



10M49-2 Selenium (10,000µg/mL in 10% HCl)

High-Purity Standards

Catalogue number: 10M49-2

Version No: 1.1

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

Chemwatch Hazard Alert Code: 3

Issue Date: 08/02/2016

Print Date: 11/15/2016

S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

| | |
|-------------------------------|--|
| Product name | 10M49-2 Selenium (10,000µg/mL in 10% HCl) |
| Synonyms | 10,000µg/mL Se in 10% HCl |
| Proper shipping name | Hydrochloric acid (contains hydrochloric acid) |
| Other means of identification | 10M49-2 |

Recommended use of the chemical and restrictions on use

| | |
|--------------------------|-------------------|
| Relevant identified uses | Dangerous POISON. |
|--------------------------|-------------------|

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 | Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Specific target organ toxicity - repeated exposure Category 2, 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)

| | |
|------|--|
| H335 | May cause respiratory irritation. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |

Continued...

10M49-2 Selenium (10,000µg/mL in 10% HCl)

Hazard(s) not otherwise specified

Not Applicable

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 |
|-----------|-----------|--------------------------|
| 7782-49-2 | 1 | <u>selenium</u> |
| 7647-01-0 | 10 | <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 acute or short term repeated exposures to strong acids:

- ▶ Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
- ▶ Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- ▶ Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- ▶ Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.

INGESTION:

Continued...

10M49-2 Selenium (10,000µg/mL in 10% HCl)

- ▶ Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- ▶ **DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury.**
- ▶ Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- ▶ Charcoal has no place in acid management.
- ▶ Some authors suggest the use of lavage within 1 hour of ingestion.

SKIN:

- ▶ Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- ▶ Deep second-degree burns may benefit from topical silver sulfadiazine.

EYE:

- ▶ Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes. **DO NOT use neutralising agents or any other additives.** Several litres of saline are required.
- ▶ Cycloplegic drops, (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
- ▶ Steroid eye drops should only be administered with the approval of a consulting ophthalmologist).

[Ellenhorn and Barceloux: Medical Toxicology]

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 | ▶ Non combustible. |

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 | ▶ Store in original containers. |

Conditions for safe storage, including any incompatibilities

| | |
|-------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ DO NOT use aluminium or galvanised containers ▶ Check regularly for spills and leaks ▶ Lined metal can, lined metal pail/ can. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▶ Drums and jerrycans must be of the non-removable head type. |
| Storage incompatibility | <ul style="list-style-type: none"> ▶ Inorganic acids are generally soluble in water with the release of hydrogen ions. <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, 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 vigorously with alkalis ▶ Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air. |

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

10M49-2 Selenium (10,000µg/mL in 10% HCl)

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA


| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|---|-------------------|---|---------------|---------------|-----------------|---|
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | selenium | Selenium compounds | 0.2 mg/m3 | Not Available | Not Available | (as Se) |
| US ACGIH Threshold Limit Values (TLV) | selenium | Selenium and compounds, as Se | 0.2 mg/m3 | Not Available | Not Available | TLV® Basis: Eye & URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | selenium | Elemental selenium, Selenium alloy | 0.2 mg/m3 | Not Available | Not Available | [*Note: The REL also applies to other selenium compounds (as Se) except Selenium hexafluoride.] |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | hydrochloric acid | Hydrogen chloride | Not Available | Not Available | 7 mg/m3 / 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/m3 / 5 ppm | Not Available |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|-------------------|--|---------------|---------------|---------------|
| selenium | Selenium | 0.2 mg/m3 | 0.2 mg/m3 | 1.6 mg/m3 |
| 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 |
|-------------------|-----------------------------|---------------|
| selenium | Unknown mg/m3 / Unknown ppm | 1 mg/m3 |
| 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> Elbow length PVC gloves When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. <p>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.</p> |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> Overalls. |
| Thermal hazards | Not Available |

Respiratory protection

Type B-P Filter of sufficient capacity.

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 |

10M49-2 Selenium (10,000µg/mL in 10% HCl)

| | | | |
|--|---------------|----------------------------------|---------------|
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 100 | 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. Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. 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 | Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". |
| Skin Contact | Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue. 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 | If applied to the eyes, this material causes severe eye damage. Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. |
| Chronic | Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. 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. |

| | | |
|---|--|------------------------------|
| 10M49-2 Selenium (10,000µg/mL in 10% HCl) | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| selenium | TOXICITY | IRRITATION |
| | Oral (rat) LD50: 6700 mg/kg ^[2] | Nil reported |
| 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

