

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

## 1 Identification

- **Product identifier**
- **Trade name:** Mercuric Nitrate  
0.10 Molar Aqueous Solution
- **Article number:** DC382
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Aqua Solutions, Inc.  
6913 Highway 225  
DEER PARK, TX 77536  
USA  
800-256-2586
- **Information department:**  
Technical Coordinator  
Sherman Nelson [shermann@aquasolutions.org](mailto:shermann@aquasolutions.org)
- **Emergency telephone number:**  
Chemtrec: 800-424-9300  
Canutec: 613-996-6666



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Toxicity - Oral 3

H301 Toxic if swallowed.

Acute Toxicity - Dermal 2

H310 Fatal in contact with skin.

Acute Toxicity - Inhalation 2

H330 Fatal if inhaled.



GHS08 Health hazard

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS06



GHS07



GHS08

- **Signal word** *Danger*

(Contd. on page 2)

US

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Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 1)

· **Hazard-determining components of labeling:**

*Mercuric Nitrate*

*Nitric Acid*

· **Hazard statements**

*Toxic if swallowed.*

*Fatal in contact with skin or if inhaled.*

*Causes skin irritation.*

*Causes serious eye irritation.*

*May cause damage to organs through prolonged or repeated exposure.*

· **Precautionary statements**

*Do not breathe dust/fume/gas/mist/vapors/spray.*

*Do not get in eyes, on skin, or on clothing.*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*[In case of inadequate ventilation] wear respiratory protection.*

*If swallowed: Immediately call a poison center/doctor.*

*Rinse mouth.*

*If on skin: Wash with plenty of water.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*Get medical advice/attention if you feel unwell.*

*Specific treatment is urgent (see on this label).*

*Take off immediately all contaminated clothing and wash it before reuse.*

*If skin irritation occurs: Get medical advice/attention.*

*If eye irritation persists: Get medical advice/attention.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store locked up.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



*Health = 2*

*Fire = 0*

*Reactivity = 0*

· **HMIS-ratings (scale 0 - 4)**



*Health = 2*

*Fire = 0*

*Reactivity = 0*

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

US

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 2)

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 7783-34-8	Mercuric Nitrate	3.322%
CAS: 7697-37-2	Nitric Acid	1.457%

- **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	95.221%
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### 4 First-aid measures

- **Description of first aid measures**
- **General information:**
  - Immediately remove any clothing soiled by the product.
  - Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - Remove breathing apparatus only after contaminated clothing have been completely removed.
  - In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
  - Supply fresh air or oxygen; call for doctor.
  - In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
  - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
  - **Most important symptoms and effects, both acute and delayed** No further relevant information available.
  - **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
  - During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
- **Environmental precautions:**
  - Dilute with plenty of water.
  - Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to section 13.

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 3)

Ensure adequate ventilation.

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**

CAS: 7783-34-8	Mercuric Nitrate	0.13 mg/m <sup>3</sup>
CAS: 7697-37-2	Nitric Acid	0.16 ppm

· **PAC-2:**

CAS: 7783-34-8	Mercuric Nitrate	0.17 mg/m <sup>3</sup>
CAS: 7697-37-2	Nitric Acid	24 ppm

· **PAC-3:**

CAS: 7783-34-8	Mercuric Nitrate	48 mg/m <sup>3</sup>
CAS: 7697-37-2	Nitric Acid	92 ppm

## 7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· **Information about protection against explosions and fires:** Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** No special requirements.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:** Keep receptacle tightly sealed.

· **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

<b>CAS: 7783-34-8 Mercuric Nitrate</b>	
PEL	Long-term value: 0.1 mg/m <sup>3</sup> as Hg; see OSHA standard interpretation memo
REL	Long-term value: 0.05* mg/m <sup>3</sup> Ceiling limit value: 0.1 mg/m <sup>3</sup> as Hg; *Vapor; Skin
TLV	Long-term value: 0.025 mg/m <sup>3</sup> as Hg; A4; Skin; BEI

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 4)

**CAS: 7697-37-2 Nitric Acid**

PEL	Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
REL	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
TLV	Short-term value: (4) NIC-0.025 ppm Long-term value: (2) ppm NIC-A4

· **Ingredients with biological limit values:**

**CAS: 7783-34-8 Mercuric Nitrate**

BEI	20 µg/g creatinine
	LD50 Intraperitoneal: urine
	Time: prior to shift
	LD50: Mercury

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 5)

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** Liquid

**Color:** Clear

· **Odor:** Odorless

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

**Melting point/Melting range:** 0 °C (32 °F)

**Boiling point/Boiling range:** 100 °C (212 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not applicable.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

· **Density at 20 °C (68 °F):** 1.03149 g/cm<sup>3</sup> (8.60778 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

**Water:** Fully miscible.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

**Dynamic:** Not determined.

**Kinematic:** Not determined.

· **Solvent content:**

**Water:** 95.2 %

**VOC content:** 0.00 %

    0.0 g/l / 0.00 lb/gal

**Solids content:** 3.3 %

· **Other information** No further relevant information available.

