.

- **Precautionary statements**
  - P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  - P301+P310 If swallowed: Immediately call a poison center/doctor.
  - P311 Specific treatment (see on this label).
  - P331 Do NOT induce vomiting.
  - P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P362+P364 Take off contaminated clothing and wash it before reuse.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 2
    - Fire = 3
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = *2
    - Fire = 3
    - Reactivity = 0

- **3 Composition/information on ingredients**
  
  - **Chemical characterization:** Mixtures
  
  - **Description:** Mixture: consisting of the following components.
### Safety Data Sheet

**acc. to OSHA HCS**

**Printing date:** 07/29/2019  
**Reviewed on:** 07/29/2019

**Product number:** TF25  
**Trade name:** POLYURETHANE BARRIER COAT

---

#### Dangerous components:

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component Name</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>30-49.99%</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye Irrit. 2A, H319; STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td>108-88-3</td>
<td>toluene</td>
<td>20-24.99%</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repr. 2, H304; STOT RE 2, H373; Asp. Tox. 1, H304</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin Irrit. 2, H315; STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic Chronic 3, H412</td>
<td></td>
</tr>
<tr>
<td>110-19-0</td>
<td>isobutyl acetate</td>
<td>12.5-15%</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td>101-68-8</td>
<td>4,4'-methylene diphenyl diisocyanate</td>
<td>5-9.99%</td>
</tr>
<tr>
<td></td>
<td>Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H17; STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td>53317-61-6</td>
<td>Aromatic polyisocyanate</td>
<td>2.5-4.99%</td>
</tr>
<tr>
<td></td>
<td>Eye Irrit. 2A, H319; Skin Sens. 1, H17</td>
<td></td>
</tr>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>2.5-4.99%</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 3, H226</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td>78-93-3</td>
<td>butanone</td>
<td>2.5-4.99%</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye Irrit. 2A, H319; STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td>26471-62-5</td>
<td>m-tylidyne diisocyanate</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 2, H330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resp. Sens. 1, H334; Carc. 2, H351</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H17; STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aquatic Chronic 3, H412</td>
<td></td>
</tr>
</tbody>
</table>

---

### 4 First-aid measures

#### Description of first aid measures

- **General information:**
  Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  Personal protective equipment for first aid responders is recommended. (please see section 8)

- **After inhalation:**
  Supply fresh air and to be sure call for a doctor.
  In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:**
  Immediately wash with water and soap and rinse thoroughly.
  Take off immediately all contaminated clothing, include underwear and shoes (if necessary).
  Rinse thoroughly with plenty of water for at least 20 minutes and take medical advise. If medical advise is needed have products container or label at hand.

- **After eye contact:**
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:** Do not induce vomiting; immediately call for medical help.

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(Contd. on page 4)
5 Fire-fighting measures

- **Extinguishing media**
  - **Suitable extinguishing agents:** Alcohol resistant foam, CO₂, powder, water spray/mist.
  - **For safety reasons unsuitable extinguishing agents:**
    Do not use a jet water stream as it may scatter and spread fire.

- **Special hazards arising from the substance or mixture**
  During heating or in case of fire poisonous gases are produced.

- **Advice for firefighters**
  Cool by spraying with water the containers to prevent product decomposition and the development of substances potentially hazardous for health and also, in the case of closed containers exposed to flames to prevent explosions.

- **Protective equipment:**
  Hardhat with visor, fireproof clothing, suitable gloves and if necessary respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
  Ensure adequate ventilation
  Keep away from ignition sources

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to Section 13.
  Ensure adequate ventilation.

- **Reference to other sections**
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th>1,200 ppm</th>
<th>67 ppm</th>
<th>450 ppm</th>
<th>0.45 mg/m³</th>
<th>50 ppm</th>
<th>200 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6 ethyl acetate</td>
<td>108-88-3 toluene</td>
<td>110-19-0 isobutyl acetate</td>
<td>101-68-8 4,4’-methylenediphenyl diisocyanate</td>
<td>108-65-6 2-methoxy-1-methylethyl acetate</td>
<td>78-93-3 butanone</td>
<td></td>
</tr>
<tr>
<td>PAC-2:</td>
<td>1,700 ppm</td>
<td>560 ppm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>141-78-6 ethyl acetate</td>
<td>108-88-3 toluene</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7 Handling and storage

Handling:
- Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Open and handle receptacle with care.
  Prevent formation of aerosols.
  Protect against electrostatic charges.
  Keep respiratory protective device available.
- Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
  Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles:
    Store in a cool, well-ventilated area, away from heat and sources of ignition
    Provide solvent resistant, sealed floor.
    Observe the label precautions, the expiration date for the use, if not indicated, is from delivery date of goods.
    In cases where there is no reported expiration date, it means that the product must be used within 8 months.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions:
    Keep receptacle tightly sealed.
    Store in cool, dry conditions in well-sealed receptacles.

