



10M69-2 Zirconium (10,000µg/mL in 2% HCl)

High-Purity Standards

Catalogue number: 10M69-2

Version No: 2.2

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 09/08/2016

Print Date: 09/08/2016

S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

| | |
|-------------------------------|--|
| Product name | 10M69-2 Zirconium (10,000µg/mL in 2% HCl) |
| Synonyms | 10,000µg/mL Zirconium in 2% HCl |
| Proper shipping name | Hydrochloric acid (contains hydrochloric acid) |
| Other means of identification | 10M69-2 |

Recommended use of the chemical and restrictions on use

| | |
|--------------------------|---|
| Relevant identified uses | Use according to manufacturer's directions. |
|--------------------------|---|

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

| | |
|-------------------------|-------------------------------------|
| Registered company name | High-Purity Standards |
| Address | PO Box 41727 SC 29423 United States |
| Telephone | 843-767-7900 |
| Fax | 843-767-7906 |
| Website | highpuritystandards.com |
| Email | Not Available |

Emergency phone number

| | |
|-----------------------------------|----------------|
| Association / Organisation | INFOTRAC |
| Emergency telephone numbers | 1-800-535-5053 |
| Other emergency telephone numbers | 1-352-323-3500 |

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

| | |
|----------------|--|
| Classification | Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1A, Serious Eye Damage Category 1 |
|----------------|--|

Label elements

| | |
|--------------------|--|
| GHS label elements | |
|--------------------|--|

SIGNAL WORD **DANGER**

Hazard statement(s)

| | |
|------|--|
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |

Hazard(s) not otherwise specified

Not Applicable

Continued...

Precautionary statement(s) Prevention

| | |
|------|--|
| P260 | Do not breathe dust/fume/gas/mist/vapours/spray. |
|------|--|

Precautionary statement(s) Response

| | |
|----------------|--|
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
|----------------|--|

Precautionary statement(s) Storage

| | |
|------|------------------|
| P405 | Store locked up. |
|------|------------------|

Precautionary statement(s) Disposal

| | |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|-----------|-----------|--------------------------|
| 7440-67-7 | 1 (as Zr) | <u>zirconium</u> |
| 7647-01-0 | 2 | <u>hydrochloric acid</u> |
| 7732-18-5 | balance | <u>water</u> |

SECTION 4 FIRST-AID MEASURES**Description of first aid measures**

| | |
|---------------------|---|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▶ Quickly remove all contaminated clothing, including footwear. ▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▶ Transport to hospital, or doctor. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. ▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. ▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). ▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested. ▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. <p>This must definitely be left to a doctor or person authorised by him/her. (ICSC13719)</p> |
| Ingestion | <ul style="list-style-type: none"> ▶ For advice, contact a Poisons Information Centre or a doctor at once. ▶ Urgent hospital treatment is likely to be needed. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Transport to hospital or doctor without delay. |

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

for corrosives:

BASIC TREATMENT

- ▶ Establish a patent airway with suction where necessary.
- ▶ Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- ▶ Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- ▶ Monitor and treat, where necessary, for pulmonary oedema.
- ▶ Monitor and treat, where necessary, for shock.

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- ▶ Anticipate seizures.
- ▶ Where eyes have been exposed, flush immediately with water and continue to irrigate with normal saline during transport to hospital.
- ▶ **DO NOT use emetics.** Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- ▶ Skin burns should be covered with dry, sterile bandages, following decontamination.
- ▶ **DO NOT attempt neutralisation as exothermic reaction may occur.**

ADVANCED TREATMENT

- ▶ Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- ▶ Positive-pressure ventilation using a bag-valve mask might be of use.
- ▶ Monitor and treat, where necessary, for arrhythmias.
- ▶ Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- ▶ Drug therapy should be considered for pulmonary oedema.
- ▶ Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- ▶ Treat seizures with diazepam.
- ▶ Proparacaine hydrochloride should be used to assist eye irrigation.

EMERGENCY DEPARTMENT

- ▶ Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime.
- ▶ Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- ▶ Consider endoscopy to evaluate oral injury.
- ▶ Consult a toxicologist as necessary.

BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

| | |
|----------------------|-------------|
| Fire Incompatibility | None known. |
|----------------------|-------------|

Special protective equipment and precautions for fire-fighters

| | |
|-----------------------|---|
| Fire Fighting | |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Non combustible. ▶ May emit corrosive fumes. |

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

| | |
|--------------|--|
| Minor Spills | <ul style="list-style-type: none"> ▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. ▶ Clean up all spills immediately. |
| Major Spills | |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

| | |
|-------------------|--|
| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ DO NOT allow clothing wet with material to stay in contact with skin |
| Other information | <ul style="list-style-type: none"> ▶ Store in original containers. |

Conditions for safe storage, including any incompatibilities

| | |
|-------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ Lined metal can, lined metal pail/ can. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▶ Drums and jerricans must be of the non-removable head type. |
| Storage incompatibility | <p>Hydrogen chloride:</p> <ul style="list-style-type: none"> ▶ reacts strongly with strong oxidisers (releasing chlorine gas), acetic anhydride, caesium cyanotridecahydrodecaborate(2-), ethylidene difluoride, hexalithium disilicide, metal acetylide, sodium, silicon dioxide, tetraselenium tetranitride, and many organic materials ▶ is incompatible with alkaline materials, acetic anhydride, acetylides, aliphatic amines, alkanolamines, alkylene oxides, aluminium, aluminium-titanium alloys, aromatic amines, amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, borides, calcium phosphide, carbides, carbonates, cyanides, chlorosulfonic acid, ethylenediamine, ethyleneimine, epichlorohydrin, formaldehyde, isocyanates, metals, metal oxides, metal hydroxides, metal acetylides, metal carbides, oleum, organic anhydrides, potassium permanganate, perchloric acid, phosphides, 3-propiolactone, silicides, sulfides, sulfites, sulfuric acid, |

Continued...

10M69-2 Zirconium (10,000µg/mL in 2% HCl)

- ▶ uranium phosphide, vinyl acetate, vinylidene fluoride
- ▶ attacks most metals forming flammable hydrogen gas, and some plastics, rubbers and coatings
- ▶ reacts with zinc, brass, galvanised iron, aluminium, copper and copper alloys
- ▶ Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- ▶ Avoid strong bases.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA


| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|---|-------------------|--|---|----------------------|-----------------------------|--|
| US OSHA Permissible Exposure Levels (PELs) - Table Z3 | zirconium | Inert or Nuisance Dust | 5 mg/m ³ / 15 mg/m ³ / 15 mppcf / 50 mppcf | Not Available | Not Available | Respirable fraction; All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. / Total dust; All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. |
| US ACGIH Threshold Limit Values (TLV) | zirconium | Zirconium and compounds, as Zr | 5 mg/m ³ | 10 mg/m ³ | Not Available | Not Available |
| US NIOSH Recommended Exposure Limits (RELs) | zirconium | Zirconium metal: Zirconium | 5 mg/m ³ | 10 mg/m ³ | Not Available | [*Note: The REL applies to all zirconium compounds (as Zr) except Zirconium tetrachloride.] |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | hydrochloric acid | Hydrogen chloride | Not Available | Not Available | 7 mg/m ³ / 5 ppm | Not Available |
| US ACGIH Threshold Limit Values (TLV) | hydrochloric acid | Hydrogen chloride | Not Available | Not Available | 2 ppm | TLV® Basis: URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | hydrochloric acid | Anhydrous hydrogen chloride; Aqueous hydrogen chloride (i.e., Hydrochloric acid, Muriatic acid) [Note: Often used in an aqueous solution.] | Not Available | Not Available | 7 mg/m ³ / 5 ppm | Not Available |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|-------------------|--|----------------------|----------------------|-----------------------|
| zirconium | Zirconium | 10 mg/m ³ | 10 mg/m ³ | 500 mg/m ³ |
| hydrochloric acid | Hydrogen chloride; (Hydrochloric acid) | Not Available | Not Available | Not Available |
| hydrochloric acid | Deuteriochloric acid; (Deuterium chloride) | 1.8 ppm | 22 ppm | 100 ppm |

| Ingredient | Original IDLH | Revised IDLH |
|-------------------|-----------------------|----------------------|
| zirconium | 500 mg/m ³ | 25 mg/m ³ |
| hydrochloric acid | 100 ppm | 50 ppm |
| water | Not Available | Not Available |

Exposure controls

| | |
|----------------------------------|--|
| Appropriate engineering controls | Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. |
| Personal protection |  |
| Eye and face protection | ▶ Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure. |
| Skin protection | See Hand protection below |
| Hands/feet protection | ▶ Elbow length PVC gloves ▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. |
| Body protection | See Other protection below |
| Other protection | ▶ Overalls. |
| Thermal hazards | Not Available |

Respiratory protection

Type B-P Filter of sufficient capacity.

