



10M33-1 Mercury (10,000µg/mL in 10% HNO₃)

High-Purity Standards

Catalogue number: 10M33-1

Version No: 2.2

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

Chemwatch Hazard Alert Code: 4

Issue Date: 05/19/2017

Print Date: 05/19/2017

S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	10M33-1 Mercury (10,000µg/mL in 10% HNO ₃)
Synonyms	10,000µg/mL Mercury in 10% HNO ₃
Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (contains nitric acid)
Other means of identification	10M33-1

Recommended use of the chemical and restrictions on use

Relevant identified uses	Use according to manufacturer's directions.
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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	Serious Eye Damage Category 1, Reproductive Toxicity Category 1B, Specific target organ toxicity - repeated exposure Category 1, Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 3, Metal Corrosion Category 1, Skin Corrosion/Irritation Category 1A
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Label elements

Hazard pictogram(s)	
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SIGNAL WORD **DANGER**

Hazard statement(s)

H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Continued...

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Hazard(s) not otherwise specified

Not Applicable

Precautionary statement(s) Prevention

P201 Obtain special instructions before use.

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
7439-97-6	1	<u>mercury (elemental)</u>
7697-37-2	10	<u>nitric 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.
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:

- ▶ 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.

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- ▶ 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.
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Special protective equipment and precautions for fire-fighters

Fire Fighting	<ul style="list-style-type: none">▶ Alert Fire Brigade and tell them location and nature of hazard.▶ Wear breathing apparatus plus protective gloves in the event of a fire.▶ Prevent, by any means available, spillage from entering drains or water courses.▶ Use fire fighting procedures suitable for surrounding area.▶ DO NOT approach containers suspected to be hot.▶ Cool fire exposed containers with water spray from a protected location.▶ If safe to do so, remove containers from path of fire.▶ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	<ul style="list-style-type: none">▶ Non combustible.▶ Not considered to be a significant fire risk.▶ Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.▶ Heating may cause expansion or decomposition leading to violent rupture of containers.▶ May emit corrosive, poisonous fumes. May emit acrid smoke. May emit poisonous 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">▶ Clean up all spills immediately.▶ Avoid breathing vapours and contact with skin and eyes.▶ Control personal contact with the substance, by using protective equipment.▶ Contain and absorb spill with sand, earth, inert material or vermiculite.▶ Wipe up.▶ Place in a suitable, labelled container for waste disposal.
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.▶ Wear protective clothing when risk of exposure occurs.▶ Use in a well-ventilated area.▶ Prevent concentration in hollows and sumps.▶ DO NOT enter confined spaces until atmosphere has been checked.▶ DO NOT allow material to contact humans, exposed food or food utensils.▶ Avoid contact with incompatible materials.▶ When handling, DO NOT eat, drink or smoke.▶ Keep containers securely sealed when not in use.▶ Avoid physical damage to containers.▶ Always wash hands with soap and water after handling.▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.▶ Use good occupational work practice.▶ Observe manufacturer's storage and handling recommendations contained within this SDS.▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	<ul style="list-style-type: none">▶ Store in original containers.▶ Keep containers securely sealed.▶ Store in a cool, dry, well-ventilated area.▶ Store away from incompatible materials and foodstuff containers.

Continued...

