

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING**

**Product code** SS-1164 TI  
**Product name** 1000 ug/mL Titanium  
**Common Name** Titanium in Dilute Nitric Acid Trace Hydrofluoric Acid  
**Manufacturer, importer, supplier** Teknolab  
P.O. Box 33  
1411 Kolbotn  
Norway  
Tel: + 47 66 81 34 70  
Fax: +47 66 81 34 71  
Web: www.spectrascan.no  
**Emergency telephone number** 800-424-9300 CHEMTREC (24 hrs)

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

CAS	Chemical Name	% Weight	ACGIH*	OSHA*
7732-18-5	Water	~94-98	N/A	N/A
7697-37-2	Nitric Acid	~1-5	2 ppm TWA	2 ppm TWA; 5 mg/m3 TWA
7664-39-3	Hydrogen fluoride	<0.1	0.5 ppm TWA (as F)	3 ppm TWA
7440-32-6	Titanium	~0.1-1	N/A	N/A

\* ACGIH - Occupational Exposure Limits - TWAs

\* OSHA - Final PELs - Time Weighted Averages (TWAs)

**3. HAZARDS IDENTIFICATION****Emergency Overview**

- Vapours may be irritating to eyes, nose, throat, and lungs
- Corrosive

**Eye contact**

- Contact with eyes may cause irritation

**Skin contact**

- Causes severe burns

**Inhalation**

- May cause irritation of respiratory tract

**Ingestion**

- Harmful if swallowed

**4. FIRST AID MEASURES****General advice**

- Show this safety data sheet to the doctor in attendance

**Skin contact**

- Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes
- First treatment with calcium gluconate paste
- Immediate medical attention is required

**Eye contact**

- Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes
- Keep eye wide open while rinsing
- Immediate medical attention is required

**Inhalation**

- Move to fresh air in case of accidental inhalation of vapours
- If breathing is difficult, give oxygen
- Immediate medical attention is required

**Ingestion**

- Call a physician or Poison Control Centre immediately
- If swallowed, seek medical advice immediately and show this container or label
- If conscious, drink plenty of water

<b>Notes to physician</b>	<ul style="list-style-type: none"> <li>• Treat symptomatically</li> </ul>
<b>Protection of first-aiders</b>	<ul style="list-style-type: none"> <li>• Use personal protective equipment</li> </ul>

## 5. FIRE-FIGHTING MEASURES

<b>Flash point</b>	NA
<b>Suitable extinguishing media</b>	<ul style="list-style-type: none"> <li>• Use extinguishing measures that are appropriate to local circumstances and the surrounding environment</li> </ul>
<b>Specific hazards</b>	<ul style="list-style-type: none"> <li>• Thermal decomposition can lead to release of irritating gases and vapours</li> </ul>
<b>Specific methods</b>	<ul style="list-style-type: none"> <li>• Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations</li> </ul>
<b>Special protective equipment for firefighters</b>	<ul style="list-style-type: none"> <li>• As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear</li> </ul>
<b>NFPA (National Fire Protection Association)</b>	<ul style="list-style-type: none"> <li>• Health - 2</li> <li>• Fire Hazard - 0</li> <li>• Reactivity - 0</li> </ul>
<b>Under conditions giving incomplete combustion, hazardous gases produced may consist of:</b>	<ul style="list-style-type: none"> <li>• nitrogen oxides (NO<sub>x</sub>).</li> <li>• F<sup>-1</sup>.</li> </ul>

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	<ul style="list-style-type: none"> <li>• Evacuate personnel to safe areas</li> <li>• Keep people away from and upwind of spill/leak</li> <li>• Wear personal protective equipment</li> <li>• Ensure adequate ventilation</li> </ul>
<b>Environmental precautions</b>	<ul style="list-style-type: none"> <li>• Prevent further leakage or spillage if safe to do so</li> <li>• Prevent product from entering drains</li> </ul>
<b>Methods for cleaning up</b>	<ul style="list-style-type: none"> <li>• Dam up</li> <li>• Neutralize with lime milk or soda and flush with plenty of water</li> <li>• Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container</li> <li>• After cleaning, flush away traces with water</li> </ul>

## 7. HANDLING AND STORAGE

### Handling

<b>Technical measures/Precautions</b>	<ul style="list-style-type: none"> <li>• Use only in area provided with appropriate exhaust ventilation</li> </ul>
<b>Safe handling advice</b>	<ul style="list-style-type: none"> <li>• Wear personal protective equipment</li> </ul>

### Storage

<b>Technical measures/Precautions</b>	<ul style="list-style-type: none"> <li>• Keep in properly labelled containers</li> <li>• Store at room temperature in the original container</li> <li>• Keep containers tightly closed in a dry, cool and well-ventilated place</li> </ul>
<b>Incompatible products</b>	<ul style="list-style-type: none"> <li>• organic materials</li> <li>• reducing agents</li> </ul>

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Personal protective equipment</b>	
<b>Hand protection</b>	<ul style="list-style-type: none"> <li>• impervious gloves</li> </ul>
<b>Eye protection</b>	<ul style="list-style-type: none"> <li>• tightly fitting safety goggles</li> </ul>
<b>Respiratory protection</b>	<ul style="list-style-type: none"> <li>• Ensure adequate ventilation</li> </ul>
<b>Skin and body protection</b>	<ul style="list-style-type: none"> <li>• Chemical resistant apron</li> <li>• Lab coat</li> </ul>

<b>Hygiene measures</b>	<ul style="list-style-type: none"> <li>• When using, do not eat, drink or smoke</li> <li>• Regular cleaning of equipment, work area and clothing</li> </ul>
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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### General Information

<b>Form</b>	liquid.
<b>Appearance</b>	clear
<b>Colour</b>	None.
<b>Odour</b>	None.

