



07/10/2018

**Kit Components**

Product code	Description
<b>5188-6524(Kit)</b>	<b>7500 Series PA Tuning Solution Set</b>

Components:

5188-6524-1	7500 Series PA Tuning 1
5188-6524-2	7500 Series PA Tuning 2

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 07/10/2018

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**1 Identification**

- **Product identifier**
- **Product Name:** 7500 Series PA Tuning 1, Part Number 5188-6524-1
- **Part Number:** 5188-6524-1
- **Application of the substance / the mixture**  
Reagents and Standards for Analytical Chemistry Laboratory Use  
A 100mL Solution
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies, Inc.  
5301 Stevens Creek Blvd.  
Santa Clara, CA 95051 USA
- **Information department:** product safety department
- **Emergency telephone number:**  
Emergency Phone Number (24 hours)  
CHEMTREC (800-424-9300)  
Outside US: 703-527-3887

**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.

- **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**  
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
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).  
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

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US

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**· HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	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:**

7697-37-2	nitric acid	5.0%
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**· Chemical identification of the substance/preparation**

7440-38-2	arsenic	0.002%
7440-41-7	beryllium	0.002%
7440-43-9	cadmium (non-pyrophoric)	0.002%
7440-66-6	zinc powder -zinc dust (stabilized)	0.002%
7440-02-0	nickel	0.001%
7439-92-1	Lead from Lead Oxide	0.001%
7439-95-4	magnesium	0.001%
7440-23-5	Sodium from Sodium carbonate	0.0005%
7440-24-6	strontium	0.0005%
10102-45-1	thallium nitrate	0.0005%
7440-29-1	Thorium from Thorium nitrate hydrate	0.0005%
7429-90-5	aluminium	0.0005%
7440-48-4	cobalt	0.0005%
7440-50-8	copper	0.0005%
7440-74-6	indium	0.0005%
7439-94-3	Lutetium from Lutetium (III) Oxide	0.0005%
7439-96-5	manganese	0.0005%
7440-69-9	bismuth	0.0005%
7440-20-2	Scandium from Scandium oxide	0.0005%
7440-61-1	uranium	0.0005%
7440-62-2	Vanadium from Ammonium trioxovanadate	0.0005%
7439-93-2	lithium	0.0005%
7440-39-3	Barium from Barium carbonate	0.0005%
7440-47-3	chromium	0.0005%
7440-65-5	yttrium	0.0003%
7440-64-4	Ytterbium from Ytterbium (III) oxide	0.0003%
7732-18-5	water, distilled, conductivity or of similar purity	94.9799%

**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.

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- **After swallowing:** Do not give anything to eat or drink - Do not induce vomiting
- **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:** 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:**

7697-37-2	nitric acid	0.16 ppm
7440-38-2	arsenic	1.5 mg/m <sup>3</sup>
7440-41-7	beryllium	0.0023 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	0.10 mg/m <sup>3</sup>
7440-66-6	zinc powder -zinc dust (stabilized)	6 mg/m <sup>3</sup>
7440-02-0	nickel	4.5 mg/m <sup>3</sup>
7439-92-1	Lead from Lead Oxide	0.15 mg/m <sup>3</sup>
7439-95-4	magnesium	18 mg/m <sup>3</sup>
7440-23-5	Sodium from Sodium carbonate	13 mg/m <sup>3</sup>
7440-24-6	strontium	30 mg/m <sup>3</sup>
10102-45-1	thallium nitrate	0.078 mg/m <sup>3</sup>
7440-29-1	Thorium from Thorium nitrate hydrate	30 mg/m <sup>3</sup>
7440-48-4	cobalt	0.18 mg/m <sup>3</sup>
7440-50-8	copper	3 mg/m <sup>3</sup>
7440-74-6	indium	0.3 mg/m <sup>3</sup>
7439-94-3	Lutetium from Lutetium (III) Oxide	30 mg/m <sup>3</sup>
7439-96-5	manganese	3 mg/m <sup>3</sup>
7440-69-9	bismuth	15 mg/m <sup>3</sup>
7440-20-2	Scandium from Scandium oxide	30 mg/m <sup>3</sup>
7440-61-1	uranium	0.6 mg/m <sup>3</sup>
7440-62-2	Vanadium from Ammonium trioxovanadate	3 mg/m <sup>3</sup>
7439-93-2	lithium	3.3 mg/m <sup>3</sup>
7440-39-3	Barium from Barium carbonate	1.5 mg/m <sup>3</sup>
7440-47-3	chromium	1.5 mg/m <sup>3</sup>

