



SAFETY DATA SHEET

Issue Date 06-Apr-2017

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Version 3

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code SAC033
Product Name Zirconium Oxychloride Powder

UN/ID no 3260
Synonyms Zirconium Oxychloride Powder; Zirconium Chloride Oxide, Zirconium Chloride Hydroxide, Zirconium Dichloride Dihydroxide, Zirconyl Chloride Crystals. (Product #313)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Chemical intermediate

Uses advised against

1.3. Details of the supplier of the safety data sheet

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

1.4. Emergency telephone number

Emergency Telephone Chemtrec: +1-703-741-5970

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

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

2.2. Label elements

Emergency Overview

Danger

Hazard statements

May be corrosive to metals
Causes severe skin burns and eye damage
Causes serious eye damage



| | | |
|--------------------------------------|-----------------------------|---------------------------------------|
| Appearance crystalline Powder | Physical state Solid | Odour Pungent, Slight chlorine |
|--------------------------------------|-----------------------------|---------------------------------------|

Precautionary Statements - Prevention

Do not breathe dust/fume

Wear protective gloves/protective clothing/eye 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): 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

Absorb spillage to prevent material damage

Precautionary Statements - Storage

Store in a dry place

Store in corrosive resistant container

Precautionary Statements - Disposal

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

2.3 Hazards not otherwise classified (HNOC)

Reacts violently with water

(EUH014)

Other Information

Harmful if swallowed

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances**Synonyms**

Zirconium Oxychloride Powder: Zirconium Chloride Oxide, Zirconium Chloride Hydroxide, Zirconium Dichloride Dihydroxide, Zirconyl Chloride Crystals. (Product #313).

| Chemical Name | EC No | CAS No | Weight-% |
|----------------------------|-----------|-----------|----------|
| Zirconium Dichloride Oxide | 231-717-9 | 7699-43-6 | >99 |

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a doctor or poison control centre 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.

4.2. 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.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors Treat symptomatically.

Section 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media

Non-combustible.

Unsuitable extinguishing media

Non-combustible. If a fire occurs in the area, avoid water contact with the product to prevent evolution of hazardous gases

5.2. Special hazards arising from the substance or mixture

Non-combustible

Hazardous combustion products Hydrogen chloride gas may cause respiratory and/or eye irritation.

5.3. Advice for firefighters

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

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. 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.

6.2. Environmental precautions

Collect spillage to prevent release to the environment.

6.3. 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.

6.4. Reference to other sections

See Section 12: ECOLOGICAL INFORMATION.

Section 7: HANDLING AND STORAGE

7.1. 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.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep in properly labelled containers. Keep in a dry, cool and well-ventilated place. Protect from direct sunlight. Containers may become pressurized. Handle and open container with care. Keep in corrosion resistant containers.

Incompatible materials

Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics. Reacts with metals to produce heat and corrosive gases.

7.3. Specific end use(s)**Risk Management Methods (RMM)**

The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters**

| Chemical Name | European Union | United Kingdom | France | Spain | Germany |
|---|--------------------------|--|--|--|--|
| Zirconium Dichloride Oxide 7699-43-6 | - | TWA: 5 mg/m ³ | - | STEL: 10 mg/m ³ TWA: 5 mg/m ³ | - |
| Chemical Name | Italy | Portugal | Netherlands | Finland | Denmark |
| Zirconium Dichloride Oxide 7699-43-6 | - | STEL: 10 mg/m ³ TWA: 5 mg/m ³ | - | TWA: 1 mg/m ³ | TWA: 5 mg/m ³ |
| Chemical Name | Austria | Switzerland | Poland | Norway | Ireland |
| Zirconium Dichloride Oxide 7699-43-6 | TWA: 5 mg/m ³ | TWA: 5 mg/m ³ | STEL: 10 mg/m ³ TWA: 5 mg/m ³ | TWA: 5 mg/m ³ STEL: 5 mg/m ³ | TWA: 5 mg/m ³ STEL: 10 mg/m ³ |

Derived No Effect Level (DNEL) No DNELs are available for this product

Predicted No Effect Concentration (PNEC) No PNECs are available for this product.

8.2. Exposure controls**Engineering Controls**

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

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.

