<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5188-6524(Kit)</td>
<td>7500 Series PA Tuning Solution Set</td>
</tr>
</tbody>
</table>

Components:

<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
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<tbody>
<tr>
<td>5188-6524-1</td>
<td>7500 Series PA Tuning 1</td>
</tr>
<tr>
<td>5188-6524-2</td>
<td>7500 Series PA Tuning 2</td>
</tr>
</tbody>
</table>
1 Identification

- Product identifier
  - Product Name: 7500 Series PA Tuning 1, Part Number 5188-6524-1
  - Part Number: 5188-6524-1
- Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available.
- Application of the substance / the mixture
  Analytical Chemistry
  A 100mL Solution
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier:
    Agilent Technologies Manufacturing GmbH & Co. KG
    Hewlett-Packard-Str. 8
    76337 Waldbronn
    Germany
  - Information department: product safety department
  - Emergency telephone number: CHEMTREC®: 1-800-815-308

2 Hazard(s) identification

- Classification of the substance or mixture
  - 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
  Causes severe skin burns and eye damage.
- Precautionary statements
  If medical advice is needed, have product container or label at hand.
  Keep out of reach of children.
  Read label before use.
  Do not breathe dust/fume/gas/mist/vapours/spray.
  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.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.
- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

(Contd. on page 2)
3 Composition/Information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

### Dangerous Components:

**Nitric acid**
- Ox. Liq. 3, H272; Skin Corr. 1A, H314
- 3.0%

### Chemical Identification of the Substance/Preparation

- **Arsenic**
  - Acute Tox. 3, H301; Acute Tox. 3, H337; Aquatic Acute 1, H400; Aquatic Chronic 1, H410
  - 0.002%
- **Beryllium from Beryllium Acetate**
  - Acute Tox. 2, H306; Acute Tox. 2, H310; Acute Tox. 2, H330; Carc. 1A, H350
  - 0.002%
- **Cadmium (non-pyrophoric)**
  - Acute Tox. 2, H330; Mutag. 2, H341; Carc. 1B, H350; Repro. 2, H361; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410
  - 0.002%
- **Zinc Powder - zinc dust (stabilized)**
  - Aquatic Acute 1, H400; Aquatic Chronic 1, H410
  - 0.002%
- **Magnesium**
  - Pyr. Sol. 1, H250; Water-react. 1, H260
  - 0.001%
- **Nickel**
  - Carc. 2, H313; STOT RE 1, H372; Skin Sens. 1, H317
  - 0.001%
- **Lead from Lead Oxide**
  - Repro. 1A, H360; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332
  - 0.001%
- **Barium from Barium carbonate**
  - Acute Tox. 4, H302
  - 0.001%
- **Thorium from Thorium nitrate hydrate**
  - Ox. Liq. 2, H272; Acute Tox. 3, H301; STOT RE 2, H373; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335
  - 0.001%
- **Thallium from Thallium nitrate**
  - Acute Tox. 2, H306; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Chronic 2, H411
  - 0.001%
- **Aluminium**
  - Pyr. Sol. 1, H250; Water-react. 2, H261
  - 0.001%
- **Cobalt**
  - Resp. Sens. 1, H334; Skin Sens. 1, H317; Aquatic Chronic 4, H413
  - 0.001%
- **Chromium from Chromium(III) nitrate nonahydrate**
  - Ox. Liq. 2, H272; Skin Irrit. 2, H315; Eye Irrit. 2, H319
  - 0.001%
- **Sodium from Sodium carbonate**
  - Eye Irrit. 2, H319
  - 0.001%
- **Strontium from Strontium carbonate**
  - 0.001%
- **Copper**
  - 0.001%
- **Indium**
  - 0.001%
- **Lutetium from Lutetium (III) Oxide**
  - Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335
  - 0.001%
- **Manganese**
  - 0.001%
- **Bismuth**
  - 0.001%
- **Scandium from Scandium oxide**
  - 0.001%
- **Uranium from Uranium Nitrate Hexahydrate**
  - Acute Tox. 2, H300; Acute Tox. 2, H330; STOT RE 2, H373; Aquatic Chronic 2, H411
  - 0.001%
- **Vanadium from Ammonium trioxovanadate**
  - Acute Tox. 3, H301; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335
  - 0.001%
- **Lithium from Lithium carbonate**
  - Acute Tox. 4, H302; Eye Irrit. 2, H319
  - 0.0003%
- **Ytterbium from Ytterbium (III) oxide**
  - 0.0003%
- **Yttrium from Yttrium oxide**
  - 0.0003%
- **Water, distilled, conductivity or of similar purity**
  - 94.98%

(Contd. on page 3)
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: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  · 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.

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.
### 41.2.4 Control parameters

- **Components with limit values that require monitoring at the workplace:**
  - 7697-37-2 nitric acid
    - PEL (Malaysia) Long-term value: 5.2 mg/m³, 2 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

### 41.2.5 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:**
    - 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.

