

Safety Data Sheet acc. to OSHA HCS

Printing date 10/28/2021

Reviewed on 01/22/2019

1 Identification

- **Product identifier**
- **Trade name:** Element 2 Stock Tuning Solution (µg/mL)
- **Article number:** ICP-MS-TS-19
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
High-Purity Standards
7221 Investment Drive, North Charleston, SC 29418 United States
Telephone: +1-843-767-7900
Fax: +1-843-767-7906
highpuritystandards.com
Email: info@highpuritystandards.com
- **Information department:** Product safety department
- **Emergency telephone number:**
INFOTRAC
Emergency telephone numbers 1-800-535-5053
Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Met. Corr. 1 H290 May be corrosive to metals.
Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 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**



GHS05

- **Signal word** Danger
- **Hazard-determining components of labeling:**
nitric acid
- **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
Keep only in original container.

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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.
Absorb spillage to prevent material damage.
Store locked up.
Store in corrosive resistant container with a resistant inner liner.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **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:**

7697-37-2	nitric acid	2.0%
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· **Chemical identification of the substance/preparation**

7732-18-5	water, distilled, conductivity or of similar purity	97.5085%
7647-01-0	hydrochloric acid	0.49%
497-19-8	sodium carbonate	0.0001%
513-77-9	barium carbonate	0.0001%
554-13-2	lithium carbonate	0.0001%

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1314-36-9	yttrium oxide	0.0001%
7439-89-6	iron	0.0001%
7440-28-0	thallium	0.0001%
7440-48-4	cobalt	0.0001%
7440-55-3	gallium	0.0001%
7440-74-6	indium	0.0001%
7757-79-1	potassium nitrate	0.0001%
10043-35-3	boric acid	0.0001%
10102-06-4	Uranyl nitrate	0.0001%
12032-20-1	lutetium oxide	0.0001%
12060-08-1	scandium oxide	0.0001%
20765-98-4	Rhodium(III) chloride hydrate	0.0001%

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.
- **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:** No special measures required.

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- **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:**

7697-37-2	nitric acid	0.16 ppm
7647-01-0	hydrochloric acid	1.8 ppm
497-19-8	sodium carbonate	7.6 mg/m ³
513-77-9	barium carbonate	2.2 mg/m ³
554-13-2	lithium carbonate	3.1 mg/m ³
1314-36-9	yttrium oxide	3.8 mg/m ³
7439-89-6	iron	3.2 mg/m ³
7440-28-0	thallium	0.06 mg/m ³
7440-48-4	cobalt	0.18 mg/m ³
7440-55-3	gallium	30 mg/m ³
7440-74-6	indium	0.3 mg/m ³
7757-79-1	potassium nitrate	9 mg/m ³
10043-35-3	boric acid	6 mg/m ³
10102-06-4	Uranyl nitrate	0.99 mg/m ³
12032-20-1	lutetium oxide	30 mg/m ³
12060-08-1	scandium oxide	30 mg/m ³

· **PAC-2:**

7697-37-2	nitric acid	24 ppm
7647-01-0	hydrochloric acid	22 ppm
497-19-8	sodium carbonate	83 mg/m ³
513-77-9	barium carbonate	270 mg/m ³
554-13-2	lithium carbonate	34 mg/m ³
1314-36-9	yttrium oxide	43 mg/m ³
7439-89-6	iron	35 mg/m ³
7440-28-0	thallium	3.3 mg/m ³
7440-48-4	cobalt	2 mg/m ³
7440-55-3	gallium	330 mg/m ³
7440-74-6	indium	3.3 mg/m ³

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7757-79-1	potassium nitrate	100 mg/m ³
10043-35-3	boric acid	23 mg/m ³
10102-06-4	Uranyl nitrate	5.5 mg/m ³
12032-20-1	lutetium oxide	330 mg/m ³
12060-08-1	scandium oxide	330 mg/m ³
· PAC-3:		
7697-37-2	nitric acid	92 ppm
7647-01-0	hydrochloric acid	100 ppm
497-19-8	sodium carbonate	500 mg/m ³
513-77-9	barium carbonate	1,600 mg/m ³
554-13-2	lithium carbonate	210 mg/m ³
1314-36-9	yttrium oxide	260 mg/m ³
7439-89-6	iron	150 mg/m ³
7440-28-0	thallium	20 mg/m ³
7440-48-4	cobalt	20 mg/m ³
7440-55-3	gallium	2,000 mg/m ³
7440-74-6	indium	20 mg/m ³
7757-79-1	potassium nitrate	600 mg/m ³
10043-35-3	boric acid	830 mg/m ³
10102-06-4	Uranyl nitrate	33 mg/m ³
12032-20-1	lutetium oxide	2,000 mg/m ³
12060-08-1	scandium oxide	2,000 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.