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<b>· PAC-2:</b>		
7697-37-2	nitric acid	24 ppm
7440-38-2	arsenic	17 mg/m <sup>3</sup>
7440-41-7	beryllium	0.025 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	0.76 mg/m <sup>3</sup>
7440-66-6	zinc powder -zinc dust (stabilized)	21 mg/m <sup>3</sup>
7440-02-0	nickel	50 mg/m <sup>3</sup>
7439-92-1	Lead from Lead Oxide	120 mg/m <sup>3</sup>
7439-95-4	magnesium	200 mg/m <sup>3</sup>
7440-23-5	Sodium from Sodium carbonate	140 mg/m <sup>3</sup>
7440-24-6	strontium	330 mg/m <sup>3</sup>
10102-45-1	thallium nitrate	4.3 mg/m <sup>3</sup>
7440-29-1	Thorium from Thorium nitrate hydrate	330 mg/m <sup>3</sup>
7440-48-4	cobalt	2 mg/m <sup>3</sup>
7440-50-8	copper	33 mg/m <sup>3</sup>
7440-74-6	indium	3.3 mg/m <sup>3</sup>
7439-94-3	Lutetium from Lutetium (III) Oxide	330 mg/m <sup>3</sup>
7439-96-5	manganese	5 mg/m <sup>3</sup>
7440-69-9	bismuth	170 mg/m <sup>3</sup>
7440-20-2	Scandium from Scandium oxide	330 mg/m <sup>3</sup>
7440-61-1	uranium	5 mg/m <sup>3</sup>
7440-62-2	Vanadium from Ammonium trioxovanadate	5.8 mg/m <sup>3</sup>
7439-93-2	lithium	36 mg/m <sup>3</sup>
7440-39-3	Barium from Barium carbonate	180 mg/m <sup>3</sup>
7440-47-3	chromium	17 mg/m <sup>3</sup>

<b>· PAC-3:</b>		
7697-37-2	nitric acid	92 ppm
7440-38-2	arsenic	100 mg/m <sup>3</sup>
7440-41-7	beryllium	0.1 mg/m <sup>3</sup>
7440-43-9	cadmium (non-pyrophoric)	4.7 mg/m <sup>3</sup>
7440-66-6	zinc powder -zinc dust (stabilized)	120 mg/m <sup>3</sup>
7440-02-0	nickel	99 mg/m <sup>3</sup>
7439-92-1	Lead from Lead Oxide	700 mg/m <sup>3</sup>
7439-95-4	magnesium	1,200 mg/m <sup>3</sup>
7440-23-5	Sodium from Sodium carbonate	870 mg/m <sup>3</sup>
7440-24-6	strontium	2,000 mg/m <sup>3</sup>
10102-45-1	thallium nitrate	26 mg/m <sup>3</sup>
7440-29-1	Thorium from Thorium nitrate hydrate	2,000 mg/m <sup>3</sup>
7440-48-4	cobalt	20 mg/m <sup>3</sup>
7440-50-8	copper	200 mg/m <sup>3</sup>
7440-74-6	indium	20 mg/m <sup>3</sup>
7439-94-3	Lutetium from Lutetium (III) Oxide	2,000 mg/m <sup>3</sup>
7439-96-5	manganese	1,800 mg/m <sup>3</sup>
7440-69-9	bismuth	990 mg/m <sup>3</sup>
7440-20-2	Scandium from Scandium oxide	2,000 mg/m <sup>3</sup>
7440-61-1	uranium	30 mg/m <sup>3</sup>
7440-62-2	Vanadium from Ammonium trioxovanadate	35 mg/m <sup>3</sup>
7439-93-2	lithium	220 mg/m <sup>3</sup>
7440-39-3	Barium from Barium carbonate	1,100 mg/m <sup>3</sup>

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7440-47-3 chromium

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99 mg/m<sup>3</sup>

## 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:** 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.
- **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<sup>3</sup>, 2 ppm

