



# SAFETY DATA SHEET

Issue Date 25-Jan-2017

Revision Date 20-Mar-2018

Version 2

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

### Product identifier

**Product Name** Zirconium Oxynitrate  
**Product Code** SAC037

### Other means of identification

**UN/ID No.** 3085  
**Synonyms** Zirconium Oxynitrate: Zirconium Dinitrate Oxide, Zirconium Dinitrate Dihydroxide, Zirconium Nitrate Hydroxide, Zirconyl Nitrate (Product #316)

**CAS No.** 13826-66-9  
**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

Oxidizing solids	Category 2
Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1

### Label elements

#### Emergency Overview

**Signal word** Danger

#### **Hazard statements**

H272 - May intensify fire; oxidizer  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H302 - Harmful if swallowed





**Appearance** Powder **Physical state** Solid **Odor** Pungent, Slight nitric

**Precautionary Statements - Prevention**

- Wear protective gloves/protective clothing/eye protection
- Do not breathe dust/gas/mist
- Do not eat, drink or smoke when using this product
- Wash hands thoroughly after handling
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking
- Store away from flammable substances, reducing agents, metal powders, and organic materials.

**Precautionary Statements - Response**

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF ON SKIN (or hair): • Brush off loose particles from skin. Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
- Wash contaminated clothing before reuse
- 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. • Immediately call a POISON CENTER or doctor/physician
- In case of fire: Use Water spray, fog or regular foam for extinction

**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 Oxynitrate: Zirconium Dinitrate Oxide, Zirconium Dinitrate Dihydroxide, Zirconium Nitrate Hydroxide, Zirconyl Nitrate (Product #316)

**CAS No.** 13826-66-9

Chemical Name	Weight-%	ENCS	ISHL No.	CAS No.
Zirconium Dinitrate Oxide 13826-66-9	>99	X	-	13826-66-9

Chemical Name	Poisonous and Deleterious Substances Control Law	
Zirconium Dinitrate Oxide 13826-66-9	-	
Chemical Name	Class 1	Class 2
Zirconium Dinitrate Oxide 13826-66-9	-	-

### Section 4: FIRST AID MEASURES

<b>Inhalation</b>	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.
<b>Skin Contact</b>	Brush off loose particles from skin. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
<b>Eye contact</b>	Flush with water for 15 minutes. See a physician.
<b>Ingestion</b>	Do NOT induce vomiting. Have patient drink large quantities of water if able. Call Physician immediately for further instructions.
<b>Symptoms</b>	May cause acute gastrointestinal effects if swallowed. Contact with moist skin may cause skin burns. May cause breathing difficulties if inhaled.
<b>Inhalation</b>	Product not classified.
<b>Skin Contact</b>	Causes severe skin burns.
<b>Eye contact</b>	Causes severe eye damage.
<b>Ingestion</b>	Harmful if swallowed.
<b>Note to physicians</b>	Treat symptomatically.

### Section 5: FIRE FIGHTING MEASURES

<b>Flammable properties</b>	Not flammable.
<b>Explosive properties</b>	Not applicable.
<b>Suitable extinguishing media</b>	Material is a strong oxidizer but is itself not flammable. Water spray or fog is preferred; if water not available use dry chemical, CO2 or regular foam.
<b>Unsuitable extinguishing media</b>	None.
<b>Specific hazards arising from the chemical</b>	This is a strong oxidizer and will react vigorously or explosively with many materials including organic materials, such as wood and paper, and flammable metals.
<b>Hazardous combustion products</b>	Nitrogen oxide gases may cause respiratory and/or eye irritation.
<b>Special protective equipment for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

### Section 6: ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Use personal protective equipment as required.
<b>For emergency responders</b>	Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 140.
<b>Environmental precautions</b>	Collect spillage to prevent release to the environment.
<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	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 away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Store away from flammable substances, reducing agents, metal powders, and organic materials. 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. Flammable substances, reducing agents, metal powders, and organic materials. 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

Chemical Name	Japan	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
Zirconium Dinitrate Oxide 13826-66-9	-	-	STEL: 10 mg/m <sup>3</sup> Zr TWA: 5 mg/m <sup>3</sup> 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

### Appearance

Powder

### Color

white

### Odor

Pungent, Slight nitric

### Odor threshold

-

### Property

#### Values

#### Remarks • Method

#### pH

<1

#### Melting point/freezing point

-

#### 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	1.7	
Water solubility	Soluble in water	
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	Strong oxidizer and will react vigorously or explosively with many materials including organic materials, such as wood and paper, and flammable metals.	
Softening point	-	
Molecular weight	-	
VOC Content (%)	Not applicable	
Density	-	
Bulk density	48 lb/ft3	

## Section 10: STABILITY AND REACTIVITY

### Reactivity

Reacts with water. Strong oxidizer and will react vigorously or explosively with many materials including organic materials, such as wood and paper, and flammable metals.