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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:**

7697-37-2 nitric acid

PEL	Long-term value: 5 mg/m ³ , 2 ppm
REL	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5 mg/m ³ , 2 ppm
TLV	Short-term value: 4 ppm Long-term value: 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:**

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.

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· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	colorless
Odor:	Characteristic
Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °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: Not determined.

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

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- **Solvent content:**
 - Water:** 97.5 %
 - 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.
- **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:**

7647-01-0 hydrochloric acid

Oral LD50 900 mg/kg (rabbit)

- **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

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)**

7647-01-0 hydrochloric acid

3

7440-48-4 cobalt

2B

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· **NTP (National Toxicology Program)**

7440-48-4 cobalt

R

· **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:**
- Not hazardous for water.
- Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **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.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN3264
- **UN proper shipping name**
- **DOT** Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
- **ADR** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
- **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

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· **Transport hazard class(es)**

· **DOT**



· **Class** 8 Corrosive substances
· **Label** 8

· **ADR**



· **Class** 8 (C1) Corrosive substances
· **Label** 8

· **IMDG, IATA**



· **Class** 8 Corrosive substances
· **Label** 8

· **Packing group**

· **DOT, ADR, 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** Acids

· **Stowage Category** A

· **Stowage Code** SW2 Clear of living quarters.

· **Segregation Code** SG36 Stow "separated from" SGG18-alkalis.

SG49 Stow "separated from" SGG6-cyanides

· **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

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<ul style="list-style-type: none"> · ADR · Excepted quantities (EQ) 	<p>Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p>
<ul style="list-style-type: none"> · UN "Model Regulation": 	<p>UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III</p>

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):**

7697-37-2	nitric acid
7647-01-0	hydrochloric acid

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

7697-37-2	nitric acid
7647-01-0	hydrochloric acid
513-77-9	barium carbonate
554-13-2	lithium carbonate
7440-28-0	thallium
7440-48-4	cobalt
7757-79-1	potassium nitrate

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

7732-18-5	water, distilled, conductivity or of similar purity	ACTIVE
7697-37-2	nitric acid	ACTIVE
7647-01-0	hydrochloric acid	ACTIVE
497-19-8	sodium carbonate	ACTIVE
513-77-9	barium carbonate	ACTIVE
554-13-2	lithium carbonate	ACTIVE
1314-36-9	yttrium oxide	ACTIVE
7439-89-6	iron	ACTIVE
7440-28-0	thallium	ACTIVE

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7440-48-4	cobalt	ACTIVE
7440-55-3	gallium	ACTIVE
7440-74-6	indium	ACTIVE
7757-79-1	potassium nitrate	ACTIVE
10043-35-3	boric acid	ACTIVE
10102-06-4	Uranyl nitrate	ACTIVE
12032-20-1	lutetium oxide	ACTIVE
12060-08-1	scandium oxide	ACTIVE

· Hazardous Air Pollutants

7647-01-0	hydrochloric acid
7440-48-4	cobalt

· Proposition 65

· Chemicals known to cause cancer:

7440-48-4	cobalt
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· 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:

554-13-2	lithium carbonate
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· Carcinogenic categories

· EPA (Environmental Protection Agency)

513-77-9	barium carbonate	D, CBD(inh), NL(oral)
10043-35-3	boric acid	I (oral)

· TLV (Threshold Limit Value)

7647-01-0	hydrochloric acid	A4
513-77-9	barium carbonate	A4
7440-48-4	cobalt	A3
10043-35-3	boric acid	A4

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

10102-06-4	Uranyl nitrate
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· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS05

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- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
 - nitric acid*
- **Hazard statements**
 - H290 May be corrosive to metals.*
 - H314 Causes severe skin burns and eye damage.*
- **Precautionary statements**
 - Keep only in original container.*
 - 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.*
 - Absorb spillage to prevent material damage.*
 - Store locked up.*
 - Store in corrosive resistant container with a resistant inner liner.*
 - 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:**
 - High-Purity Standards*
 - Tel: 843-767-7900*
 - Fax: 843-767-7906*
- **Date of preparation / last revision** *10/28/2021 / -*
- **Abbreviations and acronyms:**
 - ADR: Accord relatif au transport international 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*
 - 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*

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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
Met. Corr. 1: Corrosive to metals – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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