

# Safety Data Sheet

acc. to OSHA HCS

Printing date 12/27/2017

Reviewed on 12/27/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Mercuric Nitrate 2.256N Solution, NIST Traceable
- **Article number:** REF002
- **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 sherman@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 Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 2 H330 Fatal if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

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

- **Hazard pictograms**



GHS05



GHS06



GHS08

- **Signal word** Danger

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

Mercuric Nitrate

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Nitric Acid

- **Hazard statements**

Toxic if swallowed or in contact with skin.

Fatal if inhaled.

Causes severe skin burns and eye damage.

May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**

Do not breathe dusts or mists.

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.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

Call a poison center/doctor if you feel unwell.

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.

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 = 3

Fire = 0

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

## 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	28.655%
CAS: 7697-37-2	Nitric Acid	11.144%

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### · Table of Nonhazardous Ingredients

CAS: 7732-18-5	Water	60.202%
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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. Then consult a doctor.

#### · After swallowing:

Do not induce vomiting; immediately call for medical help.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

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

### · Advice for firefighters

· **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

### · Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

### · 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).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

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.

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### · 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.
- **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 item 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; Skin; BEI
<b>CAS: 7697-37-2 Nitric Acid</b>	
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: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5.2 mg/m <sup>3</sup> , 2 ppm

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**· Ingredients with biological limit values:**

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

BEI	35 µg/L LD50 Intraperitoneal: urine Time: prior to shift LD50: Total inorganic mercury (background)
	15 µg/L LD50 Intraperitoneal: blood Time: end of shift at end of workweek LD50: Total inorganic mercury (background)

**· 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.
- 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

**· Body protection:** Protective work clothing

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## 9 Physical and chemical properties

· <i>Information on basic physical and chemical properties</i>	
· <i>General Information</i>	
· <i>Appearance:</i>	
· <i>Form:</i>	Liquid
· <i>Color:</i>	Clear
· <i>Odor:</i>	Odorless
· <i>Odor threshold:</i>	Not determined.
· <i>pH-value at 20 °C (68 °F):</i>	<2
· <i>Change in condition</i>	
· <i>Melting point/Melting range:</i>	Undetermined.
· <i>Boiling point/Boiling range:</i>	83 °C (181.4 °F)
· <i>Flash point:</i>	Not applicable.
· <i>Flammability (solid, gaseous):</i>	Not applicable.
· <i>Ignition temperature:</i>	
· <i>Decomposition temperature:</i>	Not determined.
· <i>Auto igniting:</i>	Product is not selfigniting.
· <i>Danger of explosion:</i>	Product does not present an explosion hazard.
· <i>Explosion limits:</i>	
· <i>Lower:</i>	Not determined.
· <i>Upper:</i>	Not determined.
· <i>Vapor pressure at 20 °C (68 °F):</i>	23 hPa (17.3 mm Hg)
· <i>Density at 20 °C (68 °F):</i>	1.34874 g/cm <sup>3</sup> (11.25524 lbs/gal)
· <i>Relative density</i>	Not determined.
· <i>Vapor density</i>	Not determined.
· <i>Evaporation rate</i>	Not determined.
· <i>Solubility in / Miscibility with</i>	
· <i>Water:</i>	Fully miscible.
· <i>Partition coefficient (n-octanol/water):</i> Not determined.	
· <i>Viscosity:</i>	
· <i>Dynamic:</i>	Not determined.
· <i>Kinematic:</i>	Not determined.
· <i>Solvent content:</i>	
· <i>Water:</i>	60.2 %
· <i>VOC content:</i>	0.00 %
	0.0 g/l / 0.00 lb/gl
· <i>Solids content:</i>	28.7 %
· <i>Other information</i>	
	No further relevant information available.

## 10 Stability and reactivity

· *Reactivity* No further relevant information available.

