



SAFETY DATA SHEET

Issue Date 01-Feb-2025

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Version 1

Section 1: PRODUCT AND COMPANY IDENTIFICATION

A Product Name Zirconium Raffinate
Synonyms Zirconium Raffinate
Product Code SAC072
UN/ID No. 1760
B Recommended Use Chemical intermediate
Uses advised against

C Supplier

Company Name

ATI Specialty Alloys & Components, 1600 Old Salem Rd NE, Albany, OR 97321 USA ATI SDS Manager: +1-412-225-4911

Emergency Telephone Chemtrec +1 703-741-5970


Section 2: HAZARDS IDENTIFICATION

A GHS - Classification

Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1
Corrosive to metals	Category 1

B Label elements

Emergency Overview

Signal word Danger		
Hazard statements H314 - Causes severe skin burns and eye damage H318 - Causes serious eye damage		
		
H290 - May be corrosive to metals		
Appearance Liquid	Physical state Liquid	Odor Slightly acidic

Precautionary Statements - Prevention

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

Precautionary Statements - Response

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. • Immediately call a POISON CENTER or doctor/physician

- IF ON SKIN (or hair): • Rinse cautiously with water for several minutes. • 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
- Absorb spillage to prevent material damage

Precautionary Statements - Storage

- Store in corrosion-resistant container

Precautionary Statements - Disposal

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

C Other Information

Other hazards Harmful if swallowed

Hazards not otherwise classified (HNOC)

- Not applicable

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

Zirconium Raffinate.

Chemical Name	CAS No.	Weight-%
Water	7732-18-5	65 - 66
Zirconium Dichloride Oxide	7699-43-6	21 - 22
Ammonium Chloride	12125-02-9	9 - 10
Hydrochloric Acid	7647-01-0	2 - 3

Section 4: FIRST AID MEASURES

- A Eye contact** Flush with water for 15 minutes. See a physician
- B Skin Contact** Wash off immediately with plenty of water. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- C 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.
- D Ingestion** Do NOT induce vomiting. Have patient drink large quantities of water if able. Call Physician immediately for further instructions.
- E Symptoms** May cause acute gastrointestinal effects if swallowed. Contact with skin may cause skin burns. May cause breathing difficulties if inhaled.
- F. Indication of immediate medical attention and special treatment needed, if necessary** Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

- A Suitable extinguishing media** Non-combustible
- Unsuitable extinguishing media** Non-combustible
- B Specific hazards arising from the chemical** Non-combustible
- Hazardous combustion products** Hydrogen chloride gas may cause respiratory and/or eye irritation.
- C Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

- A Personal precautions** Use personal protective equipment as required.
- For emergency responders** Use personal protective equipment as required. Follow Emergency Response Guidebook, Guide No. 154.
- B Environmental precautions** Collect spillage to prevent release to the environment
- C. 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** 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

- A Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas.
- B Storage Conditions** Keep in properly labeled containers. Keep in a dry, cool and well-ventilated place. Protect from direct sunlight. Keep in corrosion resistant containers. Containers may become pressurized. Handle and open container with care.
- Incompatible materials** Alcohols, phenols, and amines. Rubber, coatings, and some plastics

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- A Control parameters** This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical Name	Korea
Water	-
Zirconium Dichloride Oxide	STEL: 10 mg/m ³ TWA: 5 mg/m ³
Ammonium Chloride	STEL: 20 mg/m ³ TWA: 10 mg/m ³
Hydrochloric Acid	-

- B Engineering Controls** Avoid generation of uncontrolled mist.
- C Personal Protective Equipment**
- Respiratory protection** When gases/mists/vapors 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

Information on basic physical and chemical properties

- A Physical state** Liquid
- Appearance** Liquid **Color** clear
- B Odor** Slightly acidic

C Odor threshold

-

PropertyValuesRemarks • Method

D pH

<1

E Melting point / freezing point

- / -

F Boiling point / boiling range

-

G Flash point

-

H Evaporation rate

-

I Flammability (solid, gas)

-

Not flammable

J Flammability Limit in Air

-

Upper flammability limit:

-

Lower flammability limit:

-

K Vapor pressure

-

Not applicable

L Solubility(ies)

Water solubility

-

Solubility in other solvents

-

M Vapor density

-

Not applicable

N Specific Gravity

1.18

O. Partition coefficient

-

Not applicable

P. Autoignition temperature

-

Not applicable

Q. Decomposition temperature

-

R Kinematic viscosity

-

Not applicable

Dynamic viscosity

-

Not applicable

S. Molecular weight

-

Other Information

Explosive properties

Not applicable

Oxidizing properties

Not applicable

Softening point

-

VOC Content (%)

