

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/04/2023

Reviewed on 04/04/2023

1 Identification

- **Product identifier**
- **Trade name:** Mixed Metal Std.
1.0 ppm Ea. Component
- **Article number:** EQS510
- **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
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Sensitization - Respiratory 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 Carcinogenicity 1A H350 May cause cancer.
 Toxic to Reproduction 1A H360 May damage fertility or the unborn child.



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**



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Nickel Nitrate, Reagent Grade, Crystal
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause cancer.

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May damage fertility or the unborn child.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

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

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

If inhaled: If breathing is difficult, 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.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

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.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 7697-37-2	Nitric Acid	1.29%
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	0.1%

· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	94.268%
CAS: 13446-18-9	Magnesium Nitrate	1.055%
CAS: 7789-02-8	Chromium Nitrate Nonahydrate	0.77%
CAS: 7782-61-8	Ferric Nitrate	0.723%

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CAS: 13477-34-4	Calcium Nitrate Tetrahydrate	0.589%
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	0.455%
CAS: 19004-19-4	Cupric Nitrate Hydrate	0.38%
CAS: 7631-99-4	Sodium Nitrate	0.37%

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** 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:** If symptoms persist consult 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:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
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 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.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

CAS: 7697-37-2	Nitric Acid	0.16 ppm
CAS: 13446-18-9	Magnesium Nitrate	16 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	22 mg/m ³

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CAS: 13477-34-4	Calcium Nitrate Tetrahydrate	12 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	27 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	42 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	1.5 mg/m ³

· PAC-2:

CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 13446-18-9	Magnesium Nitrate	180 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	110 mg/m ³
CAS: 13477-34-4	Calcium Nitrate Tetrahydrate	130 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	300 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	150 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	45 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	53 mg/m ³

· PAC-3:

CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 13446-18-9	Magnesium Nitrate	1,100 mg/m ³
CAS: 7782-61-8	Ferric Nitrate	640 mg/m ³
CAS: 13477-34-4	Calcium Nitrate Tetrahydrate	770 mg/m ³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	1,800 mg/m ³
CAS: 19004-19-4	Cupric Nitrate Hydrate	240 mg/m ³
CAS: 7631-99-4	Sodium Nitrate	270 mg/m ³
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	320 mg/m ³

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 item 7.

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- **Control parameters**

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

CAS: 7697-37-2 Nitric Acid

PEL	Long-term value: 5 mg/m ³ , 2 ppm
REL	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5 mg/m ³ , 2 ppm
TLV	Short-term value: (4) NIC-0.025* ppm Long-term value: (2) ppm *inh. fraction + vapor

- **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

- **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>	
Form:	Liquid
Color:	Clear
· <i>Odor:</i>	Odorless
· <i>Odor threshold:</i>	Not determined.
· <i>pH-value:</i>	Not determined.
· <i>Change in condition</i>	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
· <i>Flash point:</i>	Not applicable.
· <i>Flammability (solid, gaseous):</i>	Not applicable.
· <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>	
Lower:	Not determined.
Upper:	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>	1.04646 g/cm ³ (8.73271 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>	
Water:	Fully miscible.
· <i>Partition coefficient (n-octanol/water):</i> Not determined.	
· <i>Viscosity:</i>	
Dynamic:	Not determined.
Kinematic:	Not determined.
· <i>Solvent content:</i>	
Water:	94.3 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	4.4 %
· <i>Other information</i>	No further relevant information available.

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.

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- **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)

Inhalative	LC50/4h	233 mg/l
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- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through inhalation.
- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
 Harmful
 Irritant

- **Carcinogenic categories**

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

CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	I
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- **NTP (National Toxicology Program)**

CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	K
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- **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 1 (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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

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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, ADN, IMDG, IATA | Not regulated |
| · UN proper shipping name | |
| · DOT, ADN, IMDG, IATA | Not regulated |
| · Transport hazard class(es) | |
| · DOT, ADN, IMDG, IATA | |
| · Class | Not regulated |
| · Packing group | |
| · DOT, IMDG, IATA | Not regulated |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Segregation groups | (SGG1) Acids |
| · 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: 5 L
On cargo aircraft only: 60 L |
| · IMDG | |
| · Limited quantities (LQ) | 5L |
| · Excepted quantities (EQ) | Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml |
| · UN "Model Regulation": | Not regulated |

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: 7697-37-2	Nitric Acid
CAS: 13446-18-9	Magnesium Nitrate
CAS: 7789-02-8	Chromium Nitrate Nonahydrate
CAS: 7782-61-8	Ferric Nitrate
CAS: 13477-34-4	Calcium Nitrate Tetrahydrate
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal

· **TSCA (Toxic Substances Control Act):**

Water	ACTIVE
Nitric Acid	ACTIVE
Sodium Nitrate	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal

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

None of the ingredients is listed.

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

CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal

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

CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

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

CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal

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

· **Hazard pictograms**



GHS08

· **Signal word** Danger

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

Nickel Nitrate, Reagent Grade, Crystal

· **Hazard statements**

Causes skin irritation.

Causes serious eye irritation.

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Trade name: Mixed Metal Std.
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May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause cancer.

May damage fertility or the unborn child.

• Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

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

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

If inhaled: If breathing is difficult, 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.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Store locked up.

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

• National regulations:

• Additional classification according to Decree on Hazardous Materials:

Carcinogenic hazardous material group III (dangerous).

• Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

• 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

Revision 1.0 03/31/2023 Reviewed SDS for accuracy. STN

04/04/2023

• 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

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*OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Skin Irritation 2: Skin corrosion/irritation – Category 2**Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A**Sensitization - Respiratory 1: Respiratory sensitisation – Category 1**Carcinogenicity 1A: Carcinogenicity – Category 1A**Toxic to Reproduction 1A: Reproductive toxicity – Category 1A**· * Data compared to the previous version altered.*

US