



# SAFETY DATA SHEET

Issue Date 08-Jul-2015

Revision Date 23-Feb-2021

Version 7

## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Code** SAC022  
**Product Name** Zirconium Tetrachloride

**UN/ID no** 3260  
**Synonyms** Zirconium Tetrachloride; Zirconium Chloride (Product #305)

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

**Recommended Use** Chemical intermediate

**Uses advised against**

### 1.3. Details of the supplier of the safety data sheet

#### Manufacturer

ATI, 1000 Six PPG Place, Pittsburgh, PA 15222 USA

### 1.4. Emergency telephone number

**Emergency Telephone** Chemtrec: +1-703-741-5970

## Section 2: HAZARDS IDENTIFICATION

This material is classified per Regulation (EC) No 1272/2008.

### 2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin corrosion/irritation	Category 1B
Corrosive to metals	Category 1

### 2.2. Label elements

#### Emergency Overview

**Danger**

#### Hazard statements

May be corrosive to metals  
Causes severe skin burns and eye damage



**Appearance** Powder**Physical state** Solid**Odour** Pungent, Slight chlorine**Precautionary Statements - Prevention**

Wear protective gloves/protective clothing/eye protection  
Do not breathe dust/fume

**Precautionary Statements - Response**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
IF ON SKIN (or hair): Brush off loose particles from skin. Remove/Take off immediately all contaminated clothing  
Rinse skin with water/shower  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
Immediately call a POISON CENTER or doctor/physician  
Wash contaminated clothing before reuse  
Absorb spillage to prevent material damage

**Precautionary Statements - Storage**

Store in a dry place  
Store in corrosive resistant container

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**2.3 Hazards not otherwise classified (HNOC)**

Reacts violently with water  
(EUH014)

**Other Information**

Harmful if swallowed

## Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Substances**

**Synonyms** Zirconium Tetrachloride; Zirconium Chloride, (Product #305).

Chemical Name	EC No	CAS No	Weight-%
Zirconium Tetrachloride	233-058-2	10026-11-6	>97

## Section 4: FIRST AID MEASURES

**4.1. Description of first aid measures**

**Inhalation** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor or poison control centre immediately.

**Skin Contact** Brush off loose particles from skin. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

**Eye contact** Flush with water for 15 minutes. See a physician.

**Ingestion** Do NOT induce vomiting. Have patient drink large quantities of water if able. Call Physician immediately for further instructions.

**4.2. Most important symptoms and effects, both acute and delayed**

**Symptoms** May cause acute gastrointestinal effects if swallowed. Contact with moist skin may cause skin burns. May cause breathing difficulties if inhaled.

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

**Note to doctors** Treat symptomatically.

**Section 5: FIREFIGHTING MEASURES****5.1. Extinguishing media****Suitable extinguishing media**

Non-combustible.

**Unsuitable extinguishing media**

Non-combustible If a fire occurs in the area, avoid water contact with the product to prevent evolution of hazardous gases

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

Non-combustible

**Hazardous combustion products** Hydrogen chloride gas may cause respiratory and/or eye irritation.

**5.3. Advice for firefighters**

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

**Section 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures****Personal precautions**

Use personal protective equipment as required.

**For emergency responders**

Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 154.

**6.2. Environmental precautions**

Collect spillage to prevent release to the environment.

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

Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**

Sweep or shovel material into dry containers. Avoid creating uncontrolled dust. Wash the spill location thoroughly with water. Respiratory protection may be needed. Skin and eye protection should be used during cleanup.

**6.4. Reference to other sections**

See Section 12: ECOLOGICAL INFORMATION.

**Section 7: HANDLING AND STORAGE****7.1. Precautions for safe handling****Advice on safe handling**

Handle in accordance with good industrial hygiene and safety practice. Protect from moisture, Reacts with water. Ensure adequate ventilation, especially in confined areas. Handle under inert gas such as nitrogen or argon to maintain the integrity of the product.

**General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Storage Conditions

Keep in corrosion resistant containers. Keep in properly labelled containers. Keep in a dry, cool and well-ventilated place. Protect from direct sunlight. Containers may become pressurized: Handle and open container with care.

#### Incompatible materials

Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics. Reacts with metals to produce heat and corrosive gases.

