Printing date 07/17/2018 Reviewed on 06/29/2018

1 Identification

· Product identifier

· Trade name: 250 mg/L 12 Component

Mixed Metal Working Solution

· Article number: SGS065F

· 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



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 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



GHS07

- · 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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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)



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 compo	onents:	
CAS: 7697-37-2	Nitric Acid	1.25%
· Table of Nonhaza	rdous Ingredients	
CAS: 7784-27-2	Aluminum Nitrate	0.348%
CAS: 13446-18-9	Magnesium Nitrate	0.264%
CAS: 7782-61-8	Ferric Nitrate	0.181%
CAS: 16919-19-0	Ammonium hexafluorosilicate	0.159%
CAS: 7722-76-1	Ammonium Phosphate Monobasic	0.0928%
CAS: 7631-99-4	Sodium Nitrate	0.0903%
CAS: 7757-79-1	Potassium Nitrate	0.0648%
CAS: 471-34-1	Calcium Carbonate	0.0603%
CAS: 1314-62-1	Vanadium Pentoxide Reagent	0.0445%
CAS: 10099-74-8	Lead Nitrate	0.0378%
CAS: 7440-66-6	Zinc Metal	0.025%
CAS: 7440-02-0	Nickel Metal	0.025%
CAS: 7732-18-5	Water	97.359%

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Mixed Metal Working Solution

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4 First-aid measures

- · Description of first aid measures
- · General information:

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 eve 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.

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).

· 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/m³
CAS: 1314-62-1	Vanadium Pentoxide Reagent	$0.64 mg/m^3$
CAS: 10099-74-8	Lead Nitrate	$0.24 \ mg/m^3$
		Contd. on page 4)

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CAS: 7440-66-6	Zinc Metal	6 mg/m ³
CAS: 7440-02-0	Nickel Metal	4.5 mg/m^3
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/m^3
CAS: 10099-74-8	Lead Nitrate	180 mg/m
CAS: 7440-66-6	Zinc Metal	21 mg/m ³
CAS: 7440-02-0	Nickel Metal	50 mg/m ³
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/m³
CAS: 7722-76-1	Ammonium Phosphate Monobasic	1,100 mg/m
CAS: 7631-99-4	Sodium Nitrate	270 mg/m³
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: 7440-66-6	Zinc Metal	120 mg/m³
CAS: 7440-02-0	Nickel Metal	99 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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· 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:

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

TIV Short term value: 10 mg/m³ 4 ppm

TLV Short-term value: 10 mg/m³, 4 ppm Long-term value: 5.2 mg/m³, 2 ppm

- · 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

· Body protection: Protective work clothing

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

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Information on basic physical and c	chemical properties
General Information	
Appearance: Form:	Liquid
Color:	Clear olive green
Odor:	Odorless
Odor threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	83 °C (181.4 °F)
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
Auto igniting:	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	er): 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.

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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Mixed Metal Working Solution

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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	· LD/LC50 values that are relevant for classification:			
ATE (Acua	ATE (Acute Toxicity Estimate)			
Oral	LD50	1,039 mg/kg		
Dermal	<i>LD50</i>	189,274 mg/kg		
Inhalative	LC50/4h	1,893 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

· Carcinogenic categories

Irritant

· 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 ingred	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.
- · Additional ecological information:
- · General notes: Generally not hazardous for water
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

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 $\cdot \textit{Other adverse effects} \ \textit{No further relevant information available}.$

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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.

· UN-Number	
· DOT, IMDG, IATA	UN3264
· UN proper shipping name	
$\cdot DOT$	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· Label8 Corrosive substances8

· IMDG, IATA



8 Corrosive substances · Class 8 · Label · Packing group · DOT, IMDG, IATA III· Environmental hazards: Not applicable. Warning: Corrosive substances · Special precautions for user 80 · Danger code (Kemler): · EMS Number: F-A,S-B· Segregation groups Acids · Stowage Category \boldsymbol{A} · Stowage Code SW2 Clear of living quarters.

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

	(Contd. of page
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
$\cdot DOT$	
· Quantity limitations	On passenger aircraft/rail: 5 L
	On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	5L
\cdot 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

 $\cdot \textit{Safety, health and environmental regulations/legislation specific for the substance or \textit{mixture}}\\$

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: 7440-66-6	Zinc Metal
CAS: 7440-02-0	Nickel Metal
TSCA (Toxic Sub	stances Control Act):
Nitric Acid	
Ammonium hexafluorosilicate	
Ammonium Phosp	hate Monobasic
Sodium Nitrate	
Potassium Nitrate	
Calcium Carbonate	
Vanadium Pentoxide Reagent	
Lead Nitrate	
Zinc Metal	
Nickel Metal	

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

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Water			
· Proposition 65			
· Chemicals knowi	ı to cause cancer:		
CAS: 1314-62-1	Vanadium Pentoxide Reagent		
CAS: 10099-74-8	Lead Nitrate		
CAS: 7440-02-0	Nickel Metal		
· Chemicals knowi	n to cause reproductive toxicity for females:		
None of the ingre	dients is listed.		
· Chemicals knowi	n to cause reproductive toxicity for males:		
None of the ingre	dients is listed.		
· Chemicals knowi	n to cause developmental toxicity:		
None of the ingre	None of the ingredients is listed.		

· Carcinogenic categories

· EPA (Environmental Protection Agency)			
CAS: 10099-74-8	Lead Nitrate	B2	
CAS: 7440-66-6	Zinc Metal	D, I, II	
· TLV (Threshold Limit Value established by ACGIH)			
CAS: 1314-62-1	Vanadium Pentoxide Reagent	A3	
CAS: 10099-74-8	Lead Nitrate	A3	
CAS: 7440-02-0	Nickel Metal	A5	
· NIOSH-Ca (National 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.

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.

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

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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

Revision 0.0, 06-29-2018: Creation date for SDS. STN

07/17/2018 / -

· 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

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

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