



**SAFETY DATA SHEET**  
**TITANIUM PUTTY (Ti) HARDENER.**

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

**1.1. Product identifier**

**Product name**                   TITANIUM PUTTY (Ti) HARDENER.  
**Product number**               10761H, 10765H

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

**Identified uses**                Hardener.

**1.3. 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

**1.4. Emergency telephone number**

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

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification (EC 1272/2008)**

**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  
**Environmental hazards**       Not Classified

**2.2. 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.  
H302+H332 Harmful if swallowed or if inhaled.

## TITANIUM PUTTY (Ti) HARDENER.

<b>Precautionary statements</b>	<p>P261 Avoid breathing vapour/ spray.</p> <p>P270 Do not eat, drink or smoke when using this product.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
<b>Contains</b>	TRIETHYLENETETRAMINE, PHENOL, 2-ETHYL-4-METHYLIMIDAZOLE
<b>Supplementary precautionary statements</b>	<p>P201 Obtain special instructions before use.</p> <p>P202 Do not handle until all safety precautions have been read and understood.</p> <p>P260 Do not breathe vapour/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P272 Contaminated work clothing should not be allowed out of the workplace.</p> <p>P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P302+P352 IF ON SKIN: Wash with plenty of water.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P308+P313 IF exposed or concerned: Get medical advice/ attention.</p> <p>P312 Call a POISON CENTER/ doctor if you feel unwell.</p> <p>P321 Specific treatment (see medical advice on this label).</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P405 Store locked up.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>

### 2.3. Other hazards

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

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<b>TRIETHYLENETETRAMINE</b>		<b>5-10%</b>
CAS number: 112-24-3	EC number: 203-950-6	REACH registration number: 01-2119487919-13-0000
<b>Classification</b>		
Acute Tox. 4 - H312		
Skin Corr. 1B - H314		
Eye Dam. 1 - H318		
Skin Sens. 1 - H317		
Aquatic Chronic 3 - H412		

**TITANIUM PUTTY (Ti) HARDENER.**

<b>PHENOL</b>			<b>5-10%</b>
CAS number: 108-95-2	EC number: 203-632-7		
<b>Classification</b>			
Acute Tox. 3 - H301			
Acute Tox. 3 - H311			
Acute Tox. 3 - H331			
Skin Corr. 1B - H314			
Eye Dam. 1 - H318			
Muta. 2 - H341			
STOT RE 2 - H373			
<b>2-ETHYL-4-METHYLIMIDAZOLE</b>			<b>1-5%</b>
CAS number: 931-36-2			
<b>Classification</b>			
Acute Tox. 4 - H302			
Skin Irrit. 2 - H315			
Eye Dam. 1 - H318			
Skin Sens. 1B - H317			
<b>TITANIUM DIOXIDE</b>			<b>1-5%</b>
CAS number: 13463-67-7	EC number: 236-675-5	REACH registration number: 01-2119489379-17-0000	
<b>Classification</b>			
Not Classified			
<b>4-methylimidazole</b>			<b>&lt;1%</b>
CAS number: 822-36-6			
<b>Classification</b>			
Acute Tox. 4 - H302			
Acute Tox. 3 - H311			
Skin Corr. 1B - H314			
Eye Dam. 1 - H318			
Carc. 2 - H351			

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

**SECTION 4: First aid measures****4.1. Description of first aid measures**

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

## TITANIUM PUTTY (Ti) HARDENER.

**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.

### 4.2. 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.

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

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

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media** Extinguish with foam, carbon dioxide or dry powder.

### 5.2. Special hazards arising from the substance or mixture

**Specific hazards** Irritating gases or vapours.

### 5.3. Advice for firefighters

**Protective actions during firefighting** Avoid breathing fire gases or vapours. 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.

## SECTION 6: Accidental release measures

### 6.1. 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.

### 6.2. Environmental precautions

**Environmental precautions** Avoid or minimise 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.

### 6.3. 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 labelled with correct contents and hazard symbol.

### 6.4. Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

## TITANIUM PUTTY (Ti) HARDENER.

**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.

### 7.2. 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).

### 7.3. Specific end use(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### PHENOL

Long-term exposure limit (8-hour TWA): WEL 2 ppm(Sk)

Short-term exposure limit (15-minute): WEL

##### TITANIUM DIOXIDE

Long-term exposure limit (8-hour TWA): 10 mg/m<sup>3</sup> total dust

WEL = Workplace Exposure Limit

**Ingredient comments** WEL = Workplace Exposure Limits

### TRIETHYLENETETRAMINE (CAS: 112-24-3)

#### DNEL

Workers - Inhalation; Long term systemic effects: 1 mg/m<sup>3</sup>

Workers - Inhalation; Short term systemic effects: 5380 mg/m<sup>3</sup>

Workers - Dermal; Long term systemic effects: 0.57 mg/kg/day

### 8.2. Exposure controls

#### Protective equipment



#### Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

#### 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. 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 European Standard EN166.