10M69-2 Zirconium (10,000µg/mL in 2% HCl)

76b-p()

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | | | |
|--|---------------|---|---------------|
| Appearance | colorless | | |
| Physical state | Liquid | Relative density (Water = 1) | Not Available |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | <2 | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Available |
| Flash point (°C) | Not Available | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Available | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water (g/L) | Miscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

SECTION 10 STABILITY AND REACTIVITY

| | |
|------------------------------------|---|
| Reactivity | See section 7 |
| Chemical stability | ► Contact with alkaline material liberates heat |
| Possibility of hazardous reactions | See section 7 |
| Conditions to avoid | See section 7 |
| Incompatible materials | See section 7 |
| Hazardous decomposition products | See section 5 |

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | |
|--------------|---|
| Inhaled | The material can cause respiratory irritation in some persons. The material has NOT been classified by EC Directives or other classification systems as "harmful by inhalation". Hydrogen chloride (HCl) vapour or fumes present a hazard from a single acute exposure. |
| Ingestion | The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". |
| Skin Contact | The material can produce severe chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. |
| Eye | The material can produce severe chemical burns to the eye following direct contact. If applied to the eyes, this material causes severe eye damage. |
| Chronic | Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Chronic minor exposure to hydrogen chloride (HCl) vapour or fume may cause discolouration or erosion of the teeth, bleeding of the nose and gums; and ulceration of the nasal mucous membranes. |

| | | |
|---|---|---------------|
| 10M69-2 Zirconium (10,000µg/mL in 2% HCl) | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| zirconium | TOXICITY | IRRITATION |
| | Oral (rat) LD50: >5000 mg/kg ^[1] | Not Available |

Continued...

10M69-2 Zirconium (10,000µg/mL in 2% HCl)

| hydrochloric acid | TOXICITY | | IRRITATION | |
|-------------------|--|--|------------------------------|--|
| | Inhalation (rat) LC50: 3124 ppm/1hr ^[2] | | Eye (rabbit): 5mg/30s - mild | |
| | Oral (rat) LD50: 900 mg/kg ^[2] | | | |
| water | TOXICITY | | IRRITATION | |
| | Oral (rat) LD50: >90000 mg/kg ^[2] | | Not Available | |

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

| | |
|--|---|
| HYDROCHLORIC ACID | for acid mists, aerosols, vapours Data from assays for genotoxic activity in vitro suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. The material may be irritating to the eye, with prolonged contact causing inflammation. The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. |
| 10M69-2 Zirconium (10,000µg/mL in 2% HCl) & HYDROCHLORIC ACID | Asthma-like symptoms may continue for months or even years after exposure to the material ceases. |
| ZIRCONIUM & HYDROCHLORIC ACID & WATER | No significant acute toxicological data identified in literature search. |

| | | | |
|--|---|---------------------------------|---|
| Acute Toxicity | ☐ | Carcinogenicity | ☐ |
| Skin Irritation/Corrosion | ✓ | Reproductivity | ☐ |
| Serious Eye Damage/Irritation | ✓ | STOT - Single Exposure | ☐ |
| Respiratory or Skin sensitisation | ☐ | STOT - Repeated Exposure | ☐ |
| Mutagenicity | ☐ | Aspiration Hazard | ☐ |

Legend: ✗ – Data available but does not fill the criteria for classification
 ✓ – Data required to make classification available
 ☐ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

| Ingredient | Endpoint | Test Duration (hr) | Species | Value | Source |
|-------------------|----------|--------------------|-------------------------------|--------------|--------|
| zirconium | LC50 | 96 | Fish | >20mg/L | 2 |
| zirconium | EC50 | 48 | Crustacea | 331.81mg/L | 2 |
| zirconium | EC50 | 96 | Algae or other aquatic plants | 2.6mg/L | 2 |
| zirconium | EC50 | 96 | Crustacea | 221.18mg/L | 2 |
| zirconium | NOEC | 336 | Algae or other aquatic plants | >200mg/L | 2 |
| hydrochloric acid | LC50 | 96 | Fish | 70.057mg/L | 3 |
| hydrochloric acid | EC50 | 96 | Algae or other aquatic plants | 344.947mg/L | 3 |
| hydrochloric acid | EC50 | 9.33 | Fish | 0.014000mg/L | 4 |
| hydrochloric acid | NOEC | 0.08 | Fish | 10mg/L | 4 |
| water | LC50 | 96 | Fish | 897.520mg/L | 3 |
| water | EC50 | 96 | Algae or other aquatic plants | 8768.874mg/L | 3 |
| water | EC50 | 384 | Crustacea | 199.179mg/L | 3 |

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Prevent, by any means available, spillage from entering drains or water courses.

