

Safety Data Sheet acc. to OSHA HCS

Printing date 01/27/2023

Reviewed on 01/27/2023

1 Identification

- **Product identifier**
- **Trade name:** ICP-MS Tuning Solution 6
- **Article number:** ICP-MS-TS-6
- **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

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals 1 H290 May be corrosive to metals.
Skin Corrosion 1A H314 Causes severe skin burns and eye damage.
Eye Damage 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.
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.

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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**

7647-01-0	hydrochloric acid	0.49%
10049-07-7	rhodium trichloride	0.001%
513-77-9	barium carbonate	0.001%
543-81-7	beryllium acetate	0.001%
1306-38-3	cerium dioxide	0.001%
7439-92-1	lead	0.001%
7439-95-4	magnesium	0.001%
7440-48-4	cobalt	0.001%

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7440-74-6	indium	0.001%
7732-18-5	water, distilled, conductivity or of similar purity	97.502%

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.
- **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
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7647-01-0	hydrochloric acid	1.8 ppm
513-77-9	barium carbonate	2.2 mg/m ³
1306-38-3	cerium dioxide	3 mg/m ³
7439-92-1	lead	0.15 mg/m ³
7439-95-4	magnesium	18 mg/m ³
7440-48-4	cobalt	0.18 mg/m ³
7440-74-6	indium	0.3 mg/m ³

· PAC-2:

7697-37-2	nitric acid	24 ppm
7647-01-0	hydrochloric acid	22 ppm
513-77-9	barium carbonate	270 mg/m ³
1306-38-3	cerium dioxide	33 mg/m ³
7439-92-1	lead	120 mg/m ³
7439-95-4	magnesium	200 mg/m ³
7440-48-4	cobalt	2 mg/m ³
7440-74-6	indium	3.3 mg/m ³

· PAC-3:

7697-37-2	nitric acid	92 ppm
7647-01-0	hydrochloric acid	100 ppm
513-77-9	barium carbonate	1,600 mg/m ³
1306-38-3	cerium dioxide	200 mg/m ³
7439-92-1	lead	700 mg/m ³
7439-95-4	magnesium	1,200 mg/m ³
7440-48-4	cobalt	20 mg/m ³
7440-74-6	indium	20 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.

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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:*

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: 10 mg/m ³ , 4 ppm Long-term value: 5.2 mg/m ³ , 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 at 20 °C (68 °F): 1.01125 g/cm³ (8.43888 lbs/gal)

· Bulk density:	1,011 kg/m ³
· 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.

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Kinematic:	Not determined.
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

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543-81-7	beryllium acetate	I
7439-92-1	lead	2B
7440-48-4	cobalt	2B

· NTP (National Toxicology Program)

543-81-7	beryllium acetate	K
7439-92-1	lead	R
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

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· **UN proper shipping name**
 · **DOT**
 · **ADR**
 · **IMDG, IATA**

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

· **Transport hazard class(es)**

· **DOT**



· **Class**
 · **Label**

8 Corrosive substances
 8

· **ADR**



· **Class**
 · **Label**

8 (C1) Corrosive substances
 8

· **IMDG, IATA**



· **Class**
 · **Label**

8 Corrosive substances
 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.

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

Not applicable.

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· Transport/Additional information:

· DOT

· Quantity limitations

On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

· ADR

· Excepted quantities (EQ)

Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· IMDG

· Limited quantities (LQ)

· Excepted quantities (EQ)

5L
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.S.
(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 (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
543-81-7	beryllium acetate
7439-92-1	lead
7440-48-4	cobalt

· TSCA (Toxic Substances Control Act):

7697-37-2	nitric acid	ACTIVE
7647-01-0	hydrochloric acid	ACTIVE
10049-07-7	rhodium trichloride	ACTIVE
513-77-9	barium carbonate	ACTIVE
1306-38-3	cerium dioxide	ACTIVE
7439-92-1	lead	ACTIVE

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7439-95-4	magnesium	ACTIVE
7440-48-4	cobalt	ACTIVE
7440-74-6	indium	ACTIVE
7732-18-5	water, distilled, conductivity or of similar purity	ACTIVE

· Hazardous Air Pollutants

7647-01-0	hydrochloric acid
7439-92-1	lead
7440-48-4	cobalt

· Proposition 65

· Chemicals known to cause cancer:

543-81-7	beryllium acetate
7439-92-1	lead
7440-48-4	cobalt

· Chemicals known to cause reproductive toxicity for females:

7439-92-1	lead
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· Chemicals known to cause reproductive toxicity for males:

7439-92-1	lead
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· Chemicals known to cause developmental toxicity:

7439-92-1	lead
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· Carcinogenic categories

· EPA (Environmental Protection Agency)

513-77-9	barium carbonate	D, CBD(inh), NL(oral)
1306-38-3	cerium dioxide	II
7439-92-1	lead	B2

· TLV (Threshold Limit Value)

7647-01-0	hydrochloric acid	A4
10049-07-7	rhodium trichloride	A4
513-77-9	barium carbonate	A4
7439-92-1	lead	A3
7440-48-4	cobalt	A3

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

543-81-7	beryllium acetate
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· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

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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.**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** *01/27/2023***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*

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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
Corrosive to Metals 1: Corrosive to metals – Category 1
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A
Eye Damage 1: Serious eye damage/eye irritation – Category 1

US