REL Short-term value: 10 mg/m<sup>3</sup>, 4 ppm

Long-term value: 5 mg/m<sup>3</sup>, 2 ppm

TLV Short-term value: 10 mg/m<sup>3</sup>, 4 ppm

Long-term value: 5.2 mg/m<sup>3</sup>, 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.
- **Respiratory protection:**  
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**

Nitrile Glove

Thickness: ≥0.11 mm

Breakthrough time: > 480 minutes

· **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:** Odorless

**· Odour Threshold:** Not applicable.

**· pH-value:** <1

**· Change in condition**

**Melting point/Melting range:** 0°C (32°F)  
**Boiling point/Boiling range:** 100°C (212°F)

**· Flash point:** Not applicable.

**· Flammability (solid, gaseous):** Not applicable.

**· Decomposition temperature:** Not applicable.

**· Auto igniting:** Product is not selfigniting.

**· Danger of explosion:** Product does not present an explosion hazard.

**· Explosion limits:**

**Lower:** Not applicable.  
**Upper:** Not applicable.

**· Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

**· Density** 1.0 g/mL @ 20°C

**· Relative density** Not applicable.

**· Vapor density** Not applicable.

**· Evaporation rate** Not applicable.

**· Solubility in / Miscibility with**

**Water:** Miscible

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

**· Viscosity:**

**Dynamic:** Not applicable.  
**Kinematic:** Not applicable.

**· Solvent content:**

**Water:** 95.0 %  
**VOC content:** 0.00 %

**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.

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- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Corrosive  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>		
7440-38-2	arsenic	I
7440-41-7	beryllium	I
7440-43-9	cadmium (non-pyrophoric)	I
7440-02-0	nickel	2B
7439-92-1	Lead from Lead Oxide	2B
7440-29-1	Thorium from Thorium nitrate hydrate	I
7440-48-4	cobalt	2B
7440-47-3	chromium	3

· <b>NTP (National Toxicology Program)</b>		
7440-38-2	arsenic	K
7440-41-7	beryllium	K
7440-43-9	cadmium (non-pyrophoric)	K
7440-02-0	nickel	R
7439-92-1	Lead from Lead Oxide	R
7440-48-4	cobalt	R

· <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>		
7440-38-2	arsenic	
7440-43-9	cadmium (non-pyrophoric)	

## 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.

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 · *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**

· <b>UN-Number</b> · <b>DOT, ADR, IMDG, IATA</b>	UN3264
· <b>UN proper shipping name</b> · <b>DOT</b> · <b>ADR</b> · <b>IMDG, IATA</b>	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution) 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION)
· <b>Transport hazard class(es)</b> · <b>DOT</b>	
	
· <b>Class</b> · <b>Label</b>	8 Corrosive substances 8
· <b>ADR, IMDG, IATA</b>	
	
· <b>Class</b> · <b>Label</b>	8 Corrosive substances 8
· <b>Packing group</b> · <b>DOT, ADR, IMDG, IATA</b>	III
· <b>Environmental hazards:</b>	Not applicable.
· <b>Special precautions for user</b> · <b>Danger code (Kemler):</b> · <b>EMS Number:</b> · <b>Segregation groups</b> · <b>Stowage Category</b> · <b>Stowage Code</b>	Warning: Corrosive substances 80 F-A,S-B Acids A SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b> · <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

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

**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

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

7697-37-2	nitric acid
7440-38-2	arsenic
7440-41-7	beryllium
7440-43-9	cadmium (non-pyrophoric)
7440-66-6	zinc powder -zinc dust (stabilized)
7440-02-0	nickel
7439-92-1	Lead from Lead Oxide
10102-45-1	thallium nitrate
7429-90-5	aluminium
7440-48-4	cobalt
7440-50-8	copper
7439-96-5	manganese
7440-62-2	Vanadium from Ammonium trioxovanadate
7439-93-2	lithium
7440-39-3	Barium from Barium carbonate
7440-47-3	chromium