### Important Health Safety and Environmental Information

<b>pH</b>	0 to 2
<b>Boiling point/range</b>	100°C
<b>Flash point</b>	N/A
<b>Vapour pressure</b>	NA.
<b>Water solubility</b>	miscible.

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	<ul style="list-style-type: none"> <li>• Stable under normal conditions</li> <li>• Hazardous polymerisation does not occur</li> </ul>
<b>Materials to avoid</b>	<ul style="list-style-type: none"> <li>• organic materials</li> <li>• reducing agents</li> </ul>
<b>Hazardous decomposition products</b>	<ul style="list-style-type: none"> <li>• nitrogen oxides (NO<sub>x</sub>)</li> <li>• F<sup>-1</sup></li> </ul>

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

### Component Information

CAS	Chemical Name	% Weight	LD50/oral/rat =	LD50/dermal/rat =
7732-18-5	Water	97.9	N/A	N/A
7697-37-2	Nitric Acid	2	Inhalation LC50 Rat: 130 mg/kg/4H	Inhalation LC50 Rat: 130 mg/kg/4H
7664-39-3	Hydrogen fluoride	<0.1	Inhalation LC50 Rat: 1276 ppm/1H	Inhalation LC50 Rat: 1276 ppm/1H
7440-32-6	Titanium	0.1	N/A	N/A

### Product Information

<b>Local effects</b>	HF is toxic and can cause severe burns that are not apparent immediately. Symptoms may be delayed
<b>Skin irritation</b>	Causes severe burns.
<b>Eye irritation</b>	Irritant.
<b>Inhalation</b>	Irritant.
<b>Ingestion</b>	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Harmful if swallowed.
<b>Chronic toxicity</b>	Avoid repeated exposure. Prolonged exposure may cause chronic effects.
<b>carcinogenic effects</b>	Questionable carcinogen.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

### Component Information

CAS	Chemical Name	% Weight	EFAD*	EFFSD*	EMD - Ecotoxicity*
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7732-18-5	Water	~94-98	N/A	N/A	N/A
7697-37-2	Nitric Acid	~1-5	N/A	N/A	N/A
7664-39-3	Hydrogen fluoride	<0.1	N/A	N/A	N/A
7440-32-6	Titanium	~0.1-1	N/A	N/A	N/A

\* EFAD - Ecotoxicity - Freshwater Algae Data

\* EFFSD - Ecotoxicity - Freshwater Fish Species Data

\* EMD - Ecotoxicity - Microtox Data

## Product Information

Do not allow material to contaminate ground water or sewage system

## Other information

### 13. DISPOSAL CONSIDERATIONS

<b>Waste from residues / unused products</b>	<ul style="list-style-type: none"> <li>In accordance with local and national regulations</li> </ul>
<b>Contaminated packaging</b>	<ul style="list-style-type: none"> <li>Empty containers should be taken for local recycling, recovery or waste disposal</li> </ul>

### 14. TRANSPORT INFORMATION

#### DOT

<b>UN-No</b>	UN3264 / Class 8
<b>Proper shipping name</b>	Corrosive liquid, acidic, inorganic, n.o.s
<b>Packing group</b>	III

#### ICAO

<b>UN-No</b>	UN3264 / Class 8
<b>Proper shipping name</b>	Corrosive liquid, acidic, inorganic, n.o.s
<b>Packing group</b>	III

#### IATA-DGR

<b>UN-No</b>	UN3264 / Class 8
<b>Proper shipping name</b>	Corrosive liquid, acidic, inorganic, n.o.s
<b>Packing group</b>	III

### 15. REGULATORY INFORMATION

#### U.S. INVENTORIES:

CAS	Chemical Name	% Weight	CPCL*	NJRTK*	CERCLA/SARA*
7732-18-5	Water	~94-98	N/A	N/A	N/A
7697-37-2	Nitric Acid	~1-5	N/A	sn 1356	1000 lb final RQ; 454 kg final RQ
7664-39-3	Hydrogen fluoride	<0.1	N/A	sn 1014	100 lb final RQ; 45.4 kg final RQ
7440-32-6	Titanium	~0.1-1	N/A	sn 1860	N/A

\* CPCL - California - Proposition 65 - Carcinogens List

\* NJRTK - New Jersey - Department of Health RTK List

\* CERCLA/SARA - Hazardous Substances and their Reportable Quantities

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#### INTERNATIONAL INVENTORIES:

CAS	Chemical Name	% Weight	WHMIS*	EINECS - European Union*
7732-18-5	Water	~94-98	Uncontrolled product according to WHMIS classification criteria	231-791-2
7697-37-2	Nitric Acid	~1-5	C, E (including 60%, 61.3%, 63%, 67%, 67.18%, 70%, 90%); E (10%)	231-714-2
7664-39-3	Hydrogen fluoride	<0.1	D1A, E; D1B (including 12%, 24%, 48-50%, 52%, 70%)	231-634-8
7440-32-6	Titanium	~0.1-1	N/A	231-142-3

## 16. OTHER INFORMATION

The above information is believed to be accurate and represents the best information available to us. It has been compiled from the data presented in various technical publications and our experience and should only be used as a guide for handling this product. It is the user's responsibility to determine the suitability of this information for their particular purposes. We assume that only qualified individuals, trained and familiar with procedures suitable to this product will handle this material. Teknolab assumes no responsibility and shall not be held liable for any damage resulting from misuse of this product.