Not applicable

Density

-

Bulk density

-

Section 10: STABILITY AND REACTIVITY**A Stability**

Stable under normal conditions

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

B Possibility of Hazardous Reactions

None under normal processing

Hazardous polymerization

Hazardous polymerization does not occur

C Conditions to avoid

To avoid thermal decomposition, do not overheat

D Incompatible materials

Alcohols, phenols, and amines. Rubber, coatings, and some plastics

E Hazardous Decomposition Products

Thermal decomposition produces hydrogen chloride gas

Section 11: TOXICOLOGICAL INFORMATION**A Information on likely routes of exposure****Inhalation** May be harmful if inhaled.**Ingestion** Harmful if swallowed.**Eye contact** Causes severe eye damage.**Skin Contact** Causes severe skin burns.**B 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
Carcinogenicity	Product not classified
Germ cell mutagenicity	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

C Numerical measures of toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water	-	-	-
Zirconium Dichloride Oxide	3500 mg/kg bw	-	-
Ammonium Chloride	1410 mg/kg bw	>2000 mg/kg bw	-
Hydrochloric Acid	-	-	8.3 mg/L

Information on toxicological effects

Symptoms	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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Section 12: ECOLOGICAL INFORMATION

A Ecotoxicity

This product as shipped is not classified for aquatic toxicity.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Zirconium Dichloride Oxide	<i>The 72 h EC50 of zirconium dichloride oxide to Pseudokirchnerella subcapitata was 80% v/v saturated solution.</i>	<i>The 96 h LC50 of zirconium dioxide to Danio rerio was greater than 100 mg/L.</i>	<i>The 3 h EC50 of anhydrous zirconium acetate for activated sludge was greater than 1000 mg/L.</i>	<i>The 48 h EC50 of zirconium dichloride oxide to Daphnia magna was greater than 100% v/v saturated solution.</i>
Ammonium Chloride	<i>The 10d EC50 of Ammonium chloride to Navicula sp. was 90.4 mg/L.</i>	<i>The 96 h LC50 of Ammonium chloride to Cyprinus carpio was 209 mg/L.</i>	<i>The 30 min EC50 of Ammonium chloride for activated sludge was 1618 mg/L.</i>	<i>The 48-hr EC50 (survival) for Daphnia magna exposed to Ammonium chloride was 101 mg/L.</i>
Hydrochloric Acid	<i>The 72 hour EC50 of HCl in water to Chlorella vulgaris was pH 4.82</i>	<i>The 96 hour LC50 of HCl in water to Lepomis macrochirus was between pH 3.5 and 3.25.</i>	<i>The 3 h EC50 of HCl in water for activated sludge was between pH 5.0 and 5.5.</i>	<i>The 48 h EC50 of HCl in water to Daphnia magna was pH 4.92.</i>

B Persistence and degradability

C Bioaccumulation

D Mobility

E Other adverse effects

Section 13: DISPOSAL CONSIDERATIONS

A Waste from residues/unused products Dispose of in accordance with federal, state and local regulations

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

regulations

Section 14: TRANSPORT INFORMATION

A UN/ID No. 1760
B Proper shipping name Corrosive liquid, n.o.s. (Zirconium raffinate)
C Hazard Class 8
D Packing Group II
E Marine pollutant Not regulated **Special Provisions** B2, IB2, T11, TP2, TP27
EmS-No 154

Section 15: REGULATORY INFORMATION

A Industrial Safety and Health Law Not applicable

Chemical Name	ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	Korea. Harmful Substances Requiring Permission	ISHA - Substances to be controlled - Organic Substances	ISHA - Substances to be controlled - Metals	ISHA - Substances to be controlled - Acids and bases
Water	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Zirconium Dichloride Oxide	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Ammonium Chloride	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Hydrochloric Acid	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

B Toxic Chemicals Control Law Not applicable

Chemical Name	Toxic Chemical Classification Listing (TCCL) - Toxic Chemicals	Toxic Chemicals Control Law - Banned and/or restricted	Toxic Chemicals Control Law - Restrictions on use
Water	Not applicable	Not applicable	Not applicable
Zirconium Dichloride Oxide	Not applicable	Not applicable	Not applicable
Ammonium Chloride	Not applicable	Not applicable	Not applicable
Hydrochloric Acid	Not applicable	Not applicable	Not applicable

C Dangerous Material Safety Control Not applicable

D Wastes Management Dispose of in accordance with federal, state and local regulations

E Other Regulations

Chemical Name	Toxic Release Inventory Chemicals - Group 1	Toxic Release Inventory Chemicals - Group 2
Water	Not applicable	Not applicable
Zirconium Dichloride Oxide	Not applicable	Not applicable
Ammonium Chloride	Not applicable	Not applicable
Hydrochloric Acid	Not applicable	Not applicable

International Inventories

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

Section 16: OTHER INFORMATION

A Prepared By

B Issue Date 01-Feb-2025

C Revision Date 01-Feb-2025

Version

1

Revision Note

Updated to comply with GHS

D Other Information

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 ATImaterials.com