SAFETY DATA SHEET
TITANIUM PUTTY (Ti) HARDENER.

1. Identification

Product identifier
Product name TITANIUM PUTTY (Ti) HARDENER.
Product number X0018

Recommended use of the chemical and restrictions on use
Application Hardener.

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 Acute Tox. 4 - H302 Acute Tox. 4 - H332 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 2 - H351 STOT RE 2 - H373
Environmental hazards Not Classified

Label elements
Pictogram
Signal word Danger
Hazard statements H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
H302+H332 Harmful if swallowed or if inhaled.
TITANIUM PUTTY (Ti) 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.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P310 If swallowed: Immediately call a poison center/ doctor.
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.
P312 Call a poison center/ doctor if you feel unwell.
P314 Get medical advice/ attention if you feel unwell.
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.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Contains

TRIETHYLENETETRAMINE, PHENOL, 2-ETHYL-4-METHYLIMIDAZOLE, 4-methylimidazole

Other hazards

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

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>TRIETHYLENETETRAMINE</th>
<th>5-10%</th>
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<tbody>
<tr>
<td>CAS number: 112-24-3</td>
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</tbody>
</table>

Classification

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

**General information**
Avoid contact with skin and eyes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**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**
Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. 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.
TITANIUM PUTTY (Ti) HARDENER.

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 foam, carbon dioxide or dry powder.

Special hazards arising from the substance or mixture
Specific hazards Irritating gases or vapors.

Advice for firefighters
Protective actions during firefighting Avoid breathing fire gases or vapors. 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 Wear protective clothing as described in Section 8 of this safety data sheet. Provide adequate ventilation. Use suitable respiratory protection if ventilation is inadequate. No smoking, sparks, flames or other sources of ignition near spillage. Avoid contact with skin and eyes.

Environmental precautions
Environmental precautions Avoid or minimize the creation of any environmental contamination. Do not discharge into drains or watercourses or onto the ground. 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 sand or other inert absorbent. 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 Use only in well-ventilated areas. Handle and open container with care. Keep away from heat, sparks and open flame. Do not eat, drink or smoke when using the product. Do not use in confined spaces without adequate ventilation and/or respirator. Good personal hygiene procedures should be implemented.

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) The identified uses for this product are detailed in Section 1.
TITANIUM PUTTY (Ti) HARDENER.

8. Exposure Controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient comments</th>
<th>WEL = Workplace Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exposure controls</strong></td>
<td><em>(not shown)</em></td>
</tr>
<tr>
<td><strong>Protective equipment</strong></td>
<td><em>(not shown)</em></td>
</tr>
<tr>
<td><strong>Appropriate engineering controls</strong></td>
<td>Provide adequate general and local exhaust ventilation.</td>
</tr>
<tr>
<td><strong>Eye/face protection</strong></td>
<td>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. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses. Personal protective equipment for eye and face protection should comply with OSHA 1910.133.</td>
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<tr>
<td><strong>Hand protection</strong></td>
<td>Wear protective gloves made of the following material: Rubber or plastic. It is recommended that gloves are made of the following material: Butyl rubber. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. The selected gloves should have a breakthrough time of at least 8 hours.</td>
</tr>
<tr>
<td><strong>Other skin and body protection</strong></td>
<td>Wear apron or protective clothing in case of contact.</td>
</tr>
<tr>
<td><strong>Hygiene measures</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Respiratory protection</strong></td>
<td>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. Check that the respirator fits tightly and the filter is changed regularly. Wear a respirator fitted with the following cartridge: Gas filter, type A2. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134.</td>
</tr>
</tbody>
</table>

9. Physical and Chemical Properties

| Information on basic physical and chemical properties | *(not shown)* |
| **Appearance** | Paste. |
| **Color** | White/off-white. |
| **Odor** | Amine. |
| **pH** | pH (concentrated solution): 9.75 @ 20 ºC |
| **Melting point** | n/d°C |
| **Initial boiling point and range** | >177°C @ |
| **Flash point** | 136°C |
| **Vapor pressure** | <0.01 mmHg @ °C |
| **Relative density** | 1.78 @ 20 °C°C |
TITANIUM PUTTY (Ti) HARDENER.

**Solubility(ies)**
Slightly soluble in water.

**Viscosity**
640-1600 Pa s @ 25°C

**Other information**
Not available.

### 10. Stability and reactivity

**Reactivity**
Acids. Strong oxidizing agents.

**Stability**
Stable at normal ambient temperatures and when used as recommended.

**Possibility of hazardous reactions**
Not available.

**Conditions to avoid**
Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time. Avoid exposure to high temperatures or direct sunlight.

**Materials to avoid**
Avoid contact with the following materials: Strong oxidizing agents. Strong acids. Chlorinated hydrocarbons.

**Hazardous decomposition products**
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.

### 11. Toxicological information

**Information on toxicological effects**

**Acute toxicity - oral**
ATE oral (mg/kg) 1,402.76

**Acute toxicity - dermal**
ATE dermal (mg/kg) 3,391.95

**Acute toxicity - inhalation**
ATE inhalation (gases ppm) 11,312.22  
ATE inhalation (vapours mg/l) 48.48  
ATE inhalation (dusts/mists mg/l) 8.08

**Inhalation**
Irritating to respiratory system. May cause sensitisation by inhalation.

**Ingestion**
Harmful if swallowed.

**Skin Contact**
Irritating to skin. Harmful in contact with skin. May cause sensitisation by skin contact.

**Eye contact**
Irritating to eyes.

**Acute and chronic health hazards**
Causes 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
TITANIUM PUTTY (Ti) HARDENER.

Ecotoxicity
Avoid release to the environment.

Toxicity
Not considered toxic to fish.

Persistence and degradability
Phenol: Biological degradability % : 99.5 %.

Bioaccumulative potential
Bio-Accumulative Potential
No data available on bioaccumulation.

Mobility in soil
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

General
No other information known.

UN Number
UN No. (TDG) 1760
UN No. (IMDG) 1760
UN No. (ICAO) 1760
UN No. (DOT) 1760

UN proper shipping name
Proper shipping name (TDG) CORROSIVE LIQUID, N.O.S. (TRIETHYLENETETRAMINE, 1-METHYLIMIDAZOLE)
Proper shipping name (IMDG) CORROSIVE LIQUID, N.O.S. (TRIETHYLENETETRAMINE, 1-METHYLIMIDAZOLE)
Proper shipping name (ICAO) CORROSIVE LIQUID, N.O.S. (TRIETHYLENETETRAMINE, 1-METHYLIMIDAZOLE)
Proper shipping name (DOT) CORROSIVE LIQUID, N.O.S. (TRIETHYLENETETRAMINE, 1-METHYLIMIDAZOLE)

Transport hazard class(es)
TDG class 8
TDG label(s) 8
IMDG Class 8
ICAO class/division 8
TITANIUM PUTTY (Ti) HARDENER.

Transport labels

Packing group

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

Environmental hazards

Environmentally Hazardous Substance No.

Special precautions for user

EmS F-A, S-B

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information required.

15. Regulatory information

16. Other information

Revision date 4/4/2018
Revision 19
Supersedes date 4/25/2017

Hazard statements in full

H301 Toxic if swallowed.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
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.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
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.