# CLP Check Verification Standard 3

## High-Purity Standards

Chemwatch Hazard Alert Code: **3**

Catalogue number: **CLP-CV-3**
Version No: **1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: **04/05/2017**
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S.GHS.USA.EN

## SECTION 1 IDENTIFICATION

### Product Identifier

| | |
|---|---|
| **Product name** | CLP Check Verification Standard 3 |
| **Synonyms** | Not Available |
| **Proper shipping name** | Corrosive liquid, acidic, inorganic, n.o.s. |
| **Other means of identification** | CLP-CV-3 |

### 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** | 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)

| | |
|---|---|
| **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. |

### Hazard(s) not otherwise specified

Continued...

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 |
|---|---|---|
| 7440-38-2 | 0.05 | arsenic |
| 7440-43-9 | 0.025 | cadmium |
| 7439-92-1 | 0.05 | lead |
| 7782-49-2 | 0.05 | selenium |
| 7440-28-0 | 0.05 | thallium |
| 7697-37-2 | 2 | nitric acid |
| 7732-18-5 | balance | water |

## SECTION 4 FIRST-AID MEASURES

### Description of first aid measures

| | |
|---|---|
| **Eye Contact** | If this product comes in contact with the eyes:<br>▸ Immediately hold eyelids apart and flush the eye continuously with running water.<br>▸ 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.<br>▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.<br>▸ Transport to hospital or doctor without delay.<br>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| **Skin Contact** | If skin or hair contact occurs:<br>▸ Immediately flush body and clothes with large amounts of water, using safety shower if available.<br>▸ Quickly remove all contaminated clothing, including footwear.<br>▸ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.<br>▸ Transport to hospital, or doctor. |
| **Inhalation** | ▸ If fumes or combustion products are inhaled remove from contaminated area.<br>▸ Lay patient down. Keep warm and rested.<br>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.<br>▸ 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.<br>▸ Transport to hospital, or doctor, without delay.<br>▸ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.<br>▸ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).<br>▸ 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.<br>▸ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.<br>**This must definitely be left to a doctor or person authorised by him/her.**<br>(ICSC13719) |
| **Ingestion** | ▸ For advice, contact a Poisons Information Centre or a doctor at once.<br>▸ Urgent hospital treatment is likely to be needed.<br>▸ If swallowed do **NOT** induce vomiting.<br>▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.<br>▸ Observe the patient carefully.<br>▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.<br>▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.<br>▸ 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.

**Continued...**

- 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:
- 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 conjuctival 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.<br>- Not considered to be a significant fire risk.<br>- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.<br>- Heating may cause expansion or decomposition leading to violent rupture of containers.<br>- May emit corrosive, poisonous fumes. May emit acrid smoke. |

## 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** | - Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.<br>- Check regularly for spills and leaks.<br>- Clean up all spills immediately.<br>- Avoid breathing vapours and contact with skin and eyes.<br>- Control personal contact with the substance, by using protective equipment.<br>- Contain and absorb spill with sand, earth, inert material or vermiculite.<br>- Wipe up.<br>- Place in a suitable, labelled container for waste disposal. |
| **Major Spills** | - Clear area of personnel and move upwind.<br>- Alert Fire Brigade and tell them location and nature of hazard.<br>- Wear breathing apparatus plus protective gloves.<br>- Prevent, by any means available, spillage from entering drains or water course.<br>- Stop leak if safe to do so.<br>- Contain spill with sand, earth or vermiculite.<br>- Collect recoverable product into labelled containers for recycling.<br>- Neutralise/decontaminate residue (see Section 13 for specific agent).<br>- Collect solid residues and seal in labelled drums for disposal.<br>- Wash area and prevent runoff into drains.<br>- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.<br>- If contamination of drains or waterways occurs, advise emergency services. |

