Printing date 06/04/2024 Reviewed on 06/04/2024

1 Identification

· Product identifier

· Trade name: 250 mg/L 12 Component

Mixed Metal Working Solution

· Article number: SGS065

· 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



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2 Hazard(s) identification

· Classification of the substance or mixture



GHS07

Acute Toxicity - Oral 4 H302 Harmful if swallowed.

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



011507

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

Aluminum Nitrate

Ammonium hexafluorosilicate

· Hazard statements

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

· Precautionary statements

Wash thoroughly after handling.

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

Wear protective gloves / eye protection / face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

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Trade name: 250 mg/L 12 Component **Mixed Metal Working Solution**

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If on skin: Wash with plenty of water.

Specific treatment (see on this label).

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

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.

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)



2 Health = 2 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 components:	
CAS: 7697-37-2 Nitric Acid	1.25%
CAS: 7784-27-2 Aluminum Nitrate	0.348%
CAS: 16919-19-0 Ammonium hexafluorosilicate	0.159%
Table of Nonhazardous Ingredients	•
CAS: 7732-18-5 Water	97.359%
CAS: 13446-18-9 Magnesium Nitrate	0.264%
CAS: 7782-61-8 Ferric Nitrate	0.181%
CAS: 7722-76-1 Ammonium Phosphate Monobasic	0.093%
CAS: 7631-99-4 Sodium Nitrate	0.09%
CAS: 7757-79-1 Potassium Nitrate	0.065%
CAS: 471-34-1 Calcium Carbonate	0.06%
CAS: 1314-62-1 Vanadium Pentoxide Reagent	0.045%
CAS: 10099-74-8 Lead Nitrate	0.038%
CAS: 7440-02-0 Nickel Metal	0.025%
CAS: 7440-66-6 Zinc Metal	0.025%

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(Contd. of page 2)

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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.

- · 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: 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: No special measures required.

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6 Accidental release measures

- · Personal precautions, protective equipment and emergency procedures Not required.
- Environmental precautions: Dilute with plenty of 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.

· 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: 7784-27-2	Aluminum Nitrate	83 mg/m³
CAS: 13446-18-9	Magnesium Nitrate	16 mg/m³
CAS: 7782-61-8	Ferric Nitrate	22 mg/m³
CAS: 16919-19-0	Ammonium hexafluorosilicate	12 mg/m³
CAS: 7722-76-1	Ammonium Phosphate Monobasic	17 mg/m³
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m ³
CAS: 7757-79-1	Potassium Nitrate	9 mg/m³
CAS: 471-34-1	Calcium Carbonate	45 mg/m ³
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.64 mg/m^3

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CAS: 10099-74-8	Lead Nitrate	0.24 mg/m ³
CAS: 7440-02-0	Nickel Metal	$4.5 mg/m^3$
CAS: 7440-66-6	Zinc Metal	6 mg/m³
PAC-2:		
CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 7784-27-2	Aluminum Nitrate	920 mg/m
CAS: 13446-18-9	Magnesium Nitrate	180 mg/m
CAS: 7782-61-8	Ferric Nitrate	110 mg/m
CAS: 16919-19-0	Ammonium hexafluorosilicate	130 mg/m
CAS: 7722-76-1	Ammonium Phosphate Monobasic	190 mg/m
CAS: 7631-99-4	Sodium Nitrate	45 mg/m³
CAS: 7757-79-1	Potassium Nitrate	100 mg/m
CAS: 471-34-1	Calcium Carbonate	210 mg/m
CAS: 1314-62-1	Vanadium Pentoxide Reagent	7 mg/m³
CAS: 10099-74-8	Lead Nitrate	180 mg/m
CAS: 7440-02-0	Nickel Metal	50 mg/m^3
CAS: 7440-66-6	Zinc Metal	21 mg/m³
PAC-3:		
CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 7784-27-2	Aluminum Nitrate	5,500 mg/m
CAS: 13446-18-9	Magnesium Nitrate	1,100 mg/m
CAS: 7782-61-8	Ferric Nitrate	640 mg/m³
CAS: 16919-19-0	Ammonium hexafluorosilicate	780 mg/m^3
CAS: 7722-76-1	Ammonium Phosphate Monobasic	1,100 mg/m
CAS: 7631-99-4	Sodium Nitrate	270 mg/m^3
CAS: 7757-79-1	Potassium Nitrate	600 mg/m³
CAS: 471-34-1	Calcium Carbonate	1,300 mg/m
CAS: 1314-62-1	Vanadium Pentoxide Reagent	70 mg/m³
CAS: 10099-74-8	Lead Nitrate	1,100 mg/m
CAS: 7440-02-0	Nickel Metal	99 mg/m³
CAS: 7440-66-6	Zinc Metal	120 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling No special precautions are necessary if used correctly.
- · Information about protection against explosions and fires: No special measures required.
- · 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.

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Mixed Metal Working Solution

(Contd. of page 4)

· 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:

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

At this time, the other constituents have 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 *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 and skin.

- · Breathing equipment: Not required.
- · 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

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Trade name: 250 mg/L 12 Component Mixed Metal Working Solution

· Body protection: Protective work clothing

(Contd. of page 5)

I-f	J	
Information on basic physical and c General Information	nemical properties	
Appearance:		
Form:	Liquid	
Color:	Clear olive green	
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:	83 °C (181.4 °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):	1.005 g/cm³ (8.38673 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	e r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
Water:	97.4 %	
VOC content:	0.00 %	
	0.0 g/l / 0.00 lb/gal	
Solids content:	0.0 %	
Other information	No further relevant information available.	