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- **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	90.7 mg/kg (rat)
Dermal	LD50	262 mg/kg (rat)
Inhalative	LC50/4 h	1.74 mg/l

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

Oral	LD50	5 mg/kg (ATE)
Dermal	LD50	5 mg/kg (ATE)
Inhalative	LC50/4 h	0.5 mg/l (ATE)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:**  
 Strong caustic effect.  
 Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
 The product shows the following dangers according to internally approved calculation methods for preparations:  
 Toxic  
 Corrosive  
 Irritant  
 Very toxic  
 Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

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

CAS: 7783-34-8	Mercuric Nitrate	3
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- **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.

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- **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  
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.  
 Danger to drinking water if even extremely small quantities leak into the ground.  
 Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.*
- **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

- |   |   |
|---|---|
| <b>UN-Number</b>  | UN3289  |
| <b>DOT, IMDG, IATA</b>  |   |
| <b>UN proper shipping name</b>  | <i>Toxic liquid, corrosive, inorganic, n.o.s. (Nitric acid, Mercuric nitrate)</i>                   |
| <b>DOT</b>  |   |
| <b>IMDG</b>   | <i>TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE), MARINE POLLUTANT</i> |
| <b>IATA</b>   | <i>TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE)</i>                   |
| <b>Transport hazard class(es)</b>   |   |
| <b>DOT</b>  |   |
|  |   |
| <b>Class</b>  | 6.1 Toxic substances  |

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· **Label** 6.1, 8

· **IMDG**



· **Class** 6.1 Toxic substances

· **Label** 6.1/8

· **IATA**



· **Class** 6.1 Toxic substances

· **Label** 6.1 (8)

· **Packing group**

· **DOT, IMDG, IATA** II

· **Environmental hazards:** Product contains environmentally hazardous substances: Mercuric Nitrate

· **Marine pollutant:** Yes  
Symbol (fish and tree)

· **Special precautions for user** Warning: Toxic substances

· **Danger code (Kemler):** 86

· **EMS Number:** F-A,S-B

· **Segregation groups** Acids, heavy metals and their salts (including their organometallic compounds)

· **Stowage Category** B

· **Stowage Code** SW2 Clear of living quarters.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 1 L  
On cargo aircraft only: 30 L

· **IMDG**

· **Limited quantities (LQ)** 100 ml

· **Excepted quantities (EQ)** Code: E4

Maximum net quantity per inner packaging: 1 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 3289 TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S. (NITRIC ACID, MERCURIC NITRATE), 6.1 (8), II

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## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

CAS: 7697-37-2	Nitric Acid
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· **Section 313 (Specific toxic chemical listings):**

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

CAS: 7697-37-2	Nitric Acid
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· **TSCA (Toxic Substances Control Act):**

Nitric Acid
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Water
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· **TSCA new (21st Century Act) (Substances not listed)**

CAS: 7783-34-8	Mercuric Nitrate
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· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.
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· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.
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· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.
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· **Chemicals known to cause developmental toxicity:**

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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 7783-34-8	Mercuric Nitrate	D
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· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 7783-34-8	Mercuric Nitrate	A4
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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.
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- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05    GHS06    GHS08

· **Signal word** *Danger*

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

Mercuric Nitrate

Nitric Acid

· **Hazard statements**

Toxic if swallowed or in contact with skin.

Fatal if inhaled.

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*Causes severe skin burns and eye damage.*

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

**· Precautionary statements**

*Do not breathe dusts or mists.*

*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.*

*If swallowed: Rinse mouth. Do NOT induce vomiting.*

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*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.*

*Call a poison center/doctor if you feel unwell.*

*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.*

*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**

*12-27-2017: review SDS for accuracy. STN*

*Creation date for SDS 02-04-2015. STN*

*12/27/2017 / -*

**· Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*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*

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*Acute Tox. 3: Acute toxicity – Category 3*  
*Acute Tox. 2: Acute toxicity – Category 2*  
*Skin Corr. 1A: Skin corrosion/irritation – Category 1A*  
*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*  
*STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2*

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