10M49-2 Selenium (10,000µg/mL in 10% HCl)

| | |
|--|---|
| HYDROCHLORIC ACID | The material may be irritating to the eye, with prolonged contact causing inflammation. |
| 10M49-2 Selenium (10,000µg/mL in 10% HCl) & HYDROCHLORIC ACID | Asthma-like symptoms may continue for months or even years after exposure to the material ceases. |
| 10M49-2 Selenium (10,000µg/mL in 10% HCl) & 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. |
| SELENIUM & HYDROCHLORIC ACID | The substance is classified by IARC as Group 3: NOT classifiable as to its carcinogenicity to humans. |
| HYDROCHLORIC ACID & WATER | No significant acute toxicological data identified in literature search. |
| Acute Toxicity | ☐ |
| Skin Irritation/Corrosion | ✓ |
| Serious Eye Damage/Irritation | ✓ |
| Respiratory or Skin sensitisation | ☐ |
| Mutagenicity | ☐ |
| Carcinogenicity | ☐ |
| Reproductivity | ☐ |
| STOT - Single Exposure | ✓ |
| STOT - Repeated Exposure | ✓ |
| 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 |
|-------------------|----------|--------------------|-------------------------------|--------------|--------|
| selenium | LC50 | 96 | Fish | >0.0262mg/L | 2 |
| selenium | EC50 | 48 | Crustacea | >0.1603mg/L | 2 |
| selenium | EC50 | 72 | Algae or other aquatic plants | >0.00173mg/L | 2 |
| selenium | BCF | 504 | Crustacea | 0.711mg/L | 4 |
| selenium | EC50 | 96 | Algae or other aquatic plants | 0.355mg/L | 2 |
| selenium | NOEC | 72 | Algae or other aquatic plants | 0.000547mg/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 |

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

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark.

Ecotoxicity:

The tolerance of water organisms towards pH margin and variation is diverse.
 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


Continued...

10M49-2 Selenium (10,000µg/mL in 10% HCl)

| | |
|------------------------------|--|
| Product / Packaging disposal | Legislation addressing waste disposal requirements may differ by country, state and/ or territory. ▶ 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>386, A3, A6, B3, B15, B133, IB2, N41, T8, TP2</td></tr> </table> | Hazard Label | 8 | Special provisions | 386, A3, A6, B3, B15, B133, IB2, N41, T8, TP2 |
| Hazard Label | 8 | | | | |
| Special provisions | 386, A3, A6, B3, B15, B133, 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> <tr> <td>IMDG Subrisk</td><td>Not Applicable</td></tr> </table> | IMDG Class | 8 | IMDG Subrisk | Not Applicable | | |
| IMDG Class | 8 | | | | | | |
| IMDG Subrisk | Not Applicable | | | | | | |
| Packing group | II | | | | | | |
| Environmental hazard | Not Applicable | | | | | | |
| Special precautions for user | <table border="1"> <tr> <td>EMS Number</td><td>F-A, S-B</td></tr> <tr> <td>Special provisions</td><td>Not Applicable</td></tr> <tr> <td>Limited Quantities</td><td>1 L</td></tr> </table> | EMS Number | F-A, S-B | Special provisions | Not Applicable | Limited Quantities | 1 L |
| 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 |
|--------|--------------|--------------------|-----------|
|--------|--------------|--------------------|-----------|

10M49-2 Selenium (10,000µg/mL in 10% HCl)

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

SELENIUM(7782-49-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|--|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Washington Permissible exposure limits of air contaminants |
| US - Alaska Limits for Air Contaminants | US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values |
| US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) | US ACGIH Threshold Limit Values (TLV) |
| US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) | US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs) |
| US - Hawaii Air Contaminant Limits | US EPA Carcinogens Listing |
| US - Idaho - Limits for Air Contaminants | US EPCRA Section 313 Chemical List |
| US - Minnesota Permissible Exposure Limits (PELs) | US NIOSH Recommended Exposure Limits (RELs) |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US - Vermont Permissible Exposure Limits Table Z-1-A Transitional 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 | Yes |
| 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 |
|-------------------|------------------------------------|---------------------------|
| Selenium | 100 | 45.4 |
| Hydrochloric acid | 5000 | 2270 |

State Regulations

US. CALIFORNIA PROPOSITION 65

None Reported

| National Inventory | Status |
|-------------------------------|--|
| Australia - AICS | Y |
| Canada - DSL | Y |
| Canada - NDSL | N (hydrochloric acid; water; selenium) |
| China - IECSC | Y |
| Europe - EINEC / ELINCS / NLP | Y |
| Japan - ENCS | N (water; selenium) |
| Korea - KECI | Y |
| New Zealand - NZIoC | Y |

10M49-2 Selenium (10,000µg/mL in 10% HCl)

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