



SAFETY DATA SHEET

Issue Date 25-Jan-2017

Revision Date 20-Mar-2018

Version 2

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

Product identifier

Product Name Zirconium Oxynitrate

Other means of identification

Product Code SAC037

UN/ID No. 3085

Synonyms Zirconium Oxynitrate; Zirconium Dinitrate Oxide, Zirconium Dinitrate Dihydroxide, Zirconium Nitrate Hydroxide, Zirconyl Nitrate (Product #316)

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 Address

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

Emergency telephone number

Emergency Telephone Chemtrec: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

Label elements

Emergency Overview

Danger

Hazard statements

May intensify fire; oxidizer
Causes severe skin burns and eye damage
Causes serious eye damage
Harmful if swallowed



Appearance Powder	Physical state Solid	Odor Pungent, Slight nitric
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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 SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician

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

Wash contaminated clothing before reuse

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

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

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

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

4. FIRST AID MEASURES

First aid measures**Eye contact**

Flush with water for 15 minutes. See a physician.

Skin Contact

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

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.

Ingestion

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

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.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

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.

Unsuitable extinguishing media None.

Specific hazards arising from the chemical

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.

Hazardous combustion products Nitrogen oxide gases may cause respiratory and/or eye irritation.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

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

6. ACCIDENTAL RELEASE MEASURES

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. 140.

Environmental precautions

Environmental precautions Collect spillage to prevent release to the environment.

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.

7. HANDLING AND STORAGE

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.

Conditions for safe storage, including any incompatibilities

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL
Zirconium Dinitrate Oxide 13826-66-9	STEL: 10 mg/m ³ Zr TWA: 5 mg/m ³ Zr	TWA: 5 mg/m ³ Zr (vacated) STEL: 10 mg/m ³ Zr

Appropriate engineering controls

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

Individual protection measures, such as 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 contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid	Odor	Pungent, Slight nitric
Appearance	Powder	Odor threshold	-
Color	white		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
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 in other solvents	-		
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.

Other Information

Softening point -
Molecular weight -
VOC Content (%) Not applicable
Density -
Bulk density 48 lb/ft³

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.

Chemical stability

Stable under recommended storage conditions.

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.

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.

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

Acute toxicity	Harmful if swallowed.
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.
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.

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 13826-66-9	The 72 h EC50 of zirconium dichloride oxide to Pseudokirchnerella subcapitata was 80% v/v saturated solution.	The 96 h LL50 of zirconium dinitrate oxide to Oncorhynchus mykiss was greater than 100 mg/L.	-	The 48 h EC50 of zirconium dioxide to Daphnia magna was greater than 100 mg/L.

Persistence and degradability

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Bioaccumulation**Mobility**

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Other adverse effects**13. DISPOSAL CONSIDERATIONS****Waste treatment methods**

Disposal of wastes	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.

14. TRANSPORT INFORMATION

DOT	Regulated
UN/ID No.	3085

Proper shipping name	Oxidizing Solid, Corrosive, n.o.s. (Zirconium Oxynitrate)
Hazard Class	5.1
Subsidiary class	8
Packing Group	II
Special Provisions	62, IB8, IP3, T1, TP33
Emergency Response Guide Number	140

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Not Listed
AICS	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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	Yes

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Zirconium Dinitrate Oxide 13826-66-9	X		

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	Health hazards 1	Flammability 1	Instability 1	Physical and Chemical Properties -
HMIS	Health hazards 2	Flammability 2	Physical hazards 1	Personal protection X
<i>Chronic Hazard Star Legend</i>	<i>* = Chronic Health Hazard</i>			

Issue Date 25-Jan-2017

Revision Date 20-Mar-2018

Revision Note

Updated Section(s): 1, 2, 5, 6, 7, 8, 9, 11, 16

Note:

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