#### Hand protection

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 European Standard EN374. 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.

## TITANIUM PUTTY (Ti) HARDENER.

<b>Hygiene measures</b>	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.
<b>Respiratory protection</b>	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 European Standard EN140.

### SECTION 9: Physical and Chemical Properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Paste.
<b>Colour</b>	White/off-white.
<b>Odour</b>	Amine.
<b>pH</b>	pH (concentrated solution): 9.75 @ 20 °C
<b>Melting point</b>	n/d°C
<b>Initial boiling point and range</b>	>177°C @
<b>Flash point</b>	136°C
<b>Vapour pressure</b>	<0.01 mmHg @ °C
<b>Relative density</b>	1.78 @ 20 °C°C
<b>Solubility(ies)</b>	Slightly soluble in water.
<b>Viscosity</b>	640-1600 Pa s @ 25°C

#### 9.2. Other information

<b>Other information</b>	Not available.
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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

<b>Reactivity</b>	Acids. Strong oxidising agents.
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#### 10.2. Chemical stability

<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended.
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#### 10.3. Possibility of hazardous reactions

<b>Possibility of hazardous reactions</b>	Not available.
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#### 10.4. Conditions to avoid

<b>Conditions to avoid</b>	Avoid heat, flames and other sources of ignition. Avoid excessive heat for prolonged periods of time. Avoid exposure to high temperatures or direct sunlight.
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#### 10.5. Incompatible materials

<b>Materials to avoid</b>	Avoid contact with the following materials: Strong oxidising agents. Strong acids. Chlorinated hydrocarbons.
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#### 10.6. Hazardous decomposition products

## TITANIUM PUTTY (Ti) HARDENER.

**Hazardous decomposition products** Fire or high temperatures create: Nitrous gases (NOx). Oxides of the following substances: Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Vapours/gases/fumes of: Ammonia or amines.

### SECTION 11: Toxicological information

#### 11.1. 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

### SECTION 12: Ecological Information

**Ecotoxicity** Avoid release to the environment.

#### 12.1. Toxicity

**Toxicity** Not considered toxic to fish.

#### 12.2. Persistence and degradability

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

#### 12.3. Bioaccumulative potential

**Bioaccumulative potential** No data available on bioaccumulation.

#### 12.4. Mobility in soil

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

#### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

#### 12.6. Other adverse effects

## TITANIUM PUTTY (Ti) HARDENER.

**Other adverse effects** Not available.

### SECTION 13: Disposal considerations

#### 13.1. 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

### SECTION 14: Transport information

**General** No other information known.

#### 14.1. UN number

**UN No. (ADR/RID)** 1760

**UN No. (IMDG)** 1760

**UN No. (ICAO)** 1760

#### 14.2. UN proper shipping name

**Proper shipping name (ADR/RID)** 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 (ADN)** CORROSIVE LIQUID, N.O.S. (TRIETHYLENETETRAMINE, 1-METHYLIMIDAZOLE)

#### 14.3. Transport hazard class(es)

**ADR/RID class** 8

**ADR/RID label** 8

**IMDG class** 8

**ICAO class/division** 8

#### Transport labels



#### 14.4. Packing group

**ADR/RID packing group** III

**IMDG packing group** III

**ICAO packing group** III

#### 14.5. Environmental hazards

**Environmentally hazardous substance/marine pollutant**  
No.

#### 14.6. Special precautions for user



## TITANIUM PUTTY (Ti) HARDENER.

EmS	F-A, S-B
Emergency Action Code	2X
Hazard Identification Number (ADR/RID)	80
Tunnel restriction code	(E)

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information required.

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**EU legislation** Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### SECTION 16: Other information

Revision date	04/04/2018
Revision	19
Supersedes date	25/04/2017
Hazard statements in full	<p>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.</p>

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.