### 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. Heat. Electrostatic discharge.

**Incompatible materials** Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics Flammable substances, reducing agents, metal powders, and organic materials Reacts with metals to produce heat and corrosive gases.

**Hazardous Decomposition Products** Reacts with water to produce nitric 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** Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Zirconium Dinitrate Oxide 13826-66-9	> 300 and < 2000 mg/kg bw	-	-

#### Information on toxicological effects

**Symptoms** May cause skin burns. May cause burning sensation or redness in the eyes. May cause acute gastrointestinal effects if swallowed. May cause severe upper respiratory irritation if inhaled.

#### Acute toxicity

##### Numerical measures of toxicity - Product Information

##### Numerical measures of toxicity - Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Zirconium Dinitrate Oxide	> 300 and < 2000 mg/kg bw	-	-

#### 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 Dinitrate Oxide 13826-66-9		-

**Reproductive toxicity** Product not classified.

**STOT - single exposure** Product not classified.

**STOT - repeated exposure** Product not classified.

**Target Organ Effects** .

**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 Dinitrate Oxide	<i>The 72 h EC50 of zirconium dichloride</i>	<i>The 96 h LL50 of zirconium dinitrate</i>	-	<i>The 48 h EC50 of zirconium dioxide to</i>

	oxide to <i>Pseudokirchnerella subcapitata</i> was 80% v/v saturated solution.	oxide to <i>Oncorhynchus mykiss</i> was greater than 100 mg/L.		<i>Daphnia magna</i> was greater than 100 mg/L.
--	--	--	--	---

Persistence and degradability .

Bioaccumulation

Mobility .

**Other adverse effects**

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

### 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** 3085  
**Packing Group** II  
**Proper shipping name** Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)  
**Hazard Class** 5.1/8  
**Special Provisions** 62, IB8, IP3, T1, TP33

**IMDG**

**Proper shipping name** Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)  
**Hazard Class** 5.1  
**Subsidiary hazard class** 8  
**UN/ID No.** 3085  
**Packing Group** II  
**Special Provisions** 62, IB8, IP3, T1, TP33

**ICAO (air)**

**UN/ID No.** 3085  
**Proper shipping name** Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)  
**Hazard Class** 5.1  
**Subsidiary hazard class** 8  
**Packing Group** II  
**Special Provisions** 128, IB8, IP3, T1, TP33

**ADR**

**UN/ID No.** 3085  
**Proper shipping name** Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)  
**Hazard Class** 5.1/8  
**Packing Group** II  
**ERG Code** 140  
**Special Provisions** 62, IB8, IP3, T1, TP33

**IATA**

**UN/ID No.** 3085  
**Proper shipping name** Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)

<b>Hazard Class</b>	5.1
<b>Subsidiary hazard class</b>	8
<b>Packing Group</b>	II
<b>Special Provisions</b>	128, IB8, IP3, T1, TP33
Japan	
UN Number	3085
Proper shipping name	Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)
Hazard Class	5.1
Subsidiary hazard class	8
Packing Group	II
Special Provisions	62, IB8, IP3, T1, TP33

## Section 15: REGULATORY INFORMATION

### International Inventories

<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Not Listed
<b>AICS</b>	Not Listed

### 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 Dinitrate Oxide 13826-66-9	Oxidizing substance X >1 %	Not applicable	Not applicable	-	-

Chemical Name	Class 2	Class 1	Poisonous and Deleterious Substances Control Law	Fire Service Law:
Zirconium Dinitrate Oxide 13826-66-9	Not applicable	-	Not applicable	1

## Section 16: OTHER INFORMATION

<b>Issue Date</b>	25-Jan-2017
<b>Revision Date</b>	20-Mar-2018
<b>Revision Note</b>	Updated Section(s): 1, 2, 5, 6, 7, 8, 9, 11, 16.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

.

**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](http://ATImetals.com)