3980 - Shieldokit Hardener (component B)

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

Product Detail: 3980 Electrically Conductive Adhesive (Shieldokit)
Use of the substance/mixture: Hardener (component B)
Manufacturer / supplier: Holland Shielding Systems B.V.
          Jacobus Lipsweg 124
          3316 BP Dordrecht
          the Netherlands
          Ph: +31(0)78 - 204 90 00
          Fax: +31(0)78 - 204 90 08
          www.hollandshielding.com
          info@hollandshielding.com

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

<table>
<thead>
<tr>
<th>Hazard categories</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td></td>
<td>Harmful to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

2.2. Label elements

<table>
<thead>
<tr>
<th>Hazardous components which must be listed on the label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethylenetetramine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
<td>H318 Causes serious eye damage</td>
</tr>
<tr>
<td></td>
<td>H315 Causes skin irritation</td>
</tr>
<tr>
<td></td>
<td>H317 May cause an allergic skin reaction</td>
</tr>
<tr>
<td></td>
<td>H412 Harmful to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pictograms</th>
<th>Precautionary statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS05</td>
<td>P280 Wear protective gloves/protective clothing/eye protection/face protection</td>
</tr>
<tr>
<td>GHS07</td>
<td>P501 Dispose of contents/container to in accordance with local and national regulations.</td>
</tr>
<tr>
<td></td>
<td>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</td>
</tr>
<tr>
<td></td>
<td>P310 Immediately call a POISON CENTER/docotor</td>
</tr>
</tbody>
</table>

2.3. Other hazards

No data available.
3980 - Shieldokit Hardener (component B)

3 Composition/information on ingredients

3.2. Mixtures

Chemical characterization
Hardener based on aliphatic polyamines.

Hazardous components

<table>
<thead>
<tr>
<th>EC No.</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index No</td>
<td>Classification according to Regulation (EC) No. 1272/2008 [CLP]</td>
<td></td>
</tr>
<tr>
<td>REACH No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203-950-6</td>
<td>Triethylenetetramine</td>
<td>15 - &lt; 20 %</td>
</tr>
<tr>
<td>112-24-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>612-059-00-5</td>
<td>Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H314 H317 H412</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H and EUH phrases: see section 16.

4. First aid measures

4.1. Description of first aid measures

General information
Remove contaminated soaked clothing immediately.
If you feel unwell, seek medical advice.

After inhalation
Move to fresh air in case of accidental inhalation of vapours or decomposition products.
In the event of symptoms refer for medical treatment.

After contact with skin
Wash off immediately with soap and plenty of water.
Consult a doctor if skin irritation persists.

After contact with eyes
Rinse immediately with plenty of water, also under the eyelids.
Summon a doctor immediately.

After ingestion
Do not induce vomiting.
Immediately give plenty of water (if possible charcoal slurry).
Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed
No data available.

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

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Foam, carbon dioxide (CO2), dry chemical, water-spray.
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Unsuitable extinguishing media
Full water jet.

5.2. Special hazards arising from the substance or mixture
Combustion produces caustic fumes. Fire gas of organic material has to be classed invariably as respiratory poison. Wear self-contained breathing apparatus and protective suit.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective suit.

Additional information
Do not breathe gases from fire and explosion. Cool containers at risk with water spray jet. Collect contaminated firefighting water separately, must not be discharged into the drains.

6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
In case of vapour formation use respirator. Ensure adequate ventilation. Use personal protective clothing.

6.2. Environmental precautions
Do not discharge into the drains or bodies of water.

6.3. Methods and material for containment and cleaning up
Take up with absorbent material (e.g. sand, sawdust, general-purpose binder). Shovel into suitable container for disposal. Disposal according to regulations.

6.4. Reference to other sections
Information for disposal see section 13.

7 Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Keep container tightly closed. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion
No special protective measures against fire required.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep container tightly closed in a dry, cool and well-ventilated place. Keep at temperatures between 5°C and 40°C.

Further information on storage conditions
Store in original container. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)
No data available.
8. Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values
No data available.

8.2. Exposure controls

Appropriate engineering controls
Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures
Wash hands before breaks and immediately after handling the product.
Avoid contact with skin, eyes and clothing.
At work do not eat, drink and smoke.
Remove soaked clothing immediately.

Eye/face protection
Tightly fitting goggles (EN 166).

Hand protection
Glove material specification [make/type, thickness, permeation time/life, wetting resistance]: Butyl latex, 0,7 mm, 480 min., 60 min., i.e. protective glove. Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves. This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions.

Skin protection
Protective clothing.
Safety Shoes.

Respiratory protection
Breathing apparatus in the event of aerosol or mist formation.
In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A) (EN 14387).

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>light</td>
</tr>
<tr>
<td>Odour</td>
<td>Similar to ammonia</td>
</tr>
<tr>
<td>pH-Value (at 20 °C)</td>
<td>approx. 12:1 in water</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>&gt; 200 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;152 °C</td>
</tr>
<tr>
<td>Vapour pressure (at 20 °C)</td>
<td>0,003 hPa</td>
</tr>
<tr>
<td>Density (at 20 °C)</td>
<td>approx. 1 g/cm³</td>
</tr>
<tr>
<td>Water solubility (at 20 °C)</td>
<td>Miscible</td>
</tr>
<tr>
<td>Viscosity / dynamic (at 25 °C)</td>
<td>10 - 20 mPa·s</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>The product is considered non-explosive; nevertheless explosive vapour/air mixture can be generated</td>
</tr>
</tbody>
</table>

9.2. Other information
No data available.
3980 - Shieldokit Hardener (component B)

10. Stability and reactivity

10.1. Reactivity
No data available.

10.2. Chemical stability
No data available.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials
Strong acids and strong bases. Strong oxidizing agents.