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

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

| | |
|---|---|
| **Safe handling** | - Avoid all personal contact, including inhalation.<br>- Wear protective clothing when risk of exposure occurs.<br>- Use in a well-ventilated area.<br>- **WARNING:** To avoid violent reaction, **ALWAYS** add material to water and **NEVER** water to material. |

**Continued...**

| | |
|---|---|
| | ▸ Avoid smoking, naked lights or ignition sources.<br>▸ Avoid contact with incompatible materials.<br>▸ When handling, **DO NOT** eat, drink or smoke.<br>▸ Keep containers securely sealed when not in use.<br>▸ Avoid physical damage to containers.<br>▸ Always wash hands with soap and water after handling.<br>▸ Work clothes should be laundered separately. Launder contaminated clothing before re-use.<br>▸ Use good occupational work practice.<br>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.<br>▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. |
| **Other information** | ▸ Store in original containers.<br>▸ Keep containers securely sealed.<br>▸ Store in a cool, dry, well-ventilated area.<br>▸ Store away from incompatible materials and foodstuff containers.<br>▸ Protect containers against physical damage and check regularly for leaks.<br>▸ Observe manufacturer's storage and handling recommendations contained within this SDS. |

### Conditions for safe storage, including any incompatibilities

| | |
|---|---|
| **Suitable container** | ▸ **DO NOT** use aluminium or galvanised containers<br>▸ Check regularly for spills and leaks<br>▸ Lined metal can, lined metal pail/ can.<br>▸ Plastic pail.<br>▸ Polyliner drum.<br>▸ Packing as recommended by manufacturer.<br>▸ Check all containers are clearly labelled and free from leaks.<br>For low viscosity materials<br>▸ Drums and jerricans must be of the non-removable head type.<br>▸ Where a can is to be used as an inner package, the can must have a screwed enclosure.<br>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):<br>▸ Removable head packaging;<br>▸ Cans with friction closures and<br>▸ low pressure tubes and cartridges<br>may be used.<br>-<br>Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic. |
| **Storage incompatibility** | ▸ Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.<br>▸ Inorganic acids neutralise chemical bases (for example: amines and inorganic hydroxides) to form salts - neutralisation can generate dangerously large amounts of heat in small spaces.<br>▸ The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat.<br>▸ The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively. The resulting "bumping" can spatter the acid.<br>▸ Inorganic acids react with active metals, including such structural metals as aluminum and iron, to release hydrogen, a flammable gas.<br>▸ Inorganic acids can initiate the polymerisation of certain classes of organic compounds.<br>▸ Inorganic acids react with cyanide compounds to release gaseous hydrogen cyanide.<br>▸ Inorganic acids generate flammable and/or toxic gases in contact with dithiocarbamates, isocyanates, mercaptans, nitrides, nitriles, sulfides, and strong reducing agents. Additional gas-generating reactions occur with sulfites, nitrites, thiosulfates (to give H2S and SO3), dithionites (SO2), and even carbonates.<br>▸ Acids often catalyse (increase the rate of) chemical reactions. |

## 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 Z1 | arsenic | Arsenic-inorganic compounds | 0.01 mg/m3 | Not Available | Not Available | see 1910.1018;(as As) |
| US ACGIH Threshold Limit Values (TLV) | arsenic | Arsenic and inorganic compounds, as As | 0.01 mg/m3 | Not Available | Not Available | TLV® Basis: Lung cancer; BEI |
| US NIOSH Recommended Exposure Limits (RELs) | arsenic | Arsenic metal: Arsenia | Not Available | Not Available | 0.002 mg/m3 | Ca See Appendix A |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | cadmium | Cadmium | 0.005 mg/m3 | Not Available | Not Available | see 1910.1027;(as Cd) |
| US OSHA Permissible Exposure Levels (PELs) - Table Z2 | cadmium | Cadmium fume / Cadmium dust | 0.1 mg/m3 / 0.2 mg/m3 | Not Available | 0.3 mg/m3 / 0.6 mg/m3 | (Z37.5–1970);This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect |
| US ACGIH Threshold Limit Values (TLV) | cadmium | Cadmium | 0.01 mg/m3 | Not Available | Not Available | TLV® Basis: Kidney dam; BEI |
| US NIOSH Recommended Exposure Limits (RELs) | cadmium | Cadmium metal: Cadmium | Not Available | Not Available | Not Available | Ca See Appendix A [*Note: The REL applies to all Cadmium compounds (as Cd).] |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | lead | Lead, inorganic | 0.05 mg/m3 | Not Available | Not Available | (as Pb);see 1910.1025;If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Maximum |