### 7.3. Specific end use(s)

#### Risk Management Methods (RMM)

The information required is contained in this Safety Data Sheet.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain	Germany
Zirconium Tetrachloride 10026-11-6	-	TWA: 5 mg/m <sup>3</sup>	-	STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	-
Chemical Name	Italy	Portugal	Netherlands	Finland	Denmark
Zirconium Tetrachloride 10026-11-6	-	STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	-	TWA: 1 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>
Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
Zirconium Tetrachloride 10026-11-6	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>

**Derived No Effect Level (DNEL)** No DNELs are available for this product

#### **Predicted No Effect Concentration (PNEC)**

<b>Fresh Water</b>	.19 mg/L
<b>Sea Water</b>	.019 mg/L
<b>Sea sediment</b>	19.2 mg/kg sediment dw
<b>Soil</b>	17.96 mg/kg soil dw

### 8.2. Exposure controls

**Engineering Controls** Avoid generation of uncontrolled particles. Local exhaust ventilation during processing is recommended.

#### **Personal protective equipment**

##### **Eye/face protection**

If a risk of eye injury or irritation is present, appropriate eye protection is recommended; for example, tight-fitting goggles, foam-lined safety glasses, face shield, or other protective equipment that shields the eyes.

##### **Skin and body protection**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

##### **Respiratory protection**

When particulates/fumes/gases are generated and if exposure limits are exceeded or irritation is experienced, proper approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminate concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Environmental exposure controls** Section 6: ACCIDENTAL RELEASE MEASURES.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

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

<b>Physical state</b>	Solid	<b>Odour</b>	Pungent, Slight chlorine
<b>Appearance</b>	Powder	<b>Odour threshold</b>	
<b>Colour</b>	white, orange		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	<1	
Melting point / freezing point	440 °C / 820 °F	
Boiling point / boiling range	-	
Flash point	-	Not applicable
Evaporation rate	-	Not applicable
Flammability (solid, gas)	-	Not flammable
Flammability Limit in Air		
Upper flammability limit:	-	
Lower flammability limit	-	
Vapour pressure	-	Not applicable
Vapour density	-	Not applicable
Specific Gravity	2.8	
Water solubility	Reacts with water, hydrolyzes	
Solubility(ies)		
Partition coefficient	-	
Autoignition temperature	-	Not applicable
Decomposition temperature	-	Not applicable
Kinematic viscosity	-	Not applicable
Dynamic viscosity	-	Not applicable
Explosive properties	Not applicable	
Oxidising properties	Not applicable	

### 9.2. Other information

Softening point	-
Molecular weight	233.04
VOC Content (%)	Not applicable
Density	-
Bulk density	45-80 lb/ft3

## Section 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Reacts with water

### 10.2. Chemical stability

Stable under normal conditions.

#### Explosion data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

### 10.3. Possibility of hazardous reactions

#### **Hazardous polymerisation**

Hazardous polymerisation does not occur.

#### **Possibility of Hazardous Reactions**

Reacts with water.

### 10.4. Conditions to avoid

Dust formation and dust accumulation. Unintentional contact with water.

#### **10.5. Incompatible materials**

Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics. Reacts with metals to produce heat and corrosive gases.

#### **10.6. Hazardous decomposition products**

Reacts with water to produce hydrogen chloride gas or hydrochloric acid and heat.

## **Section 11: TOXICOLOGICAL INFORMATION**

### **11.1. Information on toxicological effects**

#### **Product Information**

<b>Inhalation</b>	Product not classified.
<b>Eye contact</b>	Causes severe eye damage.
<b>Skin Contact</b>	Causes severe skin burns.
<b>Ingestion</b>	Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Zirconium Tetrachloride	-	-	-

#### **Information on toxicological effects**

<b>Symptoms</b>	May cause skin burns. May cause severe upper respiratory irritation if inhaled. May cause acute gastrointestinal effects if swallowed. May cause burning sensation or redness in the eyes.
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#### **Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<b>Acute toxicity</b>	Harmful if swallowed.
<b>Skin corrosion/irritation</b>	Causes severe skin burns.
<b>Serious eye damage/eye irritation</b>	Causes severe eye damage.
<b>Sensitisation</b>	Product not classified.
<b>Germ cell mutagenicity</b>	Product not classified.
<b>Carcinogenicity</b>	Product not classified.
<b>Reproductive toxicity</b>	Product not classified.
<b>STOT - single exposure</b>	Product not classified.
<b>STOT - repeated exposure</b>	Product not classified.
<b>Target Organ Effects</b>	
<b>Aspiration hazard</b>	Product not classified.

