



SAFETY DATA SHEET

Issue Date 08-Jul-2015

Revision Date 28-Dec-2017

Version 4

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name Zirconium Tetrachloride
Product Code SAC022

Other means of identification

UN/ID No. 2503
Synonyms Zirconium Tetrachloride; Zirconium Chloride (Product #305)

Registration Number(s)

Recommended use of the chemical and restrictions on use

Recommended Use Zirconium Compounds

Uses advised against

Details of the supplier of the safety data sheet

Manufacturer

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

Emergency telephone number

Emergency Telephone Chemtrec +1 703-741-5970


Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 1 Sub-category B

Label elements

Emergency Overview

Signal word Danger
Hazard statements H290 - May be corrosive to metals H314 - Causes severe skin burns and eye damage


Appearance powder **Physical state** Solid **Odor** Pungent, Slight chlorine.

Precautionary Statements - Prevention

- Wear protective gloves/protective clothing/eye protection/face protection
- Do not breathe dust/gas/mist

Precautionary Statements - Response

- 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

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 SWALLOWED: Rinse mouth. DO NOT induce vomiting
- Wash contaminated clothing before reuse
- Absorb spillage to prevent material damage

Precautionary Statements - Storage

- Store in a dry place
- Store in corrosion-resistant container

Precautionary Statements - Disposal

- Dispose of contents/container to an approved waste disposal plant

Other Information

Hazards not otherwise classified (HNOC)

- Not applicable

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Zirconium Tetrachloride: Zirconium Chloride (Product #305)

Chemical Name	Weight-%	ENCS	ISHL No.	CAS No.
Zirconium Tetrachloride 10026-11-6	>97	X	-	10026-11-6

Chemical Name	Poisonous and Deleterious Substances Control Law	
Zirconium Tetrachloride 10026-11-6	-	
Chemical Name	Class 1	Class 2
Zirconium Tetrachloride 10026-11-6	-	-

Section 4: FIRST AID MEASURES

Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center 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.
Symptoms	May cause acute gastrointestinal effects if swallowed. Contact with moist skin may cause skin burns. May cause breathing difficulties if inhaled.
Inhalation	Product not classified.
Skin Contact	Causes severe skin burns.
Eye contact	Causes severe eye damage.
Ingestion	Product not classified.
Note to physicians	Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Flammable properties Non-combustible.

Explosive properties	Not applicable.
Suitable extinguishing media	Non-combustible.
Unsuitable extinguishing media	If a fire occurs in the area, avoid water contact with the product to prevent evolution of hazardous gases.
Specific hazards arising from the chemical	Non-combustible.
Hazardous combustion products	Not applicable.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment as required.
For emergency responders	Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 137.
Environmental precautions	Collect spillage to prevent release to the environment.
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.

Section 7: HANDLING AND STORAGE

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.
Storage	
Storage Conditions	Keep in properly labeled 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.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies
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Chemical Name	Japan	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
Zirconium Tetrachloride 10026-11-6	-	-	STEL: 10 mg/m ³ Zr TWA: 5 mg/m ³ Zr

Engineering Controls	Avoid generation of uncontrolled particles. Local exhaust ventilation during processing is recommended.
Personal Protective Equipment 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 contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

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.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid	Odor	Pungent, Slight chlorine.
Appearance	powder	Odor threshold	
Color	white, orange		
Property	Values	Remarks • Method	
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:	-		
Vapor pressure	-	Not applicable	
Vapor 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		
Oxidizing properties	Not applicable		
Softening point	-		
Molecular weight	233.04		
VOC Content (%)	Not applicable		
Density	-		
Bulk density	45-80 lb/ft3		

Section 10: STABILITY AND REACTIVITY

Reactivity

Reacts with water .

Stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact

None.

Sensitivity to Static Discharge

None.

Possibility of Hazardous Reactions Reacts with water

Hazardous polymerization	Hazardous polymerization does not occur
Conditions to avoid	Unintentional contact with water
Incompatible materials	Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics. Reacts with metals to produce heat and corrosive gases.

