Printing date 05/14/2024 Reviewed on 05/14/2024

1 Identification

· Product identifier

· Trade name: Mixed Metal Std.

100 ppm each Component

· Article number: INT009

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



GHS05 Corrosion

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

Eye Damage 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



· Signal word Danger

· Hazard-determining components of labeling:

Nitric Acid

· Hazard statements

Causes severe skin burns and eye damage.

· Precautionary statements

Do not breathe dusts or mists.

Wash thoroughly after handling.

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

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.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

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(Contd. of page 1)

Wash contaminated clothing before reuse.

Store locked up.

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

- · Classification system:
- · NFPA ratings (scale 0 4)



Health = 3Fire = 0Reactivity = 0

· HMIS-ratings (scale 0 - 4)



2 Health = 2Fire = 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	4.58%
· Table of Nonhaz	urdous Ingredients	
CAS: 7732-18-5	Water	95.101%
CAS: 7789-02-8	Chromium Nitrate Nonahydrate	0.076%
CAS: 7782-61-8	Ferric Nitrate	0.071%
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate	0.049%
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	0.045%
CAS: 19004-19-4	Cupric Nitrate Hydrate	0.037%
CAS: 10099-74-8	Lead Nitrate	0.016%
CAS: 7761-88-8	Silver Nitrate	0.016%
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	0.01%

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. Then consult a doctor.
- · After swallowing: 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.

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100 ppm each Component

(Contd. of page 2)

· 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.

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 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

0.16 ppm 22 mg/m³ 0.3 mg/m³ 27 mg/m³ 42 mg/m³
0.3 mg/m ³ 27 mg/m ³ 42 mg/m ³
27 mg/m ³ 42 mg/m ³
42 mg/m³
_
0.24 mg/m^3
0.047 mg/m^3
1.5 mg/m³
-
24 ppm
110 mg/m³
23 mg/m³
300 mg/m³
150 mg/m³
180 mg/m³
0.9 mg/m^3

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Trade name: Mixed Metal Std.

100 ppm each Component

CAS: 13478-00-7 Nickel Nitrate, Reagent Grade, Crystal	(Contd. of page 3) 53 mg/m ³
· PAC-3:	33 mg/m
CAS: 7697-37-2 Nitric Acid	92 ppm
CAS: 7782-61-8 Ferric Nitrate	640 mg/m^3
CAS: 10026-22-9 Cobalt Nitrate Hexahydrate	140 mg/m^3
CAS: 10196-18-6 Zinc Nitrate, Reagent Grade	$1,800 \text{ mg/m}^3$
CAS: 19004-19-4 Cupric Nitrate Hydrate	240 mg/m³
CAS: 10099-74-8 Lead Nitrate	$1,100 \text{ mg/m}^3$
CAS: 7761-88-8 Silver Nitrate	5.4 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.

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

· C	· Components with limit values that require monitoring at the workplace:		
C .	CAS: 7697-37-2 Nitric Acid		
P	EL	Long-term value: 5 mg/m³, 2 ppm	
R	EL	Short-term value: 10 mg/m³, 4 ppm Long-term value: 5 mg/m³, 2 ppm	
Ti	LV	Short-term value: (4) NIC-0.025* ppm Long-term value: (2) ppm *inh. fraction + vapor, NIC-A4	

- · 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.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

(Contd. on page 5)

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100 ppm each Component

(Contd. of page 4)

· 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

9 Physical and chemical properties

· Information on l	basic physical	l and chemica	l properties
· General Informa	ıtion		

· Appearance:

Form: Liquid
Color: Grey
Odor: Odorless
Odor threshold: Not determined.

· pH-value at 20 °C (68 °F):

· 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.

<2

Explosion limits:

Lower: Not determined.

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Trade name: Mixed Metal Std.

100 ppm each Component

		(Contd. of page :
Upper:	Not determined.	
Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)	
Density at 20 °C (68 °F):	1.01725 g/cm³ (8.48895 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/wate	er): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	95.1 %	
VOC content:	0.00 %	
	0.0 g/l / 0.00 lb/gal	
Solids content:	0.3 %	
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.
- · 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 65.5 mg/l

- 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: Corrosive

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Trade name: Mixed Metal Std.

100 ppm each Component

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Irritant

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: 10026-22-9	Cobalt Nitrate Hexahydrate	2B
CAS: 10099-74-8	Lead Nitrate	2A
CAS: 13478-00-7	Nickel Nitrate, Reagent Grade, Crystal	1
· NTP (National Toxicology Program)		
CAS: 10099-74-8	Lead Nitrate	R
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. Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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.

US

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Trade name: Mixed Metal Std.

100 ppm each Component

(Contd. of page 7)

Transport information	
UN-Number DOT, IMDG, IATA	UN3264
UN proper shipping name DOT IMDG, IATA	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitr Acid)
Transport hazard class(es)	
DOT	
CORROSIVE	
Class	8 Corrosive substances
Label	8
IMDG, IATA	
Class Label	8 Corrosive substances 8
Packing group DOT, IMDG, IATA	III
Environmental hazards:	Not applicable.
Special precautions for user Hazard identification number (Kemler code): EMS Number: Segregation groups Stowage Category Stowage Code	Warning: Corrosive substances 80 F-A,S-B (SGG1) Acids A 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: 5 L On cargo aircraft only: 60 L
IMDG Limited quantities (LQ) Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

Reviewed on 05/14/2024 Printing date 05/14/2024

Trade name: Mixed Metal Std.

100 ppm each Component

(Contd. of page 8)

· UN "Model Regulation":

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.

(NITRIC ACID), 8, III

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

· Section 355	(extremely	hazardous	substances):
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CAS: 7697-37-2 Nitric Acid

### Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2 Nitri	c Acid
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CAS: 7789-02-8 Chromium Nitrate Nonahydrate

CAS: 7782-61-8 Ferric Nitrate

CAS: 10026-22-9 Cobalt Nitrate Hexahydrate

CAS: 10196-18-6 Zinc Nitrate, Reagent Grade

CAS: 10099-74-8 Lead Nitrate

CAS: 7761-88-8 Silver Nitrate

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

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

Water	ACTIVE
Nitric Acid	ACTIVE
Lead Nitrate	ACTIVE
Silver Nitrate	ACTIVE

#### · Hazardous Air Pollutants

CAS: 10026-22-9 Cobalt Nitrate Hexahydrate

CAS: 10099-74-8 Lead Nitrate

· Proposition 65

#### · Chemicals known to cause cancer:

CAS: 10099-74-8 Lead Nitrate

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)

CAS: 10099-74-8 Lead Nitrate

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B2

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Trade name: Mixed Metal Std.

100 ppm each Component

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#### · TLV (Threshold Limit Value)

CAS: 10099-74-8 Lead Nitrate

A3

#### · 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



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

Nitric Acid

· Hazard statements

Causes severe skin burns and eye damage.

· Precautionary statements

Do not breathe dusts or mists.

Wash thoroughly after handling.

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

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.

*Immediately call a poison center/doctor.* 

Specific treatment (see on this label).

Wash contaminated clothing before reuse.

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 05-14-2024: Reviewed SDS for accuracy. GW/STN 05/14/2024

· 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)

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Trade name: Mixed Metal Std.

100 ppm each Component

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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

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A Eye Damage 1: Serious eye damage/eye irritation – Category 1 * Data compared to the previous version altered.