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

7697-37-2	nitric acid
7440-38-2	arsenic
7440-41-7	beryllium
7440-43-9	cadmium (non-pyrophoric)
7440-66-6	zinc powder -zinc dust (stabilized)
7440-02-0	nickel
7439-92-1	Lead from Lead Oxide
7439-95-4	magnesium
7440-23-5	Sodium from Sodium carbonate
7440-24-6	strontium
10102-45-1	thallium nitrate
7440-29-1	Thorium from Thorium nitrate hydrate
7429-90-5	aluminium
7440-48-4	cobalt
7440-50-8	copper
7440-74-6	indium
7439-94-3	Lutetium from Lutetium (III) Oxide
7439-96-5	manganese
7440-69-9	bismuth
7440-20-2	Scandium from Scandium oxide

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7440-61-1	uranium
7440-62-2	Vanadium from Ammonium trioxovanadate
7439-93-2	lithium
7440-39-3	Barium from Barium carbonate
7440-47-3	chromium
7440-64-4	Ytterbium from Ytterbium (III) oxide
7732-18-5	water, distilled, conductivity or of similar purity

**· Proposition 65**
**· Chemicals known to cause cancer:**

7440-38-2	arsenic
7440-41-7	beryllium
7440-43-9	cadmium (non-pyrophoric)
7440-02-0	nickel
7439-92-1	Lead from Lead Oxide
7440-48-4	cobalt

**· Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

**· Chemicals known to cause reproductive toxicity for males:**

7440-43-9	cadmium (non-pyrophoric)
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**· Chemicals known to cause developmental toxicity:**

7440-43-9	cadmium (non-pyrophoric)
7439-93-2	lithium

**· Carcinogenic categories**
**· EPA (Environmental Protection Agency)**

7440-38-2	arsenic	A
7440-41-7	beryllium	B1, K/L(inh), CBD(oral)
7440-43-9	cadmium (non-pyrophoric)	B1
7440-66-6	zinc powder -zinc dust (stabilized)	D, I, II
7439-92-1	Lead from Lead Oxide	B2
10102-45-1	thallium nitrate	II
7440-50-8	copper	D
7439-96-5	manganese	D
7440-39-3	Barium from Barium carbonate	D, CBD(inh), NL(oral)

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

7440-38-2	arsenic	A1
7440-43-9	cadmium (non-pyrophoric)	A2
7440-02-0	nickel	A5
7439-92-1	Lead from Lead Oxide	A3
7429-90-5	aluminium	A4
7440-48-4	cobalt	A3
7440-61-1	uranium	A1
7440-39-3	Barium from Barium carbonate	A4

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

7440-38-2	arsenic
7440-43-9	cadmium (non-pyrophoric)
7440-02-0	nickel
7440-61-1	uranium

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

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**Product Name: 7500 Series PA Tuning 1, Part Number 5188-6524-1**

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· **Hazard pictograms**



GHS05

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**  
*nitric acid*

· **Hazard statements**

*H314 Causes severe skin burns and eye damage.*

· **Precautionary statements**

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*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).*

*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

*Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.*

· **Department issuing SDS:** *product safety department*

· **Contact:**

*Agilent Technologies, Inc.*

*800-227-9770*

· **Date of preparation / last revision** *07/10/2018 / -*

· **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)*

*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 Corr. 1B: Skin corrosion/irritation – Category 1B*

*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 07/10/2018

Reviewed on 07/10/2018

## 1 Identification

- **Product identifier**
- **Product Name:** 7500 Series PA Tuning 2, Part Number 5188-6524-2
- **Part Number:** 5188-6524-2
- **Application of the substance / the mixture**  
Reagents and Standards for Analytical Chemistry Laboratory Use  
A 100mL Solution
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Agilent Technologies, Inc.  
5301 Stevens Creek Blvd.  
Santa Clara, CA 95051 USA
- **Information department:** product safety department
- **Emergency telephone number:**  
Emergency Phone Number (24 hours)  
CHEMTREC (800-424-9300)  
Outside US: 703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **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:**  
hydrochloric acid
- **Hazard statements**  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.
- **Precautionary statements**  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Wear protective gloves / eye protection / face protection.  
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.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



(Contd. on page 2)

**Safety Data Sheet**  
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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

(Contd. of page 1)

**· HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	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:**

7647-01-0	hydrochloric acid	10.0%
7697-37-2	nitric acid	1.0%

**· Chemical identification of the substance/preparation**

7664-39-3	hydrofluoric acid	0.1%
7440-31-5	tin	0.001%
7440-56-4	Germanium from Ammonium hexafluorogermanate(IV)	0.001%
7440-05-3	palladium	0.001%
7440-36-0	antimony	0.001%
7439-98-7	molybdenum	0.001%
7440-18-8	Ruthenium from Ruthenium (III) chloride trihydrate	0.001%
7439-88-5	Iridium from Iridium(III) chloride hydrate	0.0005%
7440-32-6	titanium	0.0005%
7732-18-5	water, distilled, conductivity or of similar purity	88.893%

**4 First-aid measures**

- **Description of first aid measures**
- **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. If symptoms persist, consult a doctor.
- **After swallowing:** Do not give anything to eat or drink - Do not induce vomiting
- **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:** Do not allow to enter sewers/ surface or ground water.

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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

(Contd. of page 2)

- **Methods and material for containment and cleaning up:**  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 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:**

7647-01-0	hydrochloric acid	1.8 ppm
7697-37-2	nitric acid	0.16 ppm
7440-31-5	tin	6 mg/m <sup>3</sup>
7440-56-4	Germanium from Ammonium hexafluorogermanate(IV)	3.2 mg/m <sup>3</sup>
7440-05-3	palladium	6 mg/m <sup>3</sup>
7440-36-0	antimony	1.5 mg/m <sup>3</sup>
7439-98-7	molybdenum	30 mg/m <sup>3</sup>
7440-18-8	Ruthenium from Ruthenium (III) chloride trihydrate	30 mg/m <sup>3</sup>
7439-88-5	Iridium from Iridium(III) chloride hydrate	4.7 mg/m <sup>3</sup>
7440-32-6	titanium	30 mg/m <sup>3</sup>

**· PAC-2:**

7647-01-0	hydrochloric acid	22 ppm
7697-37-2	nitric acid	24 ppm
7440-31-5	tin	67 mg/m <sup>3</sup>
7440-56-4	Germanium from Ammonium hexafluorogermanate(IV)	35 mg/m <sup>3</sup>
7440-05-3	palladium	66 mg/m <sup>3</sup>
7440-36-0	antimony	13 mg/m <sup>3</sup>
7439-98-7	molybdenum	330 mg/m <sup>3</sup>
7440-18-8	Ruthenium from Ruthenium (III) chloride trihydrate	330 mg/m <sup>3</sup>
7439-88-5	Iridium from Iridium(III) chloride hydrate	51 mg/m <sup>3</sup>
7440-32-6	titanium	330 mg/m <sup>3</sup>

**· PAC-3:**

7647-01-0	hydrochloric acid	100 ppm
7697-37-2	nitric acid	92 ppm
7440-31-5	tin	400 mg/m <sup>3</sup>
7440-56-4	Germanium from Ammonium hexafluorogermanate(IV)	170 mg/m <sup>3</sup>
7440-05-3	palladium	400 mg/m <sup>3</sup>
7440-36-0	antimony	80 mg/m <sup>3</sup>
7439-98-7	molybdenum	2,000 mg/m <sup>3</sup>
7440-18-8	Ruthenium from Ruthenium (III) chloride trihydrate	2,000 mg/m <sup>3</sup>
7439-88-5	Iridium from Iridium(III) chloride hydrate	310 mg/m <sup>3</sup>
7440-32-6	titanium	2,000 mg/m <sup>3</sup>

**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:** 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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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

(Contd. of page 3)

- **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:**

**7647-01-0 hydrochloric acid**

PEL Ceiling limit value: 7 mg/m<sup>3</sup>, 5 ppm

REL Ceiling limit value: 7 mg/m<sup>3</sup>, 5 ppm

TLV Ceiling limit value: 2.98 mg/m<sup>3</sup>, 2 ppm

**7697-37-2 nitric acid**

PEL Long-term value: 5 mg/m<sup>3</sup>, 2 ppm

REL Short-term value: 10 mg/m<sup>3</sup>, 4 ppm

Long-term value: 5 mg/m<sup>3</sup>, 2 ppm

TLV Short-term value: 10 mg/m<sup>3</sup>, 4 ppm

Long-term value: 5.2 mg/m<sup>3</sup>, 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.