Environmental exposure controls Section 6: ACCIDENTAL RELEASE MEASURES.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

| | | | |
|---------------------------------------|--------------------|-------------------------|--------------------------|
| Physical state | Solid | Odour | Pungent, Slight chlorine |
| Appearance | crystalline Powder | Odour threshold | |
| Colour | white | | |
| Property | Values | Remarks • Method | |
| pH | <1 | | |
| Melting point / freezing point | - °C / - °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 | - | |
| Vapour pressure | - | Not applicable |
| Vapour density | - | Not applicable |
| Specific Gravity | 1.5 | |
| Water solubility | 960 g/L | |
| Solubility(ies) | | |
| Partition coefficient | - | |
| Autoignition temperature | - | Not applicable |
| Decomposition temperature | 200°C | |
| Kinematic viscosity | - | Not applicable |
| Dynamic viscosity | - | Not applicable |
| Explosive properties | Not applicable | |
| Oxidising properties | Not applicable | |

9.2. Other information

| | |
|------------------|--------------------------|
| Softening point | - |
| Molecular weight | 178.129 |
| VOC Content (%) | Not applicable |
| Density | - |
| Bulk density | 30-40 lb/ft ³ |

Section 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Reacts with water .

10.2. Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

10.3. Possibility of hazardous reactions**Hazardous polymerisation**

Hazardous polymerisation does not occur.

Possibility of Hazardous Reactions

Reacts with water.

10.4. Conditions to avoid

Dust formation and dust accumulation. Unintentional contact with water.

10.5. Incompatible materials

Water, alcohols, phenols, and amines. Rubber, coatings, and some plastics. Reacts with metals to produce heat and corrosive gases.

10.6. Hazardous decomposition products

Reacts with water to produce hydrogen chloride gas or hydrochloric acid and heat.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

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 Dichloride Oxide | 3500 mg/kg bw | - | - |

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. |
| Sensitisation | 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. |

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

This product as shipped is not classified for aquatic toxicity

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|----------------------------|--|---|--|---|
| Zirconium Dichloride Oxide | 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. |

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil**12.5. Results of PBT and vPvB assessment**

The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

| | |
|--|---|
| 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

IMDG

| | |
|--|--|
| 14.1 UN/ID no | 3260 |
| 14.2 Proper shipping name | Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Oxychloride) |
| 14.3 Hazard Class | 8 |
| 14.4 Packing Group | II |
| 14.5 Marine pollutant | Not applicable |
| 14.6 Special Provisions | IB8, IP2, IP4, T3, TP33 |
| 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code | Not applicable |

RID

| | |
|----------------------------------|--|
| 14.1 UN/ID no | 3260 |
| 14.2 Proper shipping name | Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Oxychloride) |
| 14.3 Hazard Class | 8 |
| 14.4 Packing Group | II |
| 14.5 Environmental hazard | Not applicable |
| 14.6 Special Provisions | IB8, IP2, IP4, T3, TP33 |

ADR

| | |
|----------------------------------|--|
| 14.1 UN/ID no | 3260 |
| 14.2 Proper shipping name | Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Oxychloride) |
| 14.3 Hazard Class | 8 |
| 14.4 Packing Group | II |
| 14.5 Environmental hazard | Not applicable |
| 14.6 Special Provisions | IB8, IP2, IP4, T3, TP33 |

ICAO (air)

| | |
|----------------------------------|--|
| 14.1 UN/ID no | 3260 |
| 14.2 Proper shipping name | Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Oxychloride) |
| 14.3 Hazard Class | 8 |
| 14.4 Packing Group | II |
| 14.5 Environmental hazard | Not applicable |
| 14.6 Special Provisions | IB8, IP2, IP4, T3, TP33 |

IATA

| | |
|----------------------|------|
| 14.1 UN/ID no | 3260 |
|----------------------|------|

| | |
|----------------------------------|--|
| 14.2 Proper shipping name | Corrosive solid, acidic, inorganic, n.o.s. (Zirconium Oxychloride) |
| 14.3 Hazard Class | 8 |
| 14.4 Packing Group | II |
| Description | Not applicable |
| 14.5 Environmental hazard | Not applicable |
| 14.6 Special Provisions | IB8, IP2, IP4, T3, TP33 154 |
| | ERG Code |

Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

| Chemical Name | French RG number | Title |
|---|------------------|-------|
| Zirconium Dichloride Oxide 7699-43-6 | - | - |

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Authorisations and/or restrictions on use:

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV). This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

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

15.2. Chemical safety assessment

No chemical safety assessment has been performed for this product.

Section 16: OTHER INFORMATION

| | |
|----------------------|------------------------------------|
| Issue Date | 06-Apr-2017 |
| Revision Date | 22-May-2020 |
| Revision Note | SDS sections updated: 1, 2, 6, 14. |

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Note:

The information provided in this Material 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