Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 *Reviewed on 05/31/2024*

*
1 Identification

· **Product identifier**

· **Trade name: ICP Tuning Standard**

· **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
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**

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**

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
· **Precautionary statements**
Wash thoroughly after handling.
Wear protective gloves / eye protection / face protection.
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.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 1)

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

Health = 2
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2
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	1.524%

· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	98.438%
CAS: 7757-79-1	Potassium Nitrate	0.013%
CAS: 7784-27-2	Aluminum Nitrate	0.007%
CAS: 7789-02-8	Chromium Nitrate Nonahydrate	0.004%
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate	0.002%
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	0.002%
CAS: 6156-78-1	Manganese Acetate Tetrahydrate	0.002%
CAS: 19004-19-4	Cupric Nitrate Hydrate	0.002%
CAS: 10042-76-9	Strontium Nitrate	0.001%
CAS: 10022-31-8	Barium Nitrate	0.001%
CAS: 10099-74-8	Lead Nitrate	0.001%
CAS: 7446-08-4	selenium dioxide	0.001%
CAS: 7440-02-0	Nickel Metal	0.0005%
CAS: 7440-38-2	arsenic	0.0005%
CAS: 10022-68-1	Cadmium Nitrate	0.0005%
CAS: 12054-85-2	Ammonium Molybdate Tetrahydrate ACS Grade	0.001%

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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 2)

· **After eye 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).
· **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: 7757-79-1	Potassium Nitrate	9 mg/m³
CAS: 7784-27-2	Aluminum Nitrate	83 mg/m³
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate	0.3 mg/m³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	27 mg/m³
CAS: 6156-78-1	Manganese Acetate Tetrahydrate	13 mg/m³
CAS: 19004-19-4	Cupric Nitrate Hydrate	42 mg/m³
CAS: 10042-76-9	Strontium Nitrate	5.7 mg/m³
CAS: 10022-31-8	Barium Nitrate	2.9 mg/m³
CAS: 10099-74-8	Lead Nitrate	0.24 mg/m³
CAS: 7446-08-4	selenium dioxide	0.84 mg/m³
CAS: 7440-02-0	Nickel Metal	4.5 mg/m³
CAS: 7440-38-2	arsenic	1.5 mg/m³
CAS: 10022-68-1	Cadmium Nitrate	0.27 mg/m³
CAS: 12054-85-2	Ammonium Molybdate Tetrahydrate ACS Grade	2.8 mg/m³
CAS: 1336-21-6	Ammonium Hydroxide	61 ppm

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 3)

· **PAC-2:**		
CAS: 7697-37-2	Nitric Acid	24 ppm
CAS: 7757-79-1	Potassium Nitrate	100 mg/m³
CAS: 7784-27-2	Aluminum Nitrate	920 mg/m³
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate	23 mg/m³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	300 mg/m³
CAS: 6156-78-1	Manganese Acetate Tetrahydrate	22 mg/m³
CAS: 19004-19-4	Cupric Nitrate Hydrate	150 mg/m³
CAS: 10042-76-9	Strontium Nitrate	62 mg/m³
CAS: 10022-31-8	Barium Nitrate	350 mg/m³
CAS: 10099-74-8	Lead Nitrate	180 mg/m³
CAS: 7446-08-4	selenium dioxide	1.6 mg/m³
CAS: 7440-02-0	Nickel Metal	50 mg/m³
CAS: 7440-38-2	arsenic	17 mg/m³
CAS: 10022-68-1	Cadmium Nitrate	2.1 mg/m³
CAS: 12054-85-2	Ammonium Molybdate Tetrahydrate ACS Grade	30 mg/m³
CAS: 1336-21-6	Ammonium Hydroxide	330 ppm

· **PAC-3:**		
CAS: 7697-37-2	Nitric Acid	92 ppm
CAS: 7757-79-1	Potassium Nitrate	600 mg/m³
CAS: 7784-27-2	Aluminum Nitrate	5,500 mg/m³
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate	140 mg/m³
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade	1,800 mg/m³
CAS: 6156-78-1	Manganese Acetate Tetrahydrate	740 mg/m³
CAS: 19004-19-4	Cupric Nitrate Hydrate	240 mg/m³
CAS: 10042-76-9	Strontium Nitrate	370 mg/m³
CAS: 10022-31-8	Barium Nitrate	2,100 mg/m³
CAS: 10099-74-8	Lead Nitrate	1,100 mg/m³
CAS: 7446-08-4	selenium dioxide	9.5 mg/m³
CAS: 7440-02-0	Nickel Metal	99 mg/m³
CAS: 7440-38-2	arsenic	100 mg/m³
CAS: 10022-68-1	Cadmium Nitrate	13 mg/m³
CAS: 12054-85-2	Ammonium Molybdate Tetrahydrate ACS Grade	180 mg/m³
CAS: 1336-21-6	Ammonium Hydroxide	2,300 ppm