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- ▶ Protect containers against physical damage and check regularly for leaks.
- ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ DO NOT use aluminium or galvanised containers ▶ Lined metal can, lined metal pail/ can. ▶ Plastic pail. ▶ Polyliner drum. ▶ Packing as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks. <p>For low viscosity materials</p> <ul style="list-style-type: none"> ▶ Drums and jerricans must be of the non-removable head type. ▶ Where a can is to be used as an inner package, the can must have a screwed enclosure. <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> ▶ Removable head packaging; ▶ Cans with friction closures and ▶ low pressure tubes and cartridges <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.</p> <p>-</p> <p>In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.</p> <p>-</p> <p>* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.</p>
Storage incompatibility	<p>Nitric acid:</p> <ul style="list-style-type: none"> ▶ is a strong acid and oxidiser ▶ reacts with water or steam to form toxic and corrosive nitrous fumes ▶ reacts violently with water when added as the concentrated acid with generation of heat (always add acid to water to dilute) ▶ reacts violently with reducing agents, bases, combustible materials, finely dispersed or powdered metals and metal alloys, acetic anhydride, acetone, acetylene, acrolein, acrylonitrile, alcohols, aliphatic amines, allyl chloride, ammonia, aniline, anionic exchange resins, 1,4-benzoquinone diimine, 1,2-bis(trimethylsilyl)hydrazine, bromine pentafluoride, cresol, crotonaldehyde, cumene, cyanides, diethyl ether, 1,2-dimethyl-2-trimethylsilylhydrazine, diphenyltin, divinyl ether, N-ethylaniline, ethyl phosphine, 2-ethynylfuran, fluorine, halides of phosphorus or sulfur, hydrazine, hydrogen peroxide, germanium, hydrogen iodide, lithium triethylsilyl amide, metal acetylides, 2-methylthiophene, pentanethiol, phosphorus and phosphorus vapours, polyurethane foam, potassium permanganate, resorcinol, rubber (containing lead), sulfides, sulfur, sulfur dioxide, stibine, thiophene, triethylgallium, polydibromosilane, vinyl ether, zinc ethoxide, zinc phosphide, organic solvents and many other substances and materials ▶ is incompatible with many substances including acrylates, aldehydes, alkanolamines, alkylene oxides, aromatic amines, amides, cresols, cyclic ketones, epichlorohydrin, glycols, hydrocarbons, isocyanates, ketones, oleum, organic anhydrides, paraldehyde, phenols, silanes, strong oxidisers, substituted allyls, sulfuric acid, terpenes, vinyl acetate, vinylidene chloride ▶ forms heat, impact, friction or shock explosive substances with acetic acid, acetoxyethylene glycol, ammonium nitrate, anilinium nitrate, 1,2-dichloroethane, dichloroethylene, dichloromethane, diethylaminoethanol, 3,6-dihydro-1,2,2H-oxazine, dimethyl ether, dinitrobenzenes, disodium phenyl orthophosphate, 2-hexanal, metal salicylates, 3-methylcyclohexanone, nitroaromatics, nitrobenzenes, nitromethane, beta-propyl acrolein, salicylic acid ▶ increases the explosive sensitivity of nitromethane ▶ may decompose when heated with the formation of nitrogen dioxide (which also produces discolouration - colourless 100% acid cannot be stored in the presence of light with formation of nitrogen dioxide (which cause discolouration) ▶ attacks most metals and some plastics, rubber and coatings ▶ 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 Z1	mercury (elemental)	Mercury (vapor)	Hg Vapor: 0.05 mg/m3	Not Available	0.1 mg/m3	See Table Z-2;(as Hg)
US OSHA Permissible Exposure Levels (PELs) - Table Z2	mercury (elemental)	Mercury	Not Available	Not Available	Other:0.1 mg/m3	(Z37.8-1971)
US NIOSH Recommended Exposure Limits (RELs)	mercury (elemental)	Mercury metal: Colloidal mercury, Metallic mercury, Quicksilver	Not Available	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) - Table Z1	nitric acid	Nitric acid	5 mg/m3 / 2 ppm	10 mg/m3 / 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	4 ppm	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	nitric acid	Nitric acid	2 ppm	Not Available	Not Available	Not Available






EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
mercury (elemental)	Mercury vapor	0.15 mg/m3	Not Available	Not Available
nitric acid	Nitric acid	Not Available	Not Available	Not Available

