1. Identification

Product identifier

Product name  LIQUID HARDENER.

Product number  X0014

Recommended use of the chemical and restrictions on use

Application  Hardener. Mix With Resin Component And Pour Onto Application

Details of the supplier of the safety data sheet

Supplier

ITW Performance Polymers
Bay 150
Shannon Industrial Estate
Co. Clare
Ireland
V14 DF82
353(61)771500
353(61)471285
mail@itwpp.com

Emergency telephone number

Emergency telephone  +44(0)1235 239 670 (24h)

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards  Not Classified

Health hazards  Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Repr. 2 - H361fd

Environmental hazards  Aquatic Chronic 2 - H411

Label elements

Pictogram

Signal word  Danger

Hazard statements  H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H411 Toxic to aquatic life with long lasting effects.
LIQUID HARDENER.

Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe vapor/ spray.
P261 Avoid breathing vapor/ spray.
P264 Wash contaminated skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
P302+P352 If on skin: Wash with plenty of water.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 If exposed or concerned: Get medical advice/ attention.
P310 Immediately call a poison center/ doctor.
P321 Specific treatment (see medical advice on this label).
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Contains

Contains DIMER/TOFA, reaction products with TETA, TRIETHYLENETETRAMINE, 2-PIPERAZIN-1-YLETHYLAMINE, 4-NONYLPHENOL, Branched

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>DIMER/TOFA, reaction products with TETA</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 68082-29-1</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td>Skin Irrit. 2 - H315</td>
<td></td>
</tr>
<tr>
<td>Eye Dam. 1 - H318</td>
<td></td>
</tr>
<tr>
<td>Skin Sens. 1A - H317</td>
<td></td>
</tr>
<tr>
<td>Aquatic Chronic 2 - H411</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRIETHYLENETETRAMINE</th>
<th>30-60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number: 112-24-3</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td>Acute Tox. 4 - H312</td>
<td></td>
</tr>
<tr>
<td>Skin Corr. 1B - H314</td>
<td></td>
</tr>
<tr>
<td>Eye Dam. 1 - H318</td>
<td></td>
</tr>
<tr>
<td>Skin Sens. 1 - H317</td>
<td></td>
</tr>
<tr>
<td>Aquatic Chronic 3 - H412</td>
<td></td>
</tr>
</tbody>
</table>
LIQUID HARDENER.

2-PIPERAZIN-1-YLETHYLAMINE
CAS number: 140-31-8

5-10%

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Skin Corr. 1B - H314
Eye Dam. 1 - H318
Skin Sens. 1 - H317
Aquatic Chronic 3 - H412

4-NONYLPHENOL, Branched
CAS number: 84852-15-3

5-10%

M factor (Acute) = 1  M factor (Chronic) = 1

Classification
Acute Tox. 4 - H302
Skin Corr. 1B - H314
Eye Dam. 1 - H318
Repr. 2 - H361fd
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Do not breathe vapor/spray. Avoid contact with eyes.

Inhalation
Move affected person to fresh air at once. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if any discomfort continues.

Ingestion
Do not induce vomiting. Give plenty of water to drink. Get medical attention.

Skin Contact
Remove affected person from source of contamination. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

Eye contact
Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention. Get medical attention if irritation persists after washing.

Most important symptoms and effects, both acute and delayed

General information
The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Indication of immediate medical attention and special treatment needed

Notes for the doctor
No specific recommendations. If in doubt, get medical attention promptly.

5. Fire-fighting measures

Extinguishing media
Suitable extinguishing media
Extinguish with the following media: Water. Foam, carbon dioxide or dry powder.
LIQUID HARDENER.

Special hazards arising from the substance or mixture

**Specific hazards** Avoid breathing fire gases or vapors.

**Advice for firefighters**

**Protective actions during firefighting** Keep up-wind to avoid fumes. Do not use water jet as an extinguisher, as this will spread the fire. Control run-off water by containing and keeping it out of sewers and watercourses.

**Special protective equipment for firefighters** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation.

**Environmental precautions**

**Environmental precautions** Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

**Methods and material for containment and cleaning up**

**Methods for cleaning up** Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Containers with collected spillage must be properly labeled with correct contents and hazard symbol.

**Reference to other sections** Wear protective clothing as described in Section 8 of this safety data sheet.

### 7. Handling and storage

**Precautions for safe handling**

**Usage precautions** Provide adequate ventilation. Use only in well-ventilated areas. Avoid contact with skin and eyes. Avoid eating, drinking and smoking when using the product. Do not use in confined spaces without adequate ventilation and/or respirator. Do not eat, drink or smoke when using the product.

**Advice on general occupational hygiene** Wash promptly with soap and water if skin becomes contaminated. Promptly remove any clothing that becomes wet or contaminated.

**Conditions for safe storage, including any incompatibilities**

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10).

