



SAFETY DATA SHEET

Issue Date 01-Feb-2025

Revision Date 01-Feb-2025

Version 1

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

Product identifier

Product Name Zirconium Raffinate

Other means of identification

Product Code SAC072

UN/ID No. 1760

Synonyms Zirconium Raffinate

Recommended use of the chemical and restrictions on use

Recommended Use Chemical intermediate.

Uses advised against

Details of the supplier of the safety data sheet

Manufacturer Address

ATI Specialty Alloys & Components, 1600
Old Salem Rd NE, Albany, OR 97321 USA

Emergency telephone number

Company Phone Number ATI SDS Manager: 1-412-225-4911

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)

Skin corrosion/irritation	Category 1B
Serious eye damage/eye irritation	Category 1
May be corrosive to metals	Category 1

Label elements

Emergency Overview

Danger

Hazard statements

May be corrosive to metals

Causes severe skin burns and eye damage

Causes serious eye damage



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.

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

Harmful if swallowed

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

4. FIRST AID MEASURES**First aid measures****Eye contact**

Flush with water for 15 minutes. See a physician.

Skin Contact

Wash off immediately with plenty of water. 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 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**

Non-combustible.

Unsuitable extinguishing media Non-combustible.

Specific hazards arising from the chemical

Non-combustible.

Hazardous combustion products Hydrogen chloride gas 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. 154.

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 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. Ensure adequate ventilation, especially in confined areas.

Conditions for safe storage, including any incompatibilities

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical Name	ACGIH TLV	OSHA PEL
Water 7732-18-5	-	-
Zirconium Dichloride Oxide 7699-43-6	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
Ammonium Chloride 12125-02-9	STEL: 20 mg/m ³ fume TWA: 10 mg/m ³ fume	(vacated) STEL: 20 mg/m ³ fume
Hydrochloric Acid 7647-01-0	-	-

Appropriate engineering controls

Engineering Controls Avoid generation of uncontrolled mist.

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 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.

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	Liquid	Odor	Slightly acidic
Appearance	Liquid	Odor threshold	-
Color	clear		
Property	Values	Remarks • Method	
pH	<1		
Melting point / freezing point	- / -		
Boiling point / boiling range	-		
Flash point	-		
Evaporation rate	-		
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	1.18		
Water solubility	-		
Solubility in other solvents	-		
Partition coefficient	-	Not applicable	
Autoignition temperature	-	Not applicable	
Decomposition temperature	-		
Kinematic viscosity	-	Not applicable	

Dynamic viscosity	-	Not applicable
Explosive properties	Not applicable	
Oxidizing properties	Not applicable	

Other Information

Softening point	-
Molecular weight	-
VOC Content (%)	Not applicable
Density	-
Bulk density	-

10. STABILITY AND REACTIVITY

Reactivity

Not applicable

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

Conditions to avoid

To avoid thermal decomposition, do not overheat.

Incompatible materials

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

Hazardous Decomposition Products

Thermal decomposition produces hydrogen chloride gas.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Inhalation	May be harmful if inhaled.
Eye contact	Causes severe eye damage.
Skin Contact	Causes severe skin burns.
Ingestion	Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water 7732-18-5	-	-	-
Zirconium Dichloride Oxide 7699-43-6	3500 mg/kg bw	-	-
Ammonium Chloride 12125-02-9	1410 mg/kg bw	>2000 mg/kg bw	-
Hydrochloric Acid 7647-01-0	-	-	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.

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.
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
Water 7732-18-5	-	-	-	-
Zirconium Dichloride Oxide 7699-43-6	The 72 h EC50 of zirconium dichloride oxide to <i>Pseudokirchnerella subcapitata</i> was 80% v/v saturated solution.	The 96 h LC50 of zirconium dioxide to <i>Danio rerio</i> was greater than 100 mg/L.	The 3 h EC50 of anhydrous zirconium acetate for activated sludge was greater than 1000 mg/L.	The 48 h EC50 of zirconium dichloride oxide to <i>Daphnia magna</i> was greater than 100% v/v saturated solution.
Ammonium Chloride 12125-02-9	The 10d EC50 of Ammonium chloride to <i>Navicula</i> sp. was 90.4 mg/L.	The 96 h LC50 of Ammonium chloride to <i>Cyprinus carpio</i> was 209 mg/L.	The 30 min EC50 of Ammonium chloride for activated sludge was 1618 mg/L.	The 48-hr EC50 (survival) for <i>Daphnia magna</i> exposed to Ammonium chloride was 101 mg/L.
Hydrochloric Acid 7647-01-0	The 72 hour EC50 of HCl in water to <i>Chlorella vulgaris</i> was pH 4.82	The 96 hour LC50 of HCl in water to <i>Lepomis macrochirus</i> was between pH 3.5 and 3.25.	The 3 h EC50 of HCl in water for activated sludge was between pH 5.0 and 5.5.	The 48 h EC50 of HCl in water to <i>Daphnia magna</i> was pH 4.92.

Persistence and degradability

Bioaccumulation

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.	1760
Proper shipping name	Corrosive liquid, n.o.s. (Zirconium raffinate)
Hazard Class	8
Packing Group	II
Special Provisions	B2, IB2, T11, TP2, TP27
Emergency Response Guide Number	154

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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Ammonium Chloride - 12125-02-9	12125-02-9	9 - 10	1.0

SARA 311/312 Hazard Categories

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

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous
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	Quantities			Substances
Ammonium Chloride 12125-02-9	5000 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs
Ammonium Chloride 12125-02-9	5000 lb

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
Water 7732-18-5			X
Zirconium Dichloride Oxide 7699-43-6		X	
Ammonium Chloride 12125-02-9	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 2	Flammability 0	Physical hazards 0	Personal protection X
Chronic Hazard Star Legend	* = Chronic Health Hazard			

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Revision Note

Updated to comply with GHS

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