## **Section 12: ECOLOGICAL INFORMATION**

### **12.1. Toxicity**

This product as shipped is not classified for aquatic toxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Zirconium Tetrachloride	The 14 d NOEC of zirconium tetrachloride to <i>Chlorella vulgaris</i> was greater than 262 mg of ZrCl <sub>4</sub> /L.	The 96h LC50 value of zirconium tetrachloride to <i>Oncorhynchus mykiss</i> was greater than 51 mg ZrCl <sub>4</sub> /L and the 96 h LL50 of zirconium tetrachloride to <i>Danio rerio</i> was greater than 190 mg of ZrCl <sub>4</sub> /L.	-	The 48 h EC50 of zirconium tetrachloride to <i>Daphnia magna</i> was greater than 190 mg of ZrCl <sub>4</sub> /L.

**12.2. Persistence and degradability****12.3. Bioaccumulative potential****12.4. Mobility in soil****12.5. Results of PBT and vPvB assessment**

The PBT and vPvB criteria do not apply to inorganic substances.

**12.6. Other adverse effects**

## Section 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**

<b>Waste from residues/unused products</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.
<b>Contaminated packaging</b>	Disposal should be in accordance with applicable regional, national and local laws and regulations.

## Section 14: TRANSPORT INFORMATION

**IMDG**

<b>14.1 UN/ID no</b>	3260
<b>14.2 Proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Tetrachloride)
<b>14.3 Hazard Class</b>	8
<b>14.4 Packing Group</b>	II
<b>14.5 Marine pollutant</b>	Not applicable
<b>14.6 Special Provisions</b>	IB8, IP2, IP4, T3, TP33
<b>14.7 Transport in bulk according to - Annex II of MARPOL and the IBC Code</b>	

**RID**

<b>14.1 UN/ID no</b>	3260
<b>14.2 Proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Tetrachloride)
<b>14.3 Hazard Class</b>	8
<b>14.4 Packing Group</b>	II
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	IB8, IP2, IP4, T3, TP33

**ADR**

<b>14.1 UN/ID no</b>	3260
<b>14.2 Proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Tetrachloride)
<b>14.3 Hazard Class</b>	8
<b>14.4 Packing Group</b>	II
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	IB8, IP2, IP4, T3, TP33

**ICAO (air)**

<b>14.1 UN/ID no</b>	3260
<b>14.2 Proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Tetrachloride)
<b>14.3 Hazard Class</b>	8
<b>14.4 Packing Group</b>	II
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	IB8, IP2, IP4, T3, TP33

**IATA**

<b>14.1 UN/ID no</b>	3260
<b>14.2 Proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Tetrachloride)
<b>14.3 Hazard Class</b>	8
<b>14.4 Packing Group</b>	II
<b>Description</b>	Not applicable
<b>14.5 Environmental hazard</b>	Not applicable
<b>14.6 Special Provisions</b>	IB8, IP2, IP4, T3, TP33 154
<b>ERG Code</b>	

## Section 15: REGULATORY INFORMATION

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

Chemical Name	French RG number	Title
Zirconium Tetrachloride 10026-11-6	-	-

#### European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

#### Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

#### International Inventories

<b>DSL/NDL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Complies
<b>AICS</b>	Complies

#### Legend:

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

**15.2. Chemical safety assessment**

A Chemical Safety Assessment has been carried out for this substance

**Section 16: OTHER INFORMATION****Prepared By**

**Issue Date** 08-Jul-2015

**Revision Date** 23-Feb-2021

**Revision Note** SDS sections updated: 1, 10, 14, 15.

**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

**Note:**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

**End of Safety Data Sheet**

**Additional information available from:** Safety data sheets and labels available at [ATImetals.com](http://ATImetals.com)