US

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 6)

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

**ATE (Acute Toxicity Estimate)**

Oral	LD50	150 mg/kg
Dermal	LD50	150 mg/kg
Inhalative	LC50/4h	1.49 mg/l

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Toxic  
 Irritant  
 Very toxic

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

CAS: 7783-34-8 Mercuric Nitrate

3

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
 Water hazard class 3 (Self-assessment): extremely hazardous for water

(Contd. on page 8)

# Safety Data Sheet

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Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 7)

*Do not allow product to reach ground water, water course or sewage system, even in small quantities.*

*Danger to drinking water if even extremely small quantities leak into the ground.*

**· Results of PBT and vPvB assessment**

**· PBT:** Not applicable.

**· vPvB:** Not applicable.

**· Other adverse effects** No further relevant information available.

## 13 Disposal considerations

**· Waste treatment methods**

**· Recommendation:**

*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*

**· Uncleaned packagings:**

**· Recommendation:** Disposal must be made according to official regulations.

**· Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**· UN-Number**

**· DOT, IMDG, IATA**

UN3287

**· UN proper shipping name**

**· DOT**

**· IMDG**

**· IATA**

Toxic liquid, inorganic, n.o.s. (Mercuric Nitrate)

TOXIC LIQUID, INORGANIC, N.O.S. (Mercuric Nitrate),  
MARINE POLLUTANT

TOXIC LIQUID, INORGANIC, N.O.S. (Mercuric Nitrate)

**· Transport hazard class(es)**

**· DOT**



**· Class**

6.1 Toxic substances

**· Label**

6.1

**· IMDG**



**· Class**

6.1 Toxic substances

**· Label**

6.1

**· IATA**



**· Class**

6.1 Toxic substances

(Contd. on page 9)



# Safety Data Sheet

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**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 8)

· <b>Label</b>	6.1
· <b>Packing group</b> · <b>DOT, IMDG, IATA</b>	III
· <b>Environmental hazards:</b> · <b>Marine pollutant:</b>	Product contains environmentally hazardous substances: Mercuric Nitrate Yes Symbol (fish and tree)
· <b>Special precautions for user</b> · <b>Hazard identification number (Kemler code):</b> · <b>EMS Number:</b> · <b>Segregation groups</b> · <b>Stowage Category</b> · <b>Stowage Code</b>	Warning: Toxic substances 80 F-A,S-A (SGG7) Heavy metals and their salts (including their organometallic compounds) A SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b> · <b>DOT</b> · <b>Quantity limitations</b>	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· <b>IMDG</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3287 TOXIC LIQUID, INORGANIC, N.O.S. (MERCURIC NITRATE), 6.1, III

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
 No further relevant information available.

· **Sara**

· <b>Section 355 (extremely hazardous substances):</b>	
CAS: 7697-37-2	Nitric Acid
· <b>Section 313 (Specific toxic chemical listings):</b>	
CAS: 7783-34-8	Mercuric Nitrate
CAS: 7697-37-2	Nitric Acid
· <b>TSCA (Toxic Substances Control Act):</b>	
Water	ACTIVE
Nitric Acid	ACTIVE
· <b>Hazardous Air Pollutants</b>	
CAS: 7783-34-8	Mercuric Nitrate

(Contd. on page 10)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 9)

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

CAS: 7783-34-8 | Mercuric Nitrate

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 7783-34-8 | Mercuric Nitrate

D

· **TLV (Threshold Limit Value)**

CAS: 7783-34-8 | Mercuric Nitrate

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS06

GHS07

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

Mercuric Nitrate

Nitric Acid

· **Hazard statements**

Toxic if swallowed.

Fatal in contact with skin or if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

[In case of inadequate ventilation] wear respiratory protection.

If swallowed: Immediately call a poison center/doctor.

Rinse mouth.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

(Contd. on page 11)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/19/2024

Reviewed on 07/19/2024

**Trade name: Mercuric Nitrate**  
**0.10 Molar Aqueous Solution**

(Contd. of page 10)

Get medical advice/attention if you feel unwell.  
 Specific treatment is urgent (see on this label).  
 Take off immediately all contaminated clothing and wash it before reuse.  
 If skin irritation occurs: Get medical advice/attention.  
 If eye irritation persists: Get medical advice/attention.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## \* 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.
- **Contact:**  
 Date of Preparation / Last Revision:
- **Date of preparation / last revision**  
 Revision 1.2 07/19/2024: Reviewed SDS for accuracy. MH/STN  
 Creation date for SDS 09-02-2014. STN  
 07/19/2024 / -
- **Abbreviations and acronyms:**  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 VOC: Volatile Organic Compounds (USA, EU)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 BEI: Biological Exposure Limit  
 Acute Toxicity - Oral 3: Acute toxicity – Category 3  
 Acute Toxicity - Dermal 2: Acute toxicity – Category 2  
 Skin Irritation 2: Skin corrosion/irritation – Category 2  
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A  
 Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2
- **\* Data compared to the previous version altered.**

US