Safety Data Sheet
acc. to OSHA HCS

Printing date 01/02/2018 Reviewed on 01/02/2018

1 Identification

· **Product identifier**

· **Trade name: Multi Element Standard**
250 ppm each, in 5% Nitric Acid

· **Article number:** SPE614

· **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**

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

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


GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Nitric Acid
Aluminum Nitrate
Ammonium hexafluorosilicate
· **Hazard statements**
Harmful if swallowed.
Causes severe skin burns and eye damage.
· **Precautionary statements**
Do not breathe dusts or mists.

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Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
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.

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

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 3
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	7.3008%

· **Table of Nonhazardous Ingredients**		
CAS: 7784-27-2	Aluminum Nitrate	0.338%
CAS: 16919-19-0	Ammonium hexafluorosilicate	0.154%
CAS: 7783-28-0	Ammonium Phosphate Dibasic	0.104%
CAS: 7631-99-4	Sodium Nitrate	0.0915%
CAS: 471-34-1	Calcium Carbonate	0.0607%
CAS: 7803-55-6	Ammonium Metavanadate	0.0558%
CAS: 7440-50-8	copper	0.0243%
CAS: 7440-66-6	Zinc Metal	0.0243%
CAS: 7439-89-6	Iron Metal	0.0243%
CAS: 7440-02-0	Nickel Metal	0.0243%

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CAS: 7732-18-5	Water	91.799%

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. Then consult a doctor.
· **After swallowing:**
Immediately call a doctor.
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.
· **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**
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 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: 7784-27-2	Aluminum Nitrate	83 mg/m³

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CAS: 16919-19-0	Ammonium hexafluorosilicate	12 mg/m³
CAS: 7783-28-0	Ammonium Phosphate Dibasic	20 mg/m³
CAS: 7631-99-4	Sodium Nitrate	4.1 mg/m³
CAS: 471-34-1	Calcium Carbonate	45 mg/m³
CAS: 7803-55-6	Ammonium Metavanadate	0.01 mg/m³
CAS: 7440-50-8	copper	3 mg/m³
CAS: 7440-66-6	Zinc Metal	6 mg/m³
CAS: 7439-89-6	Iron Metal	3.2 mg/m³
CAS: 7440-02-0	Nickel Metal	4.5 mg/m³

· **PAC-2:**

CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 7784-27-2	Aluminum Nitrate	920 mg/m³
CAS: 16919-19-0	Ammonium hexafluorosilicate	130 mg/m³
CAS: 7783-28-0	Ammonium Phosphate Dibasic	210 mg/m³
CAS: 7631-99-4	Sodium Nitrate	45 mg/m³
CAS: 471-34-1	Calcium Carbonate	210 mg/m³
CAS: 7803-55-6	Ammonium Metavanadate	0.11 mg/m³
CAS: 7440-50-8	copper	33 mg/m³
CAS: 7440-66-6	Zinc Metal	21 mg/m³
CAS: 7439-89-6	Iron Metal	35 mg/m³
CAS: 7440-02-0	Nickel Metal	50 mg/m³

· **PAC-3:**

CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 7784-27-2	Aluminum Nitrate	5,500 mg/m³
CAS: 16919-19-0	Ammonium hexafluorosilicate	780 mg/m³
CAS: 7783-28-0	Ammonium Phosphate Dibasic	1,300 mg/m³
CAS: 7631-99-4	Sodium Nitrate	270 mg/m³
CAS: 471-34-1	Calcium Carbonate	1,300 mg/m³
CAS: 7803-55-6	Ammonium Metavanadate	80 mg/m³
CAS: 7440-50-8	copper	200 mg/m³
CAS: 7440-66-6	Zinc Metal	120 mg/m³
CAS: 7439-89-6	Iron Metal	150 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.

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· **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.

· **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
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.
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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· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Yellow-green liquid
· **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.
· **Ignition temperature:**	
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):**	1.02934 g/cm³ (8.58984 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:	91.8 %
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gl
Solids content:	0.7 %
· **Other information**	No further relevant information available.

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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 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	1,069 mg/kg
Dermal	LD50	194,805 mg/kg
Inhalative	LC50/4 h	1,948 mg/l

CAS: 7803-55-6 Ammonium Metavanadate		
Oral	LD50	100 mg/kg (ATE)
Inhalative	LC50/4 h	0.05 mg/l (ATE)

· **Primary irritant effect:**
· **on the skin:** 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:
Harmful
Corrosive
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: 7440-02-0	Nickel Metal	2B

· **NTP (National Toxicology Program)**		
CAS: 7440-02-0	Nickel Metal	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

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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 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
· **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.

14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN1760
· **UN proper shipping name**	
· **DOT**	Corrosive liquids, n.o.s. (Nitric acid)
· **IMDG, IATA**	CORROSIVE LIQUID, N.O.S. (NITRIC ACID)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8 Corrosive substances

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· **Label**	8
· **IMDG, IATA**	

· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	II
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Corrosive substances
· **Danger code (Kemler):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	Acids
· **Stowage Category**	B
· **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: 1 L On cargo aircraft only: 30 L
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1760 CORROSIVE LIQUIDS, N.O.S. (NITRIC ACID), 8, II

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

· **Section 313 (Specific toxic chemical listings):**	
CAS: 7697-37-2	Nitric Acid
CAS: 7784-27-2	Aluminum Nitrate
CAS: 7803-55-6	Ammonium Metavanadate
CAS: 7440-50-8	copper
CAS: 7440-66-6	Zinc Metal
CAS: 7440-02-0	Nickel Metal

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· **TSCA (Toxic Substances Control Act):**
Nitric Acid
Ammonium hexafluorosilicate
Ammonium Phosphate Dibasic
Sodium Nitrate
Calcium Carbonate
Ammonium Metavanadate
copper
Zinc Metal
Iron Metal
Nickel Metal
Water

· **TSCA new (21st Century Act) (Substances not listed)**
· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 7440-02-0	Nickel Metal

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 7440-50-8	copper	D
CAS: 7440-66-6	Zinc Metal	D, I, II

· **TLV (Threshold Limit Value established by ACGIH)**

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**

GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Nitric Acid
Aluminum Nitrate
Ammonium hexafluorosilicate
· **Hazard statements**
Harmful if swallowed.

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250 ppm each, in 5% Nitric Acid

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Causes severe skin burns and eye damage.

· **Precautionary statements**
Do not breathe dusts or mists.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
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**
01-02-2018: review SDS for accuracy. STN
Creation date for SDS 04-10-2015. STN
01/02/2018 / -

· **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 Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1