**Continued...**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | permissible limit (in µg/m3 )=400÷hours worked in the day. |
| US OSHA Permissible Exposure Levels (PELs) - Table Z2 | lead | Cadmium fume / Cadmium dust | 0.1 mg/m3 / 0.2 mg/m3 | Not Available | 0.3 mg/m3 / 0.6 mg/m3 | (Z37.5–1970);This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect |
| US ACGIH Threshold Limit Values (TLV) | lead | Lead and inorganic compounds, as Pb | 0.05 mg/m3 | Not Available | Not Available | TLV® Basis: CNS & PNS impair; hematologic eff; BEI |
| US ACGIH Threshold Limit Values (TLV) | lead | Cadmium and compounds, as Cd | 0.002 mg/m3 | Not Available | Not Available | TLV® Basis: Kidney dam; BEI |
| US NIOSH Recommended Exposure Limits (RELs) | lead | Lead metal, Plumbum | 0.050 mg/m3 | Not Available | Not Available | See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.] |
| 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 ACGIH Threshold Limit Values (TLV) | thallium | Thallium and compounds, as Tl | 0.02 mg/m3 | Not Available | Not Available | TLV® Basis: GI dam; peripheral neuropathy |
| US NIOSH Recommended Exposure Limits (RELs) | thallium | Synonyms vary depending upon the specific aluminum compound. | 5 mg/m3 / 2 mg/m3 | Not Available | Not Available | Not Available |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | nitric acid | Nitric acid | 5 mg/m3 / 2 ppm | Not Available | Not Available | Not Available |
| US ACGIH Threshold Limit Values (TLV) | nitric acid | Nitric acid | 2 ppm | 4 ppm | Not Available | TLV® Basis: URT & eye irr; dental erosion |
| US NIOSH Recommended Exposure Limits (RELs) | nitric acid | Aqua fortis, Engravers acid, Hydrogen nitrate, Red fuming nitric acid (RFNA), White fuming nitric acid (WFNA) | 5 mg/m3 / 2 ppm | 10 mg/m3 / 4 ppm | Not Available | Not Available |

**EMERGENCY LIMITS**

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|---|---|---|---|---|
| cadmium | Cadmium | Not Available | Not Available | Not Available |
| lead | Lead | 0.15 mg/m3 | 120 mg/m3 | 700 mg/m3 |
| selenium | Selenium | 0.6 mg/m3 | 6.6 mg/m3 | 40 mg/m3 |
| thallium | Thallium | 0.06 mg/m3 | 13 mg/m3 | 20 mg/m3 |
| nitric acid | Nitric acid | Not Available | Not Available | Not Available |

| Ingredient | Original IDLH | Revised IDLH |
|---|---|---|
| arsenic | 100 mg/m3 | 5 mg/m3 |
| cadmium | 50 mg/m3 / 9 mg/m3 | 9 mg/m3 / 9 [Unch] mg/m3 |
| lead | 700 mg/m3 | 100 mg/m3 |
| selenium | Unknown mg/m3 / Unknown ppm | 1 mg/m3 |
| thallium | Not Available | Not Available |
| nitric acid | 100 ppm | 25 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. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection.
Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

| Type of Contaminant: | Air Speed: |
|---|---|
| solvent, vapours, degreasing etc., evaporating from tank (in still air). | 0.25-0.5 m/s (50-100 f/min.) |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.) |

