1 Identification

· Product identifier
  · Trade name: ICP-MS Interference Check Standard 2
  · Article number: ICP-MS-ICS-2-A

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    High-Purity Standards
    P.O. Box 41727
    Charleston, SC 29423
    Telephone: (843) 767-7900
    FAX: (843) 767-7906

· Information department: Product safety department
  · Emergency telephone number:
    INFOTRAC
    Emergency telephone numbers 1-800-535-5053
    Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS08 Health hazard
  Carc. 1A H350 May cause cancer.

  GHS05 Corrosion
  Met. Corr. 1 H290 May be corrosive to metals.
  Skin Corr. 1A H314 Causes severe skin burns and eye damage.
  Eye Dam. 1 H318 Causes serious eye damage.

  GHS07 Acute Tox. 4 H312 Harmful in contact with skin.

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

  GHS05 GHS07 GHS08

· Signal word Danger

· Hazard-determining components of labeling:
  nitric acid

(Contd. on page 2)
Hydrofluoric acid
sulphuric acid

· **Hazard statements**
  
  H290 May be corrosive to metals.
  H312 Harmful in contact with skin.
  H314 Causes severe skin burns and eye damage.
  H350 May cause cancer.

· **Precautionary statements**
  Obtain special instructions before use.
  Do not handle until all safety precautions have been read and understood.
  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.
  IF exposed or concerned: Get medical advice/attention.
  Specific treatment (see on this label).
  Take off contaminated clothing and wash it before reuse.
  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)**

  Health = 3
  Fire = 0
  Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

  HEALTH
  Health = *3
  FIRE
  Fire = 0
  REACTIVITY
  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.
Trade name: ICP-MS Interference Check Standard 2

4 First-aid measures

· **Description of first aid measures**
  · **General information:**
    Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  · **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:** 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:**
  
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical</th>
<th>PAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>0.16 ppm</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>Hydrofluoric acid</td>
<td>1.0 ppm</td>
</tr>
<tr>
<td>471-34-1</td>
<td>calcium carbonate</td>
<td>45 mg/m³</td>
</tr>
<tr>
<td>497-19-8</td>
<td>sodium carbonate</td>
<td>7.6 mg/m³</td>
</tr>
<tr>
<td>7439-89-6</td>
<td>iron</td>
<td>3.2 mg/m³</td>
</tr>
<tr>
<td>631-61-8</td>
<td>ammonium acetate</td>
<td>3.8 mg/m³</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>9 mg/m³</td>
</tr>
<tr>
<td>7722-76-1</td>
<td>Ammonium dihydrogenphosphate</td>
<td>17 mg/m³</td>
</tr>
<tr>
<td>7664-93-9</td>
<td>sulphuric acid</td>
<td>0.20 mg/m³</td>
</tr>
<tr>
<td>13446-18-9</td>
<td>magnesium nitrate hexahydrate</td>
<td>16 mg/m³</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td>30 mg/m³</td>
</tr>
<tr>
<td>13106-76-8</td>
<td>ammonium molybdate(VI)</td>
<td>3.1 mg/m³</td>
</tr>
</tbody>
</table>

  **PAC-2:**
  
<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical</th>
<th>PAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>24 ppm</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>Hydrofluoric acid</td>
<td>24 ppm</td>
</tr>
<tr>
<td>471-34-1</td>
<td>calcium carbonate</td>
<td>210 mg/m³</td>
</tr>
<tr>
<td>497-19-8</td>
<td>sodium carbonate</td>
<td>83 mg/m³</td>
</tr>
<tr>
<td>7439-89-6</td>
<td>iron</td>
<td>35 mg/m³</td>
</tr>
<tr>
<td>631-61-8</td>
<td>ammonium acetate</td>
<td>42 mg/m³</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>7722-76-1</td>
<td>Ammonium dihydrogenphosphate</td>
<td>190 mg/m³</td>
</tr>
<tr>
<td>7664-93-9</td>
<td>sulphuric acid</td>
<td>8.7 mg/m³</td>
</tr>
<tr>
<td>13446-18-9</td>
<td>magnesium nitrate hexahydrate</td>
<td>180 mg/m³</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
<td>330 mg/m³</td>
</tr>
<tr>
<td>13106-76-8</td>
<td>ammonium molybdate(VI)</td>
<td>22 mg/m³</td>
</tr>
</tbody>
</table>
7 Handling and storage

- **Handling:**
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Open and handle receptacle with care.
    Prevent formation of aerosols.
  - Information about protection against explosions and fires: Keep respiratory protective device available.