- **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.
  - **Ignition temperature:**
  - Decomposition temperature: Not applicable.
41.2.4

- 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: 23 hPa
- Density: 1.0 g/mL @ 20 °C
- Relative density: Not applicable.
- Vapour 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:
  Organic solvents: 0.0 %
  Water: 95.0 %
- 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:
- 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
  - IARC (International Agency for Research on Cancer)
    7440-38-2 arsenic 1
    7440-41-7 Beryllium from Beryllium Acetate 1
    7440-43-9 cadmium (non-pyrophoric) 1
    7440-92-0 nickel 1
    7439-92-1 Lead from Lead Oxide 2B
    7440-29-1 Thorium from Thorium nitrate hydrate 1
    7440-48-4 cobalt 2B
12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Behavior in environmental systems:
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Additional ecological information:
  - General notes:
    - Water hazard class 2 (Self-assessment): hazardous for water
    - Do not allow product to reach ground water, water course or sewage system.
    - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    - Danger to drinking water if even small quantities leak into the ground.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
- Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - UN3264
- DOT, ADR, IMDG, IATA
- DOT
- ADR
- IMDG, IATA
- Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
- 5264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
- CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION)
**Product Name:** 7500 Series PA Tuning 1, Part Number 5188-6524-1

**Transport hazard class(es)**

- **DOT**
  - Class: 8 Corrosive substances
  - Label: 8

- **ADR, IMDG, IATA**
  - Class: 8 Corrosive substances
  - Label: 8

**Packing group**

- **DOT, ADR, IMDG, IATA**
  - Packing group: III

**Environmental hazards:**

- **Marine pollutant:** No

**Special precautions for user**

- **Danger code (Kemler):** Warning: Corrosive substances
  - Code: 80
- **EMS Number:** F-A-S-B
- **Segregation groups:** Acids

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

- **Transport/Additional information:** Not applicable.

- **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)
    - 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 SOLUTION), 8, III, (E)

**15 Regulatory information**

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

- **Sara**
  - Section 355 (extremely hazardous substances):
    - 7697-37-2 nitric acid
  
- **Section 313 (Specific toxic chemical listings):**
  
  - 7697-37-2 nitric acid
  - 7440-38-2 arsenic
  - 7440-41-7 Beryllium from Beryllium Acetate
  - 7440-43-9 cadmium (non-pyrophoric)
  - 7440-66-6 zinc powder -zinc dust (stabilized)
### TSCA (Toxic Substances Control Act):
- All ingredients are listed.

### Proposition 65
- **Chemicals known to cause cancer:**
  - 7440-38-2 arsenic
  - 7440-41-7 Beryllium from Beryllium Acetate
  - 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)

- **Chemicals known to cause developmental toxicity:**
  - 7440-43-9 cadmium (non-pyrophoric)
  - 7439-93-2 Lithium from Lithium carbonate

### Carcinogenic categories
- **EPA (Environmental Protection Agency)**
  - 7440-38-2 arsenic A
  - 7440-41-7 Beryllium from Beryllium Acetate B1, K(L(inh), CBD(oral))
  - 7440-43-9 cadmium (non-pyrophoric) B1
  - 7440-66-6 zinc powder -zinc dust (stabilized) D, I, H
  - 7439-92-1 Lead from Lead Oxide B2
  - 7440-39-3 Barium from Barium carbonate D, CBD(inh), NL(oral)
  - 7429-90-5 aluminium A4
  - 7440-48-4 cobalt A3
  - 7440-61-1 Uranium from Uranyl Nitrate Hexahydrate A1

- **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
  - 7440-39-3 Barium from Barium carbonate A4
  - 7429-90-5 aluminium A4
  - 7440-48-4 cobalt A3
  - 7440-61-1 Uranium from Uranyl Nitrate Hexahydrate A1

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
  - 7440-38-2 arsenic A1
  - 7440-43-9 cadmium (non-pyrophoric) A1
41.2.4 7440-02-0 nickel
7440-61-1 Uranium from Uranyl Nitrate Hexahydrate

· 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
  Causes severe skin burns and eye damage.

· Precautionary statements
  If medical advice is needed, have product container or label at hand.
  Keep out of reach of children.
  Read label before use.
  Do not breathe dust/fume/gas/mist/vapors/spray.
  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.
  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 Manufacturing GmbH & Co. KG
  0800 603 1000
  pdl-msds_author@agilent.com

· 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)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  Ox. Liq. 3: Oxidising Liquids, Hazard Category 3
  Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
  Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
  Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
1 Identification

- **Product identifier**
  - **Product Name:** 7500 Series PA Tuning 2, Part Number 5188-6524-2
  - **Part Number:** 5188-6524-2
  - **Relevant identified uses of the substance or mixture and uses advised against** No further relevant information available.
  - **Application of the substance / the mixture**
    Analytical Chemistry
    A 100mL Solution
  - **Details of the supplier of the safety data sheet**
    - **Manufacturer/Supplier:** Agilent Technologies Manufacturing GmbH & Co. KG
    Hewlett-Packard-Str. 8
    76337 Waldbronn
    Germany
    - **Information department:** product safety department
    - **Emergency telephone number:** CHEMTREC®: 1-800-815-308

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Skin Irrit. 2 H315 Causes skin irritation.
  - Eye Irrit. 2 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:**
  hydrofluoric acid

- **Hazard statements**
  - Causes skin irritation.
  - Causes serious eye irritation.
  - May cause respiratory irritation.