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| | |
|---|---|
| | direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion) — 1-2.5 m/s (200-500 f/min.)<br>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion). — 2.5-10 m/s (500-2000 f/min.)<br><br>Within each range the appropriate value depends on:<br><br>Lower end of the range: 1: Room air currents minimal or favourable to capture; 2: Contaminants of low toxicity or of nuisance value only.; 3: Intermittent, low production.; 4: Large hood or large air mass in motion<br>Upper end of the range: 1: Disturbing room air currents; 2: Contaminants of high toxicity; 3: High production, heavy use; 4: Small hood-local control only<br><br>Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used. |
| **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.<br>▸ Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.<br>▸ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.<br>▸ Alternatively a gas mask may replace splash goggles and face shields.<br>▸ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent] |
| **Skin protection** | See Hand protection below |
| **Hands/feet protection** | ▸ Elbow length PVC gloves<br>▸ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots. |
| **Body protection** | See Other protection below |
| **Other protection** | ▸ Overalls.<br>▸ PVC Apron.<br>▸ PVC protective suit may be required if exposure severe.<br>▸ Eyewash unit.<br>▸ Ensure there is ready access to a safety shower. |
| **Thermal hazards** | Not Available |

### Respiratory protection

**Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)**

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

| | |
|---|---|
| **Appearance** | Colourless |

| | | | |
|---|---|---|---|
| **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 |

**Continued...**

| | | | |
|---|---|---|---|
| **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** | Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.<br>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.<br>Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. |
| **Ingestion** | Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.<br>Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident. |
| **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.<br>Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions.<br>Open cuts, abraded or irritated skin should not be exposed to this material<br>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| **Eye** | If applied to the eyes, this material causes severe eye damage.<br>Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely. |
| **Chronic** | Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.<br>Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.<br>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. |

| | | |
|---|---|---|
| **CLP Check Verification Standard 3** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **arsenic** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **cadmium** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **lead** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **selenium** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **thallium** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **nitric acid** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |
| **water** | **TOXICITY** | **IRRITATION** |
| | Not Available | Not Available |

**Continued...**

| | |
|---|---|
| ***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* |

| | |
|---|---|
| **ARSENIC** | Arsenic compounds are classified by the European Union as toxic by inhalation and ingestion and toxic to aquatic life and long lasting in the environment.<br><br>**WARNING:** This substance has been classified by the IARC as Group 1: **CARCINOGENIC TO HUMANS**.<br>Tumorigenic - Carcinogenic by RTECS criteria. |
| **LEAD** | WARNING: Lead is a cumulative poison and has the potential to cause abortion and intellectual impairment to unborn children of pregnant workers. |
| **SELENIUM** | The substance is classified by IARC as Group 3:<br>**NOT** classifiable as to its carcinogenicity to humans. |
| **THALLIUM** | Structural changes in nerves and sheath, changes in extraocular muscles, hair loss recorded |
| **NITRIC ACID** | Asthma-like symptoms may continue for months or even years after exposure to the material ceases.<br>for acid mists, aerosols, vapours<br>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.<br>The material may produce severe irritation to the eye causing pronounced inflammation.<br>The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.<br>The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.<br>Oral (?) LD50: 50-500 mg/kg * [Various Manufacturers] |
| **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 available to make classification*
⊘ *– Data Not Available to make classification*