**Specific end use(s)**

**Specific end use(s)** The identified uses for this product are detailed in Section 1.
LIQUID HARDENER.

**Appropriate engineering controls**
Provide adequate general and local exhaust ventilation. Use approved respirator if air contamination is above an acceptable level. Ensure operatives are trained to minimize exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures.

**Eye/face protection**
Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with OSHA 1910.133.

**Hand protection**
Wear protective gloves made of the following material: Rubber or plastic. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. When used with mixtures, the protection time of gloves cannot be accurately estimated. It is recommended that gloves are made of the following material: Butyl rubber. Laminate of polyethylene and ethylene vinyl alcohol (PE/EVOH). Neoprene. The selected gloves should have a breakthrough time of at least 8 hours.

**Other skin and body protection**
Wear apron or protective clothing in case of contact.

**Hygiene measures**
Provide eyewash station and safety shower. Keep away from food, drink and animal feeding stuffs. Good personal hygiene procedures should be implemented. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Do not eat, drink or smoke when using the product. Change work clothing daily before leaving workplace. Promptly remove any clothing that becomes wet or contaminated.

**Respiratory protection**
If ventilation is inadequate, suitable respiratory protection must be worn. Respirator selection must be based on exposure levels, the hazards of the product and the safe working limits of the selected respirator. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P2. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.

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### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
</tr>
<tr>
<td><strong>Color</strong></td>
</tr>
<tr>
<td><strong>Odor</strong></td>
</tr>
<tr>
<td><strong>pH</strong></td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
</tr>
<tr>
<td><strong>Initial boiling point and range</strong></td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
</tr>
<tr>
<td><strong>Other information</strong></td>
</tr>
</tbody>
</table>
LIQUID HARDENER.

10. Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>Strong oxidizing agents. Acids.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable at normal ambient temperatures and when used as recommended.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time. Avoid exposure to high temperatures or direct sunlight.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Avoid contact with oxidizing agents. Avoid contact with acids.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>Fire or high temperatures create: Nitrous gases (NOx). Oxides of the following substances: Carbon monoxide (CO). Carbon dioxide (CO2). Vapours/gases/fumes of: Ammonia or amines.</td>
</tr>
</tbody>
</table>

11. Toxicological information

<table>
<thead>
<tr>
<th>Information on toxicological effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - oral</td>
</tr>
<tr>
<td>ATE oral (mg/kg)</td>
</tr>
<tr>
<td>Acute toxicity - dermal</td>
</tr>
<tr>
<td>ATE dermal (mg/kg)</td>
</tr>
</tbody>
</table>

| Ingestion | Corrosive. Small amounts may cause serious damage. |
| Skin Contact | Causes burns. Corrosive. Prolonged contact causes serious tissue damage. May be absorbed through the skin. May cause sensitisation by skin contact. May cause sensitization or allergic reactions in sensitive individuals. |
| Eye contact | Causes burns. Risk of serious damage to eyes. |
| Acute and chronic health hazards | This product is corrosive. This product may cause skin and eye irritation. Prolonged contact may cause burns. |
| Route of entry | Inhalation Skin absorption Ingestion. |
| Target Organs | Prolonged or repeated exposure may cause the following adverse effects: May cause damage to the liver and kidneys. Respiratory system, lungs Central nervous system |

12. Ecological Information

| Ecotoxicity | Avoid releasing into the environment. The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment. |
| Toxicity | Very toxic to aquatic organisms. |
| Persistence and degradability | There are no data on the degradability of this product. |
| Bioaccumulative potential | No data available on bioaccumulation. |
| Bio-Accumulative Potential | |
| Mobility in soil | |
LIQUID HARDENER.

Mobility
Do not discharge into drains or watercourses or onto the ground.

Other adverse effects
Not available.

13. Disposal considerations

Waste treatment methods
General information
When handling waste, the safety precautions applying to handling of the product should be considered.

Disposal methods
Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Waste class
08 04 99

14. Transport information

UN Number
UN No. (TDG) 2735
UN No. (IMDG) 2735
UN No. (ICAO) 2735
UN No. (DOT) 2735

UN proper shipping name
Proper shipping name (TDG) AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENETETRAMINE, NONYL PHENOL)
Proper shipping name (IMDG) AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENETETRAMINE, NONYL PHENOL)
Proper shipping name (ICAO) AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENETETRAMINE, NONYL PHENOL)
Proper shipping name (DOT) AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENETETRAMINE, NONYL PHENOL)

Transport hazard class(es)
TDG class 8
TDG label(s) 8
IMDG Class 8
ICAO class/division 8

Transport labels

Packing group
TDG Packing Group II
IMDG packing group II
ICAO packing group II
DOT packing group II

Environmental hazards
LIQUID HARDENER.

Environmentally Hazardous Substance

Special precautions for user

EmS F-A, S-B

15. Regulatory information

16. Other information

Revision date 4/3/2018
Revision 17
Supersedes date 4/5/2017

Hazard statements in full
H302 Harmful if swallowed.
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.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company’s knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.