Printing date 08/19/2024 Reviewed on 08/19/2024

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.

(Contd. on page 2)

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Trade name: Mixed Metal Std.

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(Contd. of page 1)

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 = 2Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Fire = 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 compo	onents:	
CAS: 7697-37-2	Nitric Acid	1.29%
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	0.1%
· Table of Nonhaza		
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%
	(Cont	d. on page 3)

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	(Co	ontd. of page 2)
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 eve 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:

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.

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/m³
CAS: 7782-61-8	Ferric Nitrate	22 mg/m³
CAS: 13477-34-4	Calcium Nitrate Tetrahydrate	12 mg/m³
	(Co	ontd. on page 4)

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Trade name: Mixed Metal Std.
1.0 ppm Ea. Component

CAS: 10196-18-6 Zinc Nitrate, Reagent Grade	(Contd. of pa
CAS: 19004-19-4 Cupric Nitrate Hydrate	42 mg/s
CAS: 7631-99-4 Sodium Nitrate	4.1 mg/
CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal	1.5 mg/
· PAC-2:	
CAS: 7697-37-2 Nitric Acid	24 ppm
CAS: 13446-18-9 Magnesium Nitrate	180 mg/
CAS: 7782-61-8 Ferric Nitrate	110 mg/
CAS: 13477-34-4 Calcium Nitrate Tetrahydrate	130 mg/
CAS: 10196-18-6 Zinc Nitrate, Reagent Grade	300 mg/
CAS: 19004-19-4 Cupric Nitrate Hydrate	150 mg/
CAS: 7631-99-4 Sodium Nitrate	45 mg/n
CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal	53 mg/n
PAC-3:	
CAS: 7697-37-2 Nitric Acid	92 ppm
CAS: 13446-18-9 Magnesium Nitrate	1,100 mg/
CAS: 7782-61-8 Ferric Nitrate	640 mg/m
CAS: 13477-34-4 Calcium Nitrate Tetrahydrate	770 mg/m
CAS: 10196-18-6 Zinc Nitrate, Reagent Grade	1,800 mg/
CAS: 19004-19-4 Cupric Nitrate Hydrate	240 mg/m
CAS: 7631-99-4 Sodium Nitrate	270 mg/m
CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal	320 mg/m

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.

(Contd. on page 5)

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(Contd. of page 4)

· 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/m³, 2 ppm

REL Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm

TLV Short-term value: (4) NIC-0.025 ppm
Long-term value: (2) ppm
NIC-44

- · 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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(Contd. of page 5)

Physical and chemical properti	les	
Information on basic physical and ch	nemical properties	
General Information		
Appearance:	T 1	
Form:	Liquid	
Color:	Clear	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	Undetermined.	
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):	1.04646 g/cm³ (8.73271 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:	94.3 %	
VOC content:	0.00 %	
	0.0g/l / $0.00lb/gal$	
Solids content:	4.4 %	
Other information	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.

(Contd. on page 7)

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Trade name: Mixed Metal Std.

1.0 ppm Ea. Component

(Contd. of page 6)

- · 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

- · 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 Cance	· IARC	(International	Agency f	for Research	h on Cancei
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CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal

· NTP (National Toxicology Program)

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

K

· 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.

US

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Trade name: Mixed Metal Std.

1.0 ppm Ea. Component

(Contd. of page 7)

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.

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 Segregation groups	Not applicable. (SGG1) Acids
Transport in bulk according to Annex A MARPOL73/78 and the IBC Code	II of 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

(Contd. on page 9)

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Trade name: Mixed Metal Std.

1.0 ppm Ea. Component

(Contd. of page 8)

		(Contd. of page
, -	fic toxic chemical listings):	
CAS: 7697-37-2	Nitric Acid	
CAS: 13446-18-9 N	Magnesium Nitrate	
CAS: 7789-02-8 (Chromium Nitrate Nonahydrate	
CAS: 7782-61-8 I	Ferric Nitrate	
CAS: 13477-34-4 (Calcium Nitrate Tetrahydrate	
CAS: 10196-18-6 2	Zinc Nitrate, Reagent Grade	
CAS: 13478-00-7 1	Nickel Nitrate, Reagent Grade, Crystal	
TSCA (Toxic Subst	tances Control Act):	
Water		ACTIV
Nitric Acid		ACTIV
Sodium Nitrate		ACTIV
· Hazardous Air Poll	lutants	·
None of the ingredi	ents is listed.	
· Proposition 65		
· Chemicals known t	to cause cancer:	
CAS: 13478-00-7 N	Nickel Nitrate, Reagent Grade, Crystal	
	to cause reproductive toxicity for females:	
None of the ingredic	ents is listed.	
· Chemicals known t	to cause reproductive toxicity for males:	
CAS: 13478-00-7 N	Nickel Nitrate, Reagent Grade, Crystal	
· Chemicals known t	to cause developmental toxicity:	
CAS: 13478-00-7 N	Nickel Nitrate, Reagent Grade, Crystal	
· Carcinogenic categ	pories	
· EPA (Environment	tal Protection Agency)	
None of the ingredi	ents is listed.	
· TLV (Threshold Li	mit Value)	
None of the ingredi	ents is listed.	
· NIOSH-Ca (Nation	nal Institute for Occupational Safety and Health)	

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



- · Signal word Danger
- · Hazard-determining components of labeling:

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

Nickel Nitrate, Reagent Grade, Crystal

· Hazard statements

Causes skin irritation.

Causes serious eye irritation.

(Contd. on page 10)

Printing date 08/19/2024 Reviewed on 08/19/2024

Trade name: Mixed Metal Std.

1.0 ppm Ea. Component

(Contd. of page 9)

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:

· Date of preparation / last revision

Revision 1.2, 08-19-2024: Reviewed SDS for accuracy. STN/GW

08/19/2024 / 1.1

· 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

(Contd. on page 11)

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1.0 ppm Ea. Component

(Contd. of page 10)

NIOSH: National Institute for Occupational Safety 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.