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Trade name: 250 mg/L 12 Component
Mixed Metal Working Solution

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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	· LD/LC50 values that are relevant for classification:		
ATE (Acua	ATE (Acute Toxicity Estimate)		
Oral	LD50	1,039 mg/kg	
Dermal	LD50	189,274 mg/kg	
Inhalative	LC50/4h	136 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: Harmful

Irritant

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)		
CAS: 1314-62-1	Vanadium Pentoxide Reagent	2 <i>B</i>
CAS: 10099-74-8	Lead Nitrate	2A
CAS: 7440-02-0	Nickel Metal	2 <i>B</i>
· NTP (National Toxicology Program)		
CAS: 10099-74-8	Lead Nitrate	R
CAS: 7440-02-0	Nickel Metal	R
· OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingrea	lients 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.

(Contd. on page 8)

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Trade name: 250 mg/L 12 Component **Mixed Metal Working Solution**

(Contd. of page 7)

- · Additional ecological information:
- · General notes: Not hazardous for water.
- · 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.

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•	UIV-	I V WIIIII	e,

· DOT, IMDG, IATA

UN3264

· UN proper shipping name

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric Acid)

· IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric

Acid)

- · Transport hazard class(es)
- $\cdot DOT$



· Class 8 Corrosive substances

· Label

· IMDG, IATA



· Class 8 Corrosive substances

· Label

· Packing group

· DOT, IMDG, IATA III

· Environmental hazards: Not applicable.

Warning: Corrosive substances · Special precautions for user

· Hazard identification number (Kemler code): 80

F-A,S-B· EMS Number:

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Trade name: 250 mg/L 12 Component Mixed Metal Working Solution

	(Contd. of page
Segregation groups	(SGG1) Acids
Stowage Category	A
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: 5 L
	On cargo aircraft only: 60 L
IMDG	
Limited quantities (LQ)	5L
Excepted quantities (\widetilde{EQ})	Code: E1
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 1000 ml
· UN ''Model Regulation'':	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O. (NITRIC ACID), 8, III

15 Regulatory information

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

· Section 355 (extre	emely hazardous substances):	
CAS: 7697-37-2	Nitric Acid	
CAS: 1314-62-1	Vanadium Pentoxide Reagent	
· Section 313 (Spec	ific toxic chemical listings):	
CAS: 7697-37-2	Nitric Acid	
CAS: 7784-27-2	Aluminum Nitrate	
CAS: 13446-18-9	Magnesium Nitrate	
CAS: 7782-61-8	Ferric Nitrate	
CAS: 7757-79-1	Potassium Nitrate	
CAS: 1314-62-1	Vanadium Pentoxide Reagent	
CAS: 10099-74-8	Lead Nitrate	
CAS: 7440-02-0	Nickel Metal	
CAS: 7440-66-6	Zinc Metal	
· TSCA (Toxic Sub	stances Control Act):	
Water		ACTIVE
Nitric Acid		ACTIVE
Ammonium hexafl	Ammonium hexafluorosilicate ACT	
Ammonium Phosphate Monobasic ACT		ACTIVE
Sodium Nitrate	Sodium Nitrate ACTIV	
Potassium Nitrate ACTIV		ACTIVE
Calcium Carbona	te	ACTIVE
		(Contd. on page 10)

US

Printing date 06/04/2024 Reviewed on 06/04/2024

Trade name: 250 mg/L 12 Component Mixed Metal Working Solution

		(Contd. of page 9)	
Vanadium Pentox	Vanadium Pentoxide Reagent		
Lead Nitrate		ACTIVE	
Nickel Metal		ACTIVE	
Zinc Metal		ACTIVE	
· Hazardous Air Po	ollutants		
CAS: 10099-74-8	Lead Nitrate		
· Proposition 65			
· Chemicals known	to cause cancer:		
CAS: 1314-62-1	Vanadium Pentoxide Reagent		
CAS: 10099-74-8	Lead Nitrate		
CAS: 7440-02-0	Nickel Metal		
· Chemicals known	to cause reproductive toxicity for females:		
None of the ingre	lients is listed.		
· Chemicals known	to cause reproductive toxicity for males:		
None of the ingre	None of the ingredients is listed.		
· Chemicals known	to cause developmental toxicity:		
None of the ingre	lients is listed.		

· Carcinogenic categories

cur entrogenite cutegories			
· EPA (Environmental Protection Agency)			
CAS: 10099-74-8	Lead Nitrate	B2	
CAS: 7440-66-6	Zinc Metal	D, I, II	
· TLV (Threshold I	· TLV (Threshold Limit Value)		
CAS: 1314-62-1	Vanadium Pentoxide Reagent	A3	
CAS: 10099-74-8	Lead Nitrate	A3	
CAS: 7440-02-0	Nickel Metal	A5	
· NIOSH-Ca (Natio	onal Institute for Occupational Safety and Health)		
CAS: 7440-02-0	Nickel Metal		

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



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

Aluminum Nitrate

Ammonium hexafluorosilicate

· Hazard statements

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

· Precautionary statements

Wash thoroughly after handling.

(Contd. on page 11)

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Trade name: 250 mg/L 12 Component Mixed Metal Working Solution

(Contd. of page 10)

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

Wear protective gloves / eye protection / face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin: Wash with plenty of water.

Specific treatment (see on this label).

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

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.

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, 06/04/2024: Reviewed SDS for accuracy. MH/STN

Revision 0.0, 05-29-2024: Creation date for SDS. STN

06/04/2024

· 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

Acute Toxicity - Oral 4: Acute toxicity - Category 4

Skin Irritation 2: Skin corrosion/irritation - Category 2

Eye Irritation 2A: Serious eye damage/eye irritation - Category 2A

* Data compared to the previous version altered.

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