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Ingredient	Original IDLH	Revised IDLH
mercury (elemental)	10 mg/m ³ / 28 mg/m ³	2 mg/m ³ / 10 mg/m ³
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.										
	<table><tr><td>Type of Contaminant:</td><td>Air Speed:</td></tr><tr><td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td><td>0.25-0.5 m/s (50-100 f/min.)</td></tr><tr><td>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)</td><td>0.5-1 m/s (100-200 f/min.)</td></tr><tr><td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td><td>1-2.5 m/s (200-500 f/min.)</td></tr><tr><td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td><td>2.5-10 m/s (500-2000 f/min.)</td></tr></table>	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.)	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.)	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.)
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Within each range the appropriate value depends on:											
<table><tr><td>Lower end of the range</td><td>Upper end of the range</td></tr><tr><td>1: Room air currents minimal or favourable to capture</td><td>1: Disturbing room air currents</td></tr><tr><td>2: Contaminants of low toxicity or of nuisance value only.</td><td>2: Contaminants of high toxicity</td></tr><tr><td>3: Intermittent, low production.</td><td>3: High production, heavy use</td></tr><tr><td>4: Large hood or large air mass in motion</td><td>4: Small hood-local control only</td></tr></table>	Lower end of the range	Upper end of the range	1: Room air currents minimal or favourable to capture	1: Disturbing room air currents	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	3: Intermittent, low production.	3: High production, heavy use	4: Large hood or large air mass in motion	4: Small hood-local control only	
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4: Large hood or large air mass in motion	4: Small hood-local control only										
Personal protection	<div></div>										
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.▶ Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.▶ Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.▶ Alternatively a gas mask may replace splash goggles and face shields.▶ 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	<ul style="list-style-type: none">▶ When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.▶ Elbow length PVC gloves										
Body protection	See Other protection below										
Other protection	<ul style="list-style-type: none">▶ Overalls.▶ Eyewash unit.▶ Barrier cream.▶ Skin cleansing cream.										
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

10M33-1 Mercury (10,000µg/mL in 10% HNO₃)

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	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
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	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce severely toxic effects; these may be fatal.</p> <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.</p> <p>Inhalation of nitric acid mist or fumes may produce respiratory symptoms. Depending on the concentration and duration of exposure, cough, gagging, chest pain, low body oxygen, lung irritation and damage may occur. Deaths have occurred and may be delayed for several days.</p>
Ingestion	<p>Severely toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 5 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p> <p>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.</p> <p>Exposure to nitric acid causes burning pain, severe corrosion and scarring of the digestive tract with adhesions, narrowing and obstruction and even anaemia. There may be vomiting, aspiration, lung inflammation and shock. Death may be delayed 12 hours to 14 days or several months from these complications. Survivors may have strictures of the stomach lining and subsequent pernicious anaemia.</p>
Skin Contact	<p>Skin contact with the material may produce severely toxic effects; systemic effects may result following absorption and these may be fatal.</p> <p>The material can produce chemical burns following direct contact with the skin.</p> <p>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.</p> <p>Skin contact with nitric acid may cause corrosion, skin thickening, yellow discolouration of the skin, blisters and scars depending on the concentration exposed.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>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.</p>
Eye	<p>The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.</p> <p>If applied to the eyes, this material causes severe eye damage.</p> <p>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.</p> <p>Eye contact with both diluted and concentrated nitric acid may result in burns causing pain, adhesions, corneal damage, blindness or permanent eye damage. Pain may be absent after contact with concentrated nitric acid.</p>
Chronic	<p>Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure.</p> <p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.</p> <p>Harmful: danger of serious damage to health by prolonged exposure through inhalation.</p> <p>This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.</p>

10M33-1 Mercury (10,000µg/mL in 10% HNO₃)

	<p>Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. 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. Prolonged or repeated overexposure to low concentrations of nitric acid vapour may cause chronic airway inflammation, corrosion of teeth and chemical lung inflammation.</p>	
10M33-1 Mercury (10,000µg/mL in 10% HNO ₃)	TOXICITY	IRRITATION
	Not Available	Not Available
mercury (elemental)	TOXICITY	IRRITATION
	Oral (rat) LD50: >9.2 mg/kg ^[1]	Not Available
nitric acid	TOXICITY	IRRITATION
	Inhalation (rat) LC50: 625 ppm/1h ^[2]	Not Available
water	TOXICITY	IRRITATION
	Not Available	Not Available
<p>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</p>		