## SECTION 12 ECOLOGICAL INFORMATION

### Toxicity

| Ingredient | Endpoint | Test Duration (hr) | Species | Value | Source |
|---|---|---|---|---|---|
| **arsenic** | LC50 | 96 | Fish | 9.9mg/L | 4 |
| **arsenic** | EC50 | 336 | Algae or other aquatic plants | 0.63mg/L | 4 |
| **arsenic** | NOEC | 336 | Algae or other aquatic plants | <0.75mg/L | 4 |
| **cadmium** | LC50 | 96 | Fish | 0.001mg/L | 4 |
| **cadmium** | EC50 | 48 | Crustacea | 0.0033mg/L | 5 |
| **cadmium** | EC50 | 72 | Algae or other aquatic plants | 0.018mg/L | 2 |
| **cadmium** | BCF | 960 | Fish | 500mg/L | 4 |
| **cadmium** | EC50 | 336 | Crustacea | 0.00065mg/L | 5 |
| **cadmium** | NOEC | 168 | Fish | 0.00001821mg/L | 4 |
| **lead** | LC50 | 96 | Fish | 0.0079mg/L | 2 |
| **lead** | EC50 | 48 | Crustacea | 0.029mg/L | 2 |
| **lead** | EC50 | 72 | Algae or other aquatic plants | 0.0205mg/L | 2 |
| **lead** | BCFD | 8 | Fish | 4.324mg/L | 4 |
| **lead** | EC50 | 48 | Algae or other aquatic plants | 0.0217mg/L | 2 |
| **lead** | NOEC | 672 | Fish | 0.00003mg/L | 4 |
| **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 |
| **thallium** | LC50 | 96 | Fish | 21mg/L | 4 |
| **thallium** | EC50 | 96 | Algae or other aquatic plants | 0.13mg/L | 4 |
| **thallium** | EC50 | 240 | Algae or other aquatic plants | 0.040876mg/L | 4 |
| **thallium** | NOEC | 720 | Fish | 0.04mg/L | 5 |
| **nitric acid** | NOEC | 16 | Crustacea | 107mg/L | 4 |

| | |
|---|---|
| ***Legend:*** | *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - 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* |

**Continued...**

**Ecotoxicity:**
The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9. Acute testing with fish showed 96h-LC50 at about pH 3.5
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 |
|---|---|---|
| water | LOW | LOW |

### Bioaccumulative potential

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

### Mobility in soil

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

## SECTION 13 DISPOSAL CONSIDERATIONS

### Waste treatment methods

| | |
|---|---|
| **Product / Packaging disposal** | ▸ Containers may still present a chemical hazard/ danger when empty.<br>▸ Return to supplier for reuse/ recycling if possible.<br>Otherwise:<br>▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.<br>▸ Where possible retain label warnings and SDS and observe all notices pertaining to the product.<br>▸ Recycle wherever possible.<br>▸ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.<br>▸ Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation with soda-ash or soda-lime followed by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).<br>▸ Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed. |

## SECTION 14 TRANSPORT INFORMATION

### Labels Required

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

### Land transport (DOT)

| | |
|---|---|
| **UN number** | 3264 |
| **UN proper shipping name** | Corrosive liquid, acidic, inorganic, n.o.s. |
| **Transport hazard class(es)** | Class: 8<br>Subrisk: Not Applicable |
| **Packing group** | II |
| **Environmental hazard** | Not Applicable |
| **Special precautions for user** | Hazard Label: 8<br>Special provisions: 386, B2, IB2, T11, TP2, TP27 |

### Air transport (ICAO-IATA / DGR)

| | |
|---|---|
| **UN number** | 3264 |
| **UN proper shipping name** | Corrosive liquid, acidic, inorganic, n.o.s. * |
| **Transport hazard class(es)** | ICAO/IATA Class: 8<br>ICAO / IATA Subrisk: Not Applicable<br>ERG Code: 8L |

**Continued...**

| | |
|---|---|
| **Packing group** | II |
| **Environmental hazard** | Not Applicable |
| **Special precautions for user** | Special provisions: A3A803<br>Cargo Only Packing Instructions: 855<br>Cargo Only Maximum Qty / Pack: 30 L<br>Passenger and Cargo Packing Instructions: 851<br>Passenger and Cargo Maximum Qty / Pack: 1 L<br>Passenger and Cargo Limited Quantity Packing Instructions: Y840<br>Passenger and Cargo Limited Maximum Qty / Pack: 0.5 L |