Specific end use(s) Those typical of the product and the instructions in the data sheet if required.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters
  - Components with limit values that require monitoring at the workplace:
    The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
    At this time, the other constituents have no known exposure limits.
### 141-78-6 ethyl acetate

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Long-term: 1400 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term: 1400 mg/m³, 400 ppm</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Long-term: 1440 mg/m³, 400 ppm</td>
</tr>
</tbody>
</table>

### 110-19-0 isobutyl acetate

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Long-term: 700 mg/m³, 150 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term: 700 mg/m³, 150 ppm</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Short-term: 712 mg/m³, 150 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term: 238 mg/m³, 50 ppm</td>
</tr>
</tbody>
</table>

### 101-68-8 4,4'-methylenediphenyl diisocyanate

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Ceiling limit: 0.2 mg/m³, 0.02 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term: 0.05 mg/m³, 0.005 ppm</td>
</tr>
<tr>
<td></td>
<td>Ceiling limit: 0.2* mg/m³, 0.02* ppm</td>
</tr>
<tr>
<td></td>
<td>*10-min</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Long-term: 0.051 mg/m³, 0.005 ppm</td>
</tr>
</tbody>
</table>

### 108-65-6 2-methoxy-1-methylethyl acetate

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEL (USA)</td>
<td>Long-term: 50 ppm</td>
</tr>
</tbody>
</table>

### 78-93-3 butanone

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Long-term: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Short-term: 885 mg/m³, 300 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Short-term: 885 mg/m³, 300 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td>BEI</td>
</tr>
</tbody>
</table>

### 26471-62-5 m-tolylidene diisocyanate

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>Ceiling limit: 0.14 mg/m³, 0.02 ppm</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>LFC</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Short-term: (0.14) NIC-0.021* mg/m³, (0.02) NIC-0.003* ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term: (0.036) NIC-0.007* mg/m³, (0.005) NIC-0.001* ppm</td>
</tr>
<tr>
<td></td>
<td>*(IFV) SEN; NIC-Skin; A3</td>
</tr>
</tbody>
</table>

#### Ingredients with biological limit values:

### 108-88-3 toluene

<table>
<thead>
<tr>
<th>Source</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI (USA)</td>
<td>0.02 mg/L</td>
</tr>
<tr>
<td></td>
<td>Medium: blood</td>
</tr>
<tr>
<td></td>
<td>Time: prior to last shift of workweek</td>
</tr>
<tr>
<td></td>
<td>Parameter: Toluene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.03 mg/L</td>
</tr>
<tr>
<td></td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td>Parameter: Toluene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.3 mg/g creatinine</td>
</tr>
<tr>
<td></td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td>Parameter: o-Cresol with hydrolysis (background)</td>
</tr>
</tbody>
</table>
Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

- Personal protective equipment:
  - General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the eyes and skin.
    Pregnant women should strictly avoid inhalation or skin contact.
  - Breathing equipment:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
  - Protection of hands:
    Protective gloves
    Due to missing tests no recommendation to the glove material can be given for the product.
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    The glove material has to be impermeable and resistant to the product.
    - Material of gloves
      The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
    - Penetration time of glove material
      The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection:
    Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Fluid
      - Color: According to product specification
    - Odor: Characteristic
    - Odor threshold: Not determined.
· pH-value: Not determined.

· Change in condition
  · Melting point/Melting range: Undetermined.
  · Boiling point/Boiling range: 77 °C (170.6 °F)

· Flash point: -4 °C (24.8 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 315 °C (599 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:
  · Lower: 1.2 Vol %
  · Upper: 11.5 Vol %

· Vapor pressure at 20 °C (68 °F): 105 hPa (78.8 mm Hg)

· Density (+/- 0.03) at 20 °C (68 °F):
  · Relative density: Not determined.
  · Vapor density: Not determined.
  · Evaporation rate: Not determined.

· Solubility in / Miscibility with
  · Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:
  · Dynamic: Not determined.
  · Kinematic at 20 °C (68 °F): 40 s (ISO 4 mm)

· Oxidising properties: N.A.