- **Precautionary statements**
  - If medical advice is needed, have product container or label at hand.
  - Keep out of reach of children.
  - Read label before use.
  - Avoid breathing dust/fume/gas/mist/vapors/spray
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - Specific treatment (see on this label).
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

(Contd. on page 2)
3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**
  - Hydrochloric acid (7647-01-0) with Skin Corr. 1B, H314; STOT SE 3, H335 (10.0%)
  - Nitric acid (7697-37-2) with Ox. Liq. 3, H272; Skin Corr. 1A, H314 (1.0%)
  - Hydrofluoric acid (7664-39-3) with Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1A, H314 (0.1%)

- **Chemical identification of the substance/preparation**
  - Ruthenium from Ruthenium (III) chloride trihydrate (7440-18-8) with Skin Corr. 1B, H314; Eye Dam. 1, H318 (0.001%)
  - Antimony (7439-98-7) (0.001%)
  - Tin (7440-31-5) (0.001%)
  - Germanium from Ammonium hexafluorogermanate(IV) (7440-36-4) with Acute Tox. 3, H331; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 (0.001%)
  - Palladium (7440-05-3) with Self-heat. 2, H252; Ox. Sol. 2, H272 (0.001%)
  - Titanium (7440-32-6) with Self-heat. 1, H251; Water-react. 1, H260 (0.001%)
  - Iridium from Iridium(III) chloride hydrate (7439-88-5) with Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 (0.001%)
  - Water, distilled, conductivity or of similar purity (7732-18-5) (88.893%)

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

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: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- **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.
41.2.4 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.

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:

    | Substance                  | Limit Value       |
    |---------------------------|-------------------|
    | 7647-01-0 hydrochloric acid | Ceiling limit: 7.5 mg/m³, 5 ppm |
    | 7697-37-2 nitric acid      | Long-term limit: 5.2 mg/m³, 2 ppm |

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls
  · Personal protective equipment:
    · General protective and hygienic measures:
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes 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.
### 9 Physical and chemical properties

**General Information**
- **Appearance:** Liquid
- **Color:** Colorless
- **Odor:** Odorless
- **Odour Threshold:** Not applicable.
- **pH-value:** <1

**Physical and Chemical Properties**
- **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.
- **Ignition temperature:**
  - 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:** 23 hPa

- **Density**
  - Relative density: Not applicable.
  - Vapour 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**
  - Organic solvents: 0.0 %
  - Water: 88.9 %

- **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.


## 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:** 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

- **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.

## 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.
    - 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.

## 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

- **DOT proper shipping name**
  - UN Number
  - ADR
  - IMDG, IATA
  - UN3264 Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid, Nitric acid solution)
  - ADR
  - IMDG, IATA
  - 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)

- **Transport hazard class(es)**
  - DOT
    - Class 8 Corrosive substances
    - Label 8
  - ADR, IMDG, IATA
    - Class 8 Corrosive substances
    - Label 8

- **Packing group**
  - DOT, ADR, IMDG, IATA
  - II

- **Environmental hazards**
  - Marine pollutant: No

- **Special precautions for user**
  - Danger code (Kemler): Warning: Corrosive substances
  - EMS Number: F-A,S-B
  - Segregation groups: Acids

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information**
  - ADR
    - Excepted quantities (EQ)
      - Code: E2
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 500 ml
  - IMDG
    - Limited quantities (LQ)
      - 1L
    - Excepted quantities (EQ)
      - Code: E2
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 500 ml
  - UN "Model Regulation":
    - UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, NITRIC ACID SOLUTION), 8, II, (E)
15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  · Sara
    - Section 355 (extremely hazardous substances):
      - 7647-01-0 hydrochloric acid
      - 7697-37-2 nitric acid
      - 7664-39-3 hydrofluoric acid
    - 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):
    - All ingredients are listed.
  · 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:
    hydrofluoric acid
  · Hazard statements
    Causes skin irritation.
    Causes serious eye irritation.
    May cause respiratory irritation.
  · Precautionary statements
    If medical advice is needed, have product container or label at hand.
    Keep out of reach of children.
    Read label before use.
    Avoid breathing dust/fume/gas/mist/vapors/spray
    Wear protective gloves/protective clothing/eye protection/face protection.
    If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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 Manufacturing GmbH & Co. KG
  0800 603 1000
  pdl-msds_author@agilent.com
- 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)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  Ox. Ldg. 3: Oxidising Liquids, Hazard Category 3
  Acute Tox. 2: Acute toxicity, Hazard Category 2
  Acute Tox. 1: Acute toxicity, Hazard Category 1
  Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
  Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
  Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
  STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3