10.6. Hazardous decomposition products
Carbon monoxide, Carbon dioxide, Nitrous gases.

Further information
No decomposition if stored and applied as directed.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Exposure routes</th>
<th>Chemical name</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>112-24-3</td>
<td>Oral</td>
<td>Triethylenetetramine</td>
<td>LD50</td>
<td>Ratte</td>
<td></td>
</tr>
<tr>
<td></td>
<td>dermal</td>
<td></td>
<td>2500 mg/kg</td>
<td>Ratte</td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity
Causes serious eye damage. Causes skin irritation.

Sensitising effects
May cause an allergic skin reaction. (Triethylenetetramine)

STOT-single exposure
Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure
Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.
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**Aspiration hazard**
Based on available data, the classification criteria are not met.

**Further information**
Description of possible hazards to health effects is based on experience and/or toxicological characteristics of several components.

12. **Ecological information**

12.1. **Toxicity**
EC50 Daphnia magna: 31 mg/l, 48 h

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Aquatic toxicity</th>
<th>Method</th>
<th>Dose</th>
<th>(h) (d)</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>112-24-3</td>
<td>Triethylenetetramine</td>
<td>Acute algae toxicity</td>
<td>ErC50</td>
<td>&gt;100 mg/l</td>
<td>72 h</td>
<td>Algae</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute crustacea toxicity</td>
<td>ErC50</td>
<td>92 mg/l</td>
<td>48 h</td>
<td>Daphnia magna</td>
<td></td>
</tr>
</tbody>
</table>

12.2. **Persistence and degradability**
Not readily biodegradable.

12.3. **Bioaccumulative potential**
No data available.

**Partition coefficient n-octanol/water**

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>112-24-3</td>
<td>Triethylenetetramine</td>
<td>-1.66</td>
</tr>
</tbody>
</table>

12.4. **Mobility in soil**
No data available.

12.5. **Results of PBT and vPvB assessment**
No data available.

12.6. **Other adverse effects**
No data available.

**Further information**
Do not discharge into surface waters/groundwater.

13. **Disposal considerations**

13.1. **Waste treatment methods**

**Advice on disposal**
Where possible recycling is preferred to disposal. In accordance with regulations for special waste, must be taken to a special waste disposal.

**Waste disposal number of waste from residues/unused products**
070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors classified as hazardous waste.
3980 - Shieldokit Hardener (component B)

Contaminated packaging
Empty receptacle completely. Dispose like the product.

14. Transport information
Land transport (ADR/RID); Marine transport (IMDG); Air transport (ICAO); Inland waterways transport (ADN)

14.1. UN number
No hazardous material as defined by the transport regulations.

14.2. UN proper shipping name
No hazardous material as defined by the transport regulations.

14.3. Transport hazard class(es)
No hazardous material as defined by the transport regulations.

14.4. Packing group
No hazardous material as defined by the transport regulations.

14.5. Environmental hazards
No hazardous material as defined by the transport regulations.

14.6. Special precautions for user
No hazardous material as defined by the transport regulations.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
No hazardous material as defined by the transport regulations.

15. Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulatory information
1999/13/EC (VOC): 0 %

National regulatory information

15.2. Chemical safety assessment
Chemical safety assessments for substances in this mixture were not carried out.

16. Other information

Changes
Changes in chapter: 2, 3

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises Dangereuses par Route</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport international ferroviaire de marchandises dangereuses</td>
</tr>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Code for Dangerous Goods</td>
</tr>
<tr>
<td>IATA/ICAO</td>
<td>International Air Transport Association / International Civil Aviation Organization</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships</td>
</tr>
<tr>
<td>IBC Code</td>
<td>International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System of Classification and Labelling of Chemicals</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorization and Restriction of Chemicals</td>
</tr>
</tbody>
</table>
3980 - Shieldokit Hardener (component B)

<table>
<thead>
<tr>
<th>CAS</th>
<th>Chemical Abstract Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN</td>
<td>European norm</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
</tr>
<tr>
<td>DIN</td>
<td>Deutsche Industrie Norm</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>LD</td>
<td>Lethal dose</td>
</tr>
<tr>
<td>LC</td>
<td>Lethal concentration</td>
</tr>
<tr>
<td>EC</td>
<td>Effect concentration</td>
</tr>
<tr>
<td>IC</td>
<td>Median immobilisation concentration or median inhibitory concentration</td>
</tr>
</tbody>
</table>

Relevant H- and EUH-phrases (Number and full text)

- **H312** Harmful in contact with skin
- **H314** Causes severe skin burns and eye damage
- **H315** Causes skin irritation
- **H317** May cause an allergic skin reaction
- **H318** Causes serious eye damage
- **H412** Harmful to aquatic life with long lasting effects

Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities. The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet. This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety datasheet.)