· Solvent content:
  · VOC content: 77.94 %
    741.2 g/l / 6.19 lb/gal

· Solids content: 22.0 %

· Other information (HAPS) No further relevant information available.
  108-88-3 toluene 20-24.99%
  101-68-8 4,4'-methylenediphenyl diisocyanate 5-9.99%
  26471-62-5 m-tolylidene diisocyanate <0.1%

· Other information No further relevant information available.

10 Stability and reactivity

· Reactivity typical of the product as indicated in the data sheet
  · Chemical stability The product is stable in normal conditions of storage and use recommended
  · Thermal decomposition / conditions to be avoided:
    No decomposition if used and stored according to specifications.

· Possibility of hazardous reactions
  Reacts with strong acids and oxidizing agents.
Vapours may form explosive mixtures with air

- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: No further relevant information available.

**Hazardous decomposition products:**

In case of possible formation of combustion:
Carbon monoxide and carbon dioxide

## 11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**:

<table>
<thead>
<tr>
<th><strong>LD/LC50 values that are relevant for classification</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>141-78-6 ethyl acetate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 4,934 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 20,001 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 1,600 mg/l (mouse)</td>
</tr>
<tr>
<td>LC0</td>
<td>22.6 ppm (mouse)</td>
</tr>
<tr>
<td><strong>108-88-3 toluene</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 5,000 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 12,124 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 25.7 mg/l (mouse)</td>
</tr>
<tr>
<td><strong>110-19-0 isobutyl acetate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 13,400 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 17,401 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 31 mg/l (mouse)</td>
</tr>
<tr>
<td><strong>101-68-8 4,4'-methylenebisphenyl diisocyanate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 2,001 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 9,401 mg/kg (rabbit)</td>
</tr>
<tr>
<td><strong>53317-61-6 Aromatic polyisocyanate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 5,001 mg/kg (mouse)</td>
</tr>
<tr>
<td><strong>108-65-8 2-methoxy-1-methylethyl acetate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 8,532 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 5,001 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 35.7 mg/l (mouse)</td>
</tr>
<tr>
<td><strong>78-93-3 butanone</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 2,001 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 5,001 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 21 mg/l (mouse)</td>
</tr>
<tr>
<td><strong>26471-62-5 m-tolylidene diisocyanate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 5,110 mg/kg (mouse)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 9,401 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 0.107 mg/l (mouse)</td>
</tr>
</tbody>
</table>

- **Primary irritant effect**:
  - **on the skin**: Irritant to skin and mucous membranes.
  - **on the eye**: Irritating effect.
Sensitization:
Sensitization possible through inhalation.
Sensitization possible through skin contact.

Additional toxicological information:
Harmful
Irritant
Causes skin irritation.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
Suspected of damaging the unborn child.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Contains isocyanates. May produce an allergic reaction.

Carcinogenic categories

- IARC (International Agency for Research on Cancer - Cl. 1 and 2)
  - 26471-62-5 m-tolylidene disocyanate 2B
  - 98-88-4 benzoyl chloride 2A

- NTP (National Toxicology Program)
  - 26471-62-5 m-tolylidene disocyanate <0.1%

- OSHA-Ca (Occupational Safety & Health Administration)
  None of the ingredients is listed.

Sensitisation
Monomers / polymers isocyanate
Particular characteristics / effects; prolonged exposure may irritate the eyes, nose, throat and respiratory tract.
Isocyanate exposure may result in the delayed appearance of respiratory disorders, cough or asthma. Sensitive individuals may show exposure symptoms to isocyanates below workplace TLV values. Prolonged skin contact may result cause irritation and dehydration.

12 Ecological information

Toxicity

Aquatic toxicity:

141-78-6 ethyl acetate
EC50 165 mg/l (daphnia) (48 h)
LC50 (96h) 230 mg/l (Fish)

108-88-3 toluene
EC50 134 mg/l (algae) (96 h)
3.78 mg/l (daphnia) (48 h)
LC50 (96h) 5.5 mg/l (Fish)

110-19-0 isobutyl acetate
EC50 370 mg/l (algae) (72 h)
25 mg/l (daphnia)
LC50 (96h) 17 mg/l (Fish)
101-68-8 4,4’-methylene diphenyl diisocyanate
EC50 1,001 mg/l (daphnia) (24 h)
LC50 (96h) 1,001 mg/l (Fish) (96 h)

108-65-6 2-methoxy-1-methylethyl acetate
EC50 1,001 mg/l (algae) (72 h)
501 mg/l (daphnia) (48 h)
LC50 (96h) 134 mg/l (Fish)

78-93-3 butanone
EC50 2,029 mg/l (algae) (96 h)
308 mg/l (daphnia) (48 h)
LC50 (96h) 2,993 mg/l (Fish)

26471-62-5 m-tolylidene diisocyanate
EC50 12.5 mg/l (daphnia) (48h)
LC50 (96) 133 mg/l (Leuciscus idus melanotus)

· Persistence and degradability No further relevant information available.