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|-------------------|-------------------------|------------------|
| hydrochloric acid | LOW | LOW |
| water | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|-------------------|-----------------------|
| hydrochloric acid | LOW (LogKOW = 0.5392) |

| | |
|-------|----------------------|
| water | LOW (LogKOW = -1.38) |
|-------|----------------------|


Mobility in soil

| Ingredient | Mobility |
|-------------------|------------------|
| hydrochloric acid | LOW (KOC = 14.3) |
| water | LOW (KOC = 14.3) |

SECTION 13 DISPOSAL CONSIDERATIONS**Waste treatment methods**

| | |
|------------------------------|--|
| Product / Packaging disposal | <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ Recycle wherever possible. |
|------------------------------|--|

SECTION 14 TRANSPORT INFORMATION**Labels Required**

| | |
|------------------|---|
| |  |
| Marine Pollutant | NO |

Land transport (DOT)

| | | | | | |
|------------------------------|--|--------------|---|--------------------|------------------------------------|
| UN number | 1789 | | | | |
| UN proper shipping name | Hydrochloric acid (contains hydrochloric acid) | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>Class</td><td>8</td></tr> <tr> <td>Subrisk</td><td>Not Applicable</td></tr> </table> | Class | 8 | Subrisk | Not Applicable |
| Class | 8 | | | | |
| Subrisk | Not Applicable | | | | |
| Packing group | II | | | | |
| Environmental hazard | Not Applicable | | | | |
| Special precautions for user | <table border="1"> <tr> <td>Hazard Label</td><td>8</td></tr> <tr> <td>Special provisions</td><td>A3, A6, B3, B15, IB2, N41, T8, TP2</td></tr> </table> | Hazard Label | 8 | Special provisions | A3, A6, B3, B15, IB2, N41, T8, TP2 |
| Hazard Label | 8 | | | | |
| Special provisions | A3, A6, B3, B15, IB2, N41, T8, TP2 | | | | |

Air transport (ICAO-IATA / DGR)

| | | | | | | | | | | | | | | | |
|---|---|--------------------|--------|---------------------------------|----------------|-------------------------------|------|--|-----|--|-----|---|------|--|-------|
| UN number | 1789 | | | | | | | | | | | | | | |
| UN proper shipping name | Hydrochloric acid (contains hydrochloric acid) | | | | | | | | | | | | | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>ICAO/IATA Class</td><td>8</td></tr> <tr> <td>ICAO / IATA Subrisk</td><td>Not Applicable</td></tr> <tr> <td>ERG Code</td><td>8L</td></tr> </table> | ICAO/IATA Class | 8 | ICAO / IATA Subrisk | Not Applicable | ERG Code | 8L | | | | | | | | |
| ICAO/IATA Class | 8 | | | | | | | | | | | | | | |
| ICAO / IATA Subrisk | Not Applicable | | | | | | | | | | | | | | |
| ERG Code | 8L | | | | | | | | | | | | | | |
| Packing group | II | | | | | | | | | | | | | | |
| Environmental hazard | Not Applicable | | | | | | | | | | | | | | |
| Special precautions for user | <table border="1"> <tr> <td>Special provisions</td><td>A3A803</td></tr> <tr> <td>Cargo Only Packing Instructions</td><td>855</td></tr> <tr> <td>Cargo Only Maximum Qty / Pack</td><td>30 L</td></tr> <tr> <td>Passenger and Cargo Packing Instructions</td><td>851</td></tr> <tr> <td>Passenger and Cargo Maximum Qty / Pack</td><td>1 L</td></tr> <tr> <td>Passenger and Cargo Limited Quantity Packing Instructions</td><td>Y840</td></tr> <tr> <td>Passenger and Cargo Limited Maximum Qty / Pack</td><td>0.5 L</td></tr> </table> | Special provisions | A3A803 | Cargo Only Packing Instructions | 855 | Cargo Only Maximum Qty / Pack | 30 L | Passenger and Cargo Packing Instructions | 851 | Passenger and Cargo Maximum Qty / Pack | 1 L | Passenger and Cargo Limited Quantity Packing Instructions | Y840 | Passenger and Cargo Limited Maximum Qty / Pack | 0.5 L |
| Special provisions | A3A803 | | | | | | | | | | | | | | |
| Cargo Only Packing Instructions | 855 | | | | | | | | | | | | | | |
| Cargo Only Maximum Qty / Pack | 30 L | | | | | | | | | | | | | | |
| Passenger and Cargo Packing Instructions | 851 | | | | | | | | | | | | | | |
| Passenger and Cargo Maximum Qty / Pack | 1 L | | | | | | | | | | | | | | |
| Passenger and Cargo Limited Quantity Packing Instructions | Y840 | | | | | | | | | | | | | | |
| Passenger and Cargo Limited Maximum Qty / Pack | 0.5 L | | | | | | | | | | | | | | |