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.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 4)

· **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**

· **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: (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

· **Body protection:** Protective work clothing

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 5)

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **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 g/cm³ (8.345 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:	98.4 %
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.
· **Possibility of hazardous reactions** No dangerous reactions known.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 6)

· **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	197 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:
Irritant

· **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: 7446-08-4	selenium dioxide	3
CAS: 7440-02-0	Nickel Metal	2B
CAS: 7440-38-2	arsenic	1
CAS: 10022-68-1	Cadmium Nitrate	1

· **NTP (National Toxicology Program)**		
CAS: 10099-74-8	Lead Nitrate	R
CAS: 7440-02-0	Nickel Metal	R
CAS: 7440-38-2	arsenic	K
CAS: 10022-68-1	Cadmium Nitrate	K

· **OSHA-Ca (Occupational Safety & Health Administration)**	
CAS: 7440-38-2	arsenic
CAS: 10022-68-1	Cadmium Nitrate

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.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 7)

· **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**	UN1755
· **UN proper shipping name**	
· **DOT**	Chromic acid solution
· **IMDG, IATA**	CHROMIC ACID SOLUTION
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	8 Corrosive substances
· **Label**	8
· **IMDG, IATA**	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Corrosive substances
· **Hazard identification number (Kemler code):**	80
· **EMS Number:**	F-A,S-B
· **Segregation groups**	(SGG1) Acids
· **Stowage Category**	C
· **Stowage Code**	SW2 Clear of living quarters.
· **Segregation Code**	SG6 Segregation as for class 5.1 SG8 Stow "away from" class 4.1

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Trade name: ICP Tuning Standard

(Contd. of page 8)

·	SG10 Stow "away from" class 5.1 SG12 Stow "away from" class 7 SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· **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 (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 1755 CHROMIC ACID SOLUTION, 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 (extremely hazardous substances):**

CAS: 7697-37-2	Nitric Acid

· **Section 313 (Specific toxic chemical listings):**

CAS: 7697-37-2	Nitric Acid
CAS: 7757-79-1	Potassium Nitrate
CAS: 7784-27-2	Aluminum Nitrate
CAS: 7789-02-8	Chromium Nitrate Nonahydrate
CAS: 10026-22-9	Cobalt Nitrate Hexahydrate
CAS: 10196-18-6	Zinc Nitrate, Reagent Grade
CAS: 10042-76-9	Strontium Nitrate
CAS: 10022-31-8	Barium Nitrate
CAS: 10099-74-8	Lead Nitrate
CAS: 7446-08-4	selenium dioxide
CAS: 7440-02-0	Nickel Metal
CAS: 7440-38-2	arsenic
CAS: 10022-68-1	Cadmium Nitrate
CAS: 1336-21-6	Ammonium Hydroxide

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

Water	ACTIVE
Nitric Acid	ACTIVE
Potassium Nitrate	ACTIVE
Strontium Nitrate	ACTIVE

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/31/2024 Reviewed on 05/31/2024

Trade name: ICP Tuning Standard

(Contd. of page 9)

Barium Nitrate	ACTIVE
Lead Nitrate	ACTIVE
selenium dioxide	ACTIVE
Nickel Metal	ACTIVE
arsenic	ACTIVE
Ammonium Hydroxide	ACTIVE

· **Hazardous Air Pollutants**

CAS: 10026-22-9	Cobalt Nitrate Hexahydrate
CAS: 10099-74-8	Lead Nitrate
CAS: 7446-08-4	selenium dioxide
CAS: 10022-68-1	Cadmium Nitrate

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 10099-74-8	Lead Nitrate
CAS: 7440-02-0	Nickel Metal
CAS: 7440-38-2	arsenic
CAS: 10022-68-1	Cadmium Nitrate

· **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: 10022-31-8	Barium Nitrate	D, CBD(inh), NL(oral)
CAS: 10099-74-8	Lead Nitrate	B2
CAS: 7446-08-4	selenium dioxide	D
CAS: 7440-38-2	arsenic	A

· **TLV (Threshold Limit Value)**

CAS: 10022-31-8	Barium Nitrate	A4
CAS: 10099-74-8	Lead Nitrate	A3
CAS: 7440-02-0	Nickel Metal	A5
CAS: 7440-38-2	arsenic	A1

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

CAS: 7440-02-0	Nickel Metal
CAS: 7440-38-2	arsenic
CAS: 10022-68-1	Cadmium Nitrate

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

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Trade name: ICP Tuning Standard

(Contd. of page 10)

· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
· **Precautionary statements**
Wash thoroughly after handling.
Wear protective gloves / eye protection / face protection.
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.
· **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, 05/31/2024: Reviewed SDS for accuracy. MH/STN
Revision 0.0, 04-05-2022: Creation date for SDS. STN
05/31/2024
· **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
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.**