- Substances Easily biodegradable
  141-78-6 ethyl acetate
  108-88-3 toluene
  110-19-0 isobutyl acetate
  108-65-6 2-methoxy-1-methylethyl acetate
  78-93-3 butanone

- Behavior in environmental systems:
  - Bioaccumulative potential No further relevant information available.
  - Mobility in soil No further relevant information available.
- Additional ecological information:
  - General notes:
    Water hazard class 2 (Self-assessment): hazardous for water
    Do not allow product to reach ground water, water course or sewage system.
    Danger to drinking water if even small quantities leak into the ground.
  - Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods
  · Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
    Hand over to hazardous waste disposers.
    Dispose of contents and container in accordance with local state and federal regulations.

· Uncleaned packagings:
  · Recommendation: Disposal must be made according to official regulations.

14 Transport information

· UN-Number
  · DOT NA1263
### Transport hazard class(es)
- **DOT**
  - **Class**: 3 Flammable liquids
  - **Label**: 3

### IMDG, IATA
- **Class**: 3 Flammable liquids
- **Label**: 3

### Packing group
- **DOT, IMDG, IATA**: II

### Environmental hazards:
- **Marine pollutant**: No

### Special precautions for user
- **Warning**: Flammable liquids
- **Danger code (Kemler)**: 33
- **EMS Number**: F-E,S-E
- **Stowage Category**: B

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

### Transport/Additional information:
- **IMDG**
  - **Limited quantities (LQ)**: 5L
    - Code: E2
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 500 ml
  - **Excepted quantities (EQ)**: Code: E2

### UN "Model Regulation":
- **UN 1263 PAINT, 3, II**
SAFETY DATA SHEET
acc. to OSHA HCS

Product number TF25
Trade name: POLYURETHANE BARRIER COAT

(Scontd. of page 12)

- SARA
  - Section 355 (extremely hazardous substances):
    None of the ingredients is listed.
  - Section 313 (Specific toxic chemical listings):
    108-88-3 toluene 20-24.99%
    101-68-8 4,4'-methylene diphenyl diisocyanate 5-9.99%
    78-93-3 butanone 2.5-4.99%
    26471-62-5 m-tolyldiene disiocyanate <0.1%
    98-88-4 benzoyl chloride <0.01%
- TSCA (Toxic Substances Control Act):
  All components have the value ACTIVE.
- Hazardous Air Pollutants
  108-88-3 toluene
  101-68-8 4,4'-methylene diphenyl diisocyanate
- Proposition 65
  - Chemicals known to cause cancer:
    26471-62-5 m-tolyldiene disiocyanate * <0.1%
  - Chemicals known to cause reproductive toxicity for females:
    70657-70-4 2-methoxypropyl acetate <0.1%
  - Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.
  - Chemicals known to cause developmental toxicity:
    108-88-3 toluene 20-24.99%
- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    108-88-3 toluene II 20-24.99%
    101-68-8 4,4'-methylene diphenyl diisocyanate D, CBD 5-9.99%
    78-93-3 butanone I 2.5-4.99%
  - TLV (Threshold Limit Value established by ACGIH)
    108-88-3 toluene A4
    26471-62-5 m-tolyldiene disiocyanate (A4)
    98-88-4 benzoyl chloride A4
- NIOSH-Ca (National Institute for Occupational Safety and Health)
  None of the ingredients is listed.

National regulations:
The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Department issuing SDS: IVM Chemicals Srl
- Contact: See emergency phone

(Contd. on page 14)
Date of preparation / last revision 07/29/2019 / 90

Abbreviations and acronyms:
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- BEI: Biological Exposure Limit
- Flam. Liq. 2: Flammable liquids – Category 2
- Flam. Liq. 3: Flammable liquids – Category 3
- Acute Tox. 2: Acute toxicity – Category 2
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
- Resp. Sens. 1: Respiratory sensitisation – Category 1
- Skin Sens. 1: Skin sensitisation – Category 1
- Carc. 2: Carcinogenicity – Category 2
- Repri. 2: Reproductive toxicity – Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
- Asp. Tox. 1: Aspiration hazard – Category 1
- Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

Sources
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL and following amendments
- Agency ECHA web site
- INRS Fiche Toxicologique
- IARC International agency for research on cancer