Sea transport (IMDG-Code / GGVSee)

| | | | |
|----------------------------|---|------------|---|
| UN number | 1789 | | |
| UN proper shipping name | HYDROCHLORIC ACID (contains hydrochloric acid) | | |
| Transport hazard class(es) | <table border="1"> <tr> <td>IMDG Class</td><td>8</td></tr> </table> | IMDG Class | 8 |
| IMDG Class | 8 | | |

10M69-2 Zirconium (10,000µg/mL in 2% HCl)

| | | |
|-------------------------------------|--------------------|----------------|
| | IMDG Subrisk | Not Applicable |
| Packing group | II | |
| Environmental hazard | Not Applicable | |
| Special precautions for user | EMS Number | F-A, S-B |
| | Special provisions | Not Applicable |
| | Limited Quantities | 1 L |

Transport in bulk according to Annex II of MARPOL and the IBC code

| Source | Product name | Pollution Category | Ship Type |
|---|-------------------|--------------------|-----------|
| IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk | Hydrochloric acid | Z | 3 |

SECTION 15 REGULATORY INFORMATION

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

ZIRCONIUM(7440-67-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|---|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants |
| US - Alaska Limits for Air Contaminants | US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants |
| US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) | US - Washington Permissible exposure limits of air contaminants |
| US - California Permissible Exposure Limits for Chemical Contaminants | US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - Hawaii Air Contaminant Limits | US ACGIH Threshold Limit Values (TLV) |
| US - Idaho - Limits for Air Contaminants | US ACGIH Threshold Limit Values (TLV) - Carcinogens |
| US - Michigan Exposure Limits for Air Contaminants | US NIOSH Recommended Exposure Limits (RELs) |
| US - Minnesota Permissible Exposure Limits (PELs) | US OSHA Permissible Exposure Levels (PELs) - Table Z3 |
| US - Oregon Permissible Exposure Limits (Z-1) | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | |

HYDROCHLORIC ACID(7647-01-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|---|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants |
| US - Alaska Limits for Air Contaminants | US - Washington Permissible exposure limits of air contaminants |
| US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) | US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values |
| US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) | US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - California Permissible Exposure Limits for Chemical Contaminants | US ACGIH Threshold Limit Values (TLV) |
| US - Hawaii Air Contaminant Limits | US ACGIH Threshold Limit Values (TLV) - Carcinogens |
| US - Idaho - Limits for Air Contaminants | US EPCRA Section 313 Chemical List |
| US - Michigan Exposure Limits for Air Contaminants | US NIOSH Recommended Exposure Limits (RELs) |
| US - Minnesota Permissible Exposure Limits (PELs) | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Oregon Permissible Exposure Limits (Z-1) | US SARA Section 302 Extremely Hazardous Substances |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| |
|---|
| US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
|---|

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

| | |
|---------------------------------|-----|
| Immediate (acute) health hazard | Yes |
| Delayed (chronic) health hazard | No |
| Fire hazard | No |
| Pressure hazard | No |
| Reactivity hazard | No |

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

| Name | Reportable Quantity in Pounds (lb) | Reportable Quantity in kg |
|-------------------|------------------------------------|---------------------------|
| Hydrochloric acid | 5000 | 2270 |

State Regulations

US. CALIFORNIA PROPOSITION 65

| None Reported | |
|--------------------|--------|
| National Inventory | Status |

10M69-2 Zirconium (10,000µg/mL in 2% HCl)

| | |
|-------------------------------|--|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | N (hydrochloric acid; water; zirconium) |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | N (water; zirconium) |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |
| Philippines - PICCS | Y |
| USA - TSCA | Y |
| Legend: | <i>Y = All ingredients are on the inventory</i> <i>N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i> |

SECTION 16 OTHER INFORMATION

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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