- **Respiratory protection:**

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**

Nitrile Glove

Thickness: ≥0.11 mm

Breakthrough time: > 480 minutes

- **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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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

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**9 Physical and chemical properties**

 · **Information on basic physical and chemical properties**

 · **General Information**

 · **Appearance:**

Form: Liquid

Color: Colorless

 · **Odor:** Odorless

 · **Odour Threshold:** Not applicable.

 · **pH-value:** <1

 · **Change in condition**

Melting point/Melting range: 0°C (32°F)

Boiling point/Boiling range: 100°C (212°F)

 · **Flash point:** Not applicable.

 · **Flammability (solid, gaseous):** Not applicable.

 · **Decomposition temperature:** Not applicable.

 · **Auto igniting:** Product is not selfigniting.

 · **Danger of explosion:** Product does not present an explosion hazard.

 · **Explosion limits:**

Lower: Not applicable.

Upper: Not applicable.

 · **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

 · **Density** 1.0 g/mL @ 20°C

 · **Relative density** Not applicable.

 · **Vapor density** Not applicable.

 · **Evaporation rate** Not applicable.

 · **Solubility in / Miscibility with**

Water: Miscible

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

 · **Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

 · **Solvent content:**

Water: 88.9 %

VOC content: 0.00 %

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.

US

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Reviewed on 07/10/2018

**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

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**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**
- **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)**

7647-01-0 hydrochloric acid

3

 · **NTP (National Toxicology Program)**

None of the ingredients is listed.

 · **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:**  
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.
- **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. (Hydrochloric acid, Nitric acid solution)
- **ADR** 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Nitric acid solution)
- **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID SOLUTION)

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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

(Contd. of page 6)

<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>	
	
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	8 Corrosive substances 8
<ul style="list-style-type: none"> <li>· <b>ADR, IMDG, IATA</b></li> </ul>	
	
<ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	8 Corrosive substances 8
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	II
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>Danger code (Kemler):</b></li> <li>· <b>EMS Number:</b></li> <li>· <b>Segregation groups</b></li> <li>· <b>Stowage Category</b></li> <li>· <b>Stowage Code</b></li> </ul>	Warning: Corrosive substances 80 F-A,S-B Acids B SW2 Clear of living quarters.
<ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b></li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> </ul>	
<ul style="list-style-type: none"> <li>· <b>ADR</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
<ul style="list-style-type: none"> <li>· <b>IMDG</b></li> <li>· <b>Limited quantities (LQ)</b></li> <li>· <b>Excepted quantities (EQ)</b></li> </ul>	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
<ul style="list-style-type: none"> <li>· <b>UN "Model Regulation":</b></li> </ul>	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID SOLUTION), 8, II

**15 Regulatory information**

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

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

7647-01-0	hydrochloric acid
7697-37-2	nitric acid
7664-39-3	hydrofluoric acid
7440-36-0	antimony

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

7647-01-0	hydrochloric acid
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**Safety Data Sheet**  
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Reviewed on 07/10/2018

**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

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7697-37-2	nitric acid
7440-31-5	tin
7440-56-4	Germanium from Ammonium hexafluorogermanate(IV)
7440-05-3	palladium
7440-36-0	antimony
7439-98-7	molybdenum
7440-18-8	Ruthenium from Ruthenium (III) chloride trihydrate
7439-88-5	Iridium from Iridium(III) chloride hydrate
7440-32-6	titanium
7732-18-5	water, distilled, conductivity or of similar purity

**· Proposition 65**
**· Chemicals known to cause cancer:**

None of the ingredients is listed.

**· 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)**

None of the ingredients is listed.

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

7647-01-0	hydrochloric acid	A4
7439-98-7	molybdenum	A3

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

None of the ingredients is listed.

**· 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:**

hydrochloric acid

**· Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

**· Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

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.

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.

US

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## Safety Data Sheet acc. to OSHA HCS

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**Product Name: 7500 Series PA Tuning 2, Part Number 5188-6524-2**

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### 16 Other information

*Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.*

· **Department issuing SDS:** product safety department

· **Contact:**

Agilent Technologies, Inc.  
800-227-9770

· **Date of preparation / last revision** 07/10/2018 / -

· **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)

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 Irrit. 2: Skin corrosion/irritation – Category 2

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

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3