### Sea transport (IMDG-Code / GGVSee)

| | |
|---|---|
| **UN number** | 3264 |
| **UN proper shipping name** | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. |
| **Transport hazard class(es)** | IMDG Class: 8<br>IMDG Subrisk: Not Applicable |
| **Packing group** | II |
| **Environmental hazard** | Not Applicable |
| **Special precautions for user** | EMS Number: F-A, S-B<br>Special provisions: 274<br>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 | Nitric acid (70% and over)\|Nitric acid (less than 70%) | Y; Y | 2\|2 |

## SECTION 15 REGULATORY INFORMATION

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

**ARSENIC(7440-38-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**CADMIUM(7440-43-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

**Continued...**

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - California Proposition 65 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
US - Hawaii Air Contaminant Limits
US - Idaho - Acceptable Maximum Peak Concentrations
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Oregon Permissible Exposure Limits (Z-1)
US - Oregon Permissible Exposure Limits (Z-2)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration, Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Carcinogens Listing
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Levels (PELs) - Table Z2
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**LEAD(7439-92-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
US - Alaska Limits for Air Contaminants
US - California - Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - California Proposition 65 - Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens
US - California Proposition 65 - Reproductive Toxicity
US - Hawaii Air Contaminant Limits
US - Idaho - Acceptable Maximum Peak Concentrations
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens
US National Toxicology Program (NTP) 14th Report Part B.
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US OSHA Permissible Exposure Levels (PELs) - Table Z2
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**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 - Alaska Limits for Air Contaminants
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values
US ACGIH Threshold Limit Values (TLV)
US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)
US Clean Air Act - Hazardous Air Pollutants
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPA Carcinogens Listing
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**THALLIUM(7440-28-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US - California Permissible Exposure Limits for Chemical Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Minnesota Permissible Exposure Limits (PELs)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US ACGIH Threshold Limit Values (TLV)
US CWA (Clean Water Act) - Priority Pollutants
US CWA (Clean Water Act) - Toxic Pollutants
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**NITRIC ACID(7697-37-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

**Continued...**

| | |
|---|---|
| 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 |
| International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft | 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 - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) | US ACGIH Threshold Limit Values (TLV) |
| US - California Permissible Exposure Limits for Chemical Contaminants | US Clean Air Act - Hazardous Air Pollutants |
| US - California Proposition 65 - Carcinogens | US CWA (Clean Water Act) - List of Hazardous Substances |
| US - Hawaii Air Contaminant Limits | US CWA (Clean Water Act) - Priority Pollutants |
| US - Idaho - Limits for Air Contaminants | US CWA (Clean Water Act) - Toxic Pollutants |
| US - Massachusetts - Right To Know Listed Chemicals | US EPCRA Section 313 Chemical List |
| US - Michigan Exposure Limits for Air Contaminants | US National Toxicology Program (NTP) 14th Report Part A Known to be Human Carcinogens |
| US - Minnesota Permissible Exposure Limits (PELs) | US NIOSH Recommended Exposure Limits (RELs) |
| US - Oregon Permissible Exposure Limits (Z-1) | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Pennsylvania - Hazardous Substance List | US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity |
| US - Rhode Island Hazardous Substance List | US SARA Section 302 Extremely Hazardous Substances |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | |

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

| | |
|---|---|
| US - Pennsylvania - Hazardous Substance List | 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 |
|---|---|---|
| Arsenic | 1 | 0.454 |
| Cadmium | 10 | 4.54 |
| Lead | 10 | 4.54 |
| Selenium | 100 | 45.4 |
| Thallium | 1000 | 454 |
| Nitric acid | 1000 | 454 |

### State Regulations

**US. CALIFORNIA PROPOSITION 65**

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

**US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE**

Cadmium and cadmium compounds: Cadmium, Lead and lead compounds: Lead, Nickel compounds Listed

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

## 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

**Continued...**

available literature references.
The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

## 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