Hazardous Decomposition Products Reacts with water to produce hydrogen chloride gas or hydrochloric acid and heat

Section 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Product not classified.
Eye contact	Causes severe eye damage.
Skin Contact	Causes severe skin burns.
Ingestion	Product not classified.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Zirconium Tetrachloride 10026-11-6	-	-	-

Information on toxicological effects

Symptoms May cause skin burns. May cause severe upper respiratory irritation if inhaled. May cause acute gastrointestinal effects if swallowed.

Acute toxicity

Numerical measures of toxicity -

Numerical measures of toxicity - Component Information

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

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Causes severe skin burns.
Serious eye damage/eye irritation	Causes severe eye damage.
Sensitization	Product not classified.
Germ cell mutagenicity	Product not classified.
Carcinogenicity	Product not classified.

Chemical Name	Japan	IARC
Zirconium Tetrachloride 10026-11-6		-

Reproductive toxicity	Product not classified.
STOT - single exposure	Product not classified.

STOT - repeated exposure Product not classified.

Target Organ Effects Product not classified.

Aspiration hazard Product not classified.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

This product as shipped is not classified for aquatic toxicity.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Zirconium Tetrachloride	<i>The 14 d NOEC of zirconium tetrachloride to Chlorella vulgaris was greater than 262 mg of ZrCl₄/L.</i>	<i>The 96h LC50 value of zirconium tetrachloride to Oncorhynchus mykiss was greater than 51 mg ZrCl₄/L and the 96 h LL50 of zirconium tetrachloride to Danio rerio was greater than 190 mg of ZrCl₄/L</i>	-	<i>The 48 h EC50 of zirconium tetrachloride to Daphnia magna was greater than 190 mg of ZrCl₄/L.</i>

Persistence and degradability .

Bioaccumulation

Mobility .

Other adverse effects

Chemical Name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Endocrine disrupting potential
Zirconium Tetrachloride	-	-	-

Section 13: DISPOSAL CONSIDERATIONS

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

Contaminated packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

UN Number 2503
 Packing Group III
 Proper shipping name Zirconium Tetrachloride
 Hazard Class 8
 Special Provisions IB8, IP3, T1, TP33

IMDG

Proper shipping name Zirconium Tetrachloride
 Hazard Class 8
 UN/ID No. 2503

Packing Group III
Special Provisions IB8, IP3, T1, TP33

ICAO (air)

UN/ID No. 2503
Proper shipping name Zirconium Tetrachloride
Hazard Class 8
Packing Group III
Special Provisions IB8, IP3, T1, TP33

ADR

UN/ID No. 2503
Proper shipping name Zirconium Tetrachloride
Hazard Class 8
Packing Group III
ERG Code 137
Special Provisions IB8, IP3, T1, TP33

IATA

UN/ID No. 2503
Proper shipping name Zirconium Tetrachloride
Hazard Class 8
Packing Group III
Special Provisions IB8, IP3, T1, TP33

Japan
UN Number 2503
Proper shipping name Zirconium Tetrachloride
Hazard Class 8
Packing Group III
Special Provisions IB8, IP3, T1, TP33

Section 15: REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDSL Complies
EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - 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

Chemical Name	Dangerous Substances	organic solvents	Harmful Substances Whose Names Are to be Indicated on the Label	ISHL - Prevention of Hazards Due to Specified Chemical Substances (Class 2)	Prevention of Lead Poisoning
Zirconium Tetrachloride 10026-11-6	>1 %	Not applicable	Not applicable	-	-

Chemical Name	Class 2	Class 1	Poisonous and Deleterious Substances Control Law	Fire Service Law:
Zirconium Tetrachloride 10026-11-6	Not applicable	-	Not applicable	-

Section 16: OTHER INFORMATION**Prepared By****Issue Date** 08-Jul-2015**Revision Date** 28-Dec-2017**Revision Note** SDS sections updated: 2, 4, 5, 6, 7, 8, 9, 10, 11, 16.**Key or legend to abbreviations and acronyms used in the safety data sheet**

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Note:

This SDS complies with the requirements of JIS Z 7250:2010 and JIS Z 7252:2009 (Japan)

The information provided in this 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