MERCURY (ELEMENTAL)	Animal studies have shown that mercury may be a reproductive effector.		
NITRIC ACID	For acid mists, aerosols, vapours		
	Test results suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5.		
	The material may produce severe irritation to the eye causing pronounced inflammation.		
	The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.		
	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. Oral (?) LD50: 50-500 mg/kg * [Various Manufacturers]		
WATER	No significant acute toxicological data identified in literature search.		
MERCURY (ELEMENTAL) & NITRIC ACID	Asthma-like symptoms may continue for months or even years after exposure to the material ends.		
Acute Toxicity		Carcinogenicity	
Skin Irritation/Corrosion		Reproductivity	
Serious Eye Damage/Irritation		STOT - Single Exposure	
Respiratory or Skin sensitisation		STOT - Repeated Exposure	
Mutagenicity		Aspiration Hazard	
<div>Legend:  – Data available but does not fill the criteria for classification  – Data available to make classification  – Data Not Available to make classification</div>			

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

10M33-1 Mercury (10,000µg/mL in 10% HNO ₃)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
mercury (elemental)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.004mg/L	4
	EC50	48	Crustacea	0.0035mg/L	5
	EC50	72	Algae or other aquatic plants	0.0025mg/L	4
	BCF	720	Fish	0.001mg/L	4
	EC50	240	Fish	0.0003mg/L	5
	NOEC	2688	Crustacea	0.00025mg/L	2
nitric acid	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	NOEC	16	Crustacea	107mg/L	4

10M33-1 Mercury (10,000µg/mL in 10% HNO₃)

water	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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

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. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

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

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	<ul style="list-style-type: none"> Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible.
	<p>Otherwise:</p> <ul style="list-style-type: none"> 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. Where possible retain label warnings and SDS and observe all notices pertaining to the product. Recycle wherever possible. 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. 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). 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. (contains nitric acid)
Transport hazard class(es)	Class 8
	Subrisk Not Applicable
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Hazard Label 8
	Special provisions 386, B2, IB2, T11, TP2, TP27

10M33-1 Mercury (10,000µg/mL in 10% HNO3)

Air transport (ICAO-IATA / DGR)

UN number	3264		
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (contains nitric acid)		
Transport hazard class(es)			
	ICAO/IATA Class	8	
	ICAO / IATA Subrisk	Not Applicable	
	ERG Code	8L	
Packing group	II		
Environmental hazard	Not Applicable		
Special precautions for user	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	3264		
UN proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. * (contains nitric acid)		
Transport hazard class(es)	IMDG Class	8	
	IMDG Subrisk	Not Applicable	
Packing group	II		
Environmental hazard	Not Applicable		
Special precautions for user	EMS Number	F-A, S-B	
	Special provisions	274	
	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

MERCURY (ELEMENTAL)(7439-97-6) 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 - 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 - 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 NIOSH Recommended Exposure Limits (RELs)
 US OSHA Permissible Exposure Levels (PELs) - Table Z1
 US OSHA Permissible Exposure Levels (PELs) - Table Z2
 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 Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants
 US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

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

10M33-1 Mercury (10,000µg/mL in 10% HNO3)

International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
US - Alaska Limits for Air Contaminants
US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
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 - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - Oregon Permissible Exposure Limits (Z-1)
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 ACGIH Threshold Limit Values (TLV)
US CWA (Clean Water Act) - List of Hazardous Substances
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US SARA Section 302 Extremely Hazardous Substances
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

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
Mercury	1	0.454
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

Mercury and mercury compounds Listed

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (water; mercury (elemental); nitric acid)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (water; mercury (elemental); nitric acid)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory 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 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

Continued...

10M33-1 Mercury (10,000µg/mL in 10% HNO₃)

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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