- **Conditions for safe storage, including any incompatibilities**
  - Storage:
    - Requirements to be met by storerooms and receptacles: No special requirements.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions: Keep receptacle tightly sealed.
  - Specific end use(s) No further relevant information available.

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:**

    | Component Code | Component Name                  | Limit Value |
    |----------------|---------------------------------|-------------|
    | 7697-37-2      | nitric acid                     | 92 ppm      |
    | 7664-39-3      | Hydrofluoric acid               | 44 ppm      |
    | 471-34-1       | calcium carbonate               | 1,300 mg/m³ |
    | 497-19-8       | sodium carbonate                | 500 mg/m³   |
    | 7439-89-6      | iron                            | 150 mg/m³   |
    | 631-61-8       | ammonium acetate                | 250 mg/m³   |
    | 7757-79-1      | potassium nitrate               | 600 mg/m³   |
    | 7722-76-1      | Ammonium dihydrogenphosphate    | 1,100 mg/m³ |
    | 7664-93-9      | sulphuric acid                  | 160 mg/m³   |
    | 13446-18-9     | magnesium nitrate hexahydrate   | 1,100 mg/m³ |
    | 7440-32-6      | titanium                         | 2,000 mg/m³ |
    | 13106-76-8     | ammonium molybdate(VI)          | 130 mg/m³   |

(Contd. on page 6)
REL Long-term value: 1 mg/m³
TLV Long-term value: 0.2* mg/m³

*as thoracic fraction

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.
Store protective clothing separately.
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.

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.
47.1.4

· pH-value: Not determined.
· Change in condition
  Melting point/Melting range: Undetermined.
  Boiling point/Boiling range: 83 °C (181.4 °F)
· Flash point: Not applicable.
· Flammability (solid, gaseous): Not applicable.
· Decomposition temperature: Not determined.
· Auto igniting: Product is not selfigniting.
· Danger of explosion: Product does not present an explosion hazard.
· Explosion limits:
  Lower: Not determined.
  Upper: Not determined.
· Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)
· Density: Not determined.
  Relative density Not determined.
  Vapor density Not determined.
  Evaporation rate Not determined.
· Solubility in / Miscibility with Water: Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water): Not determined.
· Viscosity:
  Dynamic: Not determined.
  Kinematic: Not determined.
· Solvent content:
  Water: 91.0 %
  VOC content: 0.00 %
  0.0 g/l / 0.00 lb/gal
· Solids content: 3.3 %
· 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:
      
      | Substance                        | LD/LC50 Value |
      |---------------------------------|---------------|
      | 7664-39-3 Hydrofluoric acid      | Oral LD50 1,276 mg/kg (rat) |
    
    · Primary irritant effect:
      · on the skin: Strong 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:
      Harmful
      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)
    7664-93-9 sulphuric acid I
  · NTP (National Toxicology Program)
    7664-93-9 sulphuric acid K
  · 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.
      Must not reach bodies of water or drainage ditch undiluted or unneutralized.

· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.
Trade name: ICP-MS Interference Check Standard 2

**13 Disposal considerations**

- **Waste treatment methods**
  - **Recommendation:**
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

- **UN-Number**
  - DOT, ADR, IMDG, IATA  
    UN3264

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

- **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  
      III

  - **Environmental hazards:**
    - Not applicable.

- **Special precautions for user**
  - Warning: Corrosive substances
  - Danger Code (Kemler): 80
  - EMS Number: F-A,S-B
  - Segregation groups: Acids
### 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
  - 7664-39-3 Hydrofluoric acid
  - 7664-93-9 sulphuric acid

- **Section 313 (Specific toxic chemical listings):**
  - 7697-37-2 nitric acid
  - 7664-39-3 Hydrofluoric acid
  - 7757-79-1 potassium nitrate
  - 7664-93-9 sulphuric acid
  - 13446-18-9 magnesium nitrate hexahydrate
  - 7429-90-5 aluminium

- **TSCA (Toxic Substances Control Act):**
  - 7697-37-2 nitric acid
  - 7647-14-5 sodium chloride
  - 7664-39-3 Hydrofluoric acid
  - 471-34-1 calcium carbonate
  - 497-19-8 sodium carbonate
### Trade name: ICP-MS Interference Check Standard 2

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>iron</td>
</tr>
<tr>
<td>631-61-8</td>
<td>ammonium acetate</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
</tr>
<tr>
<td>7722-76-1</td>
<td>ammonium dihydrogenphosphate</td>
</tr>
<tr>
<td>7664-93-9</td>
<td>sulphuric acid</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium</td>
</tr>
<tr>
<td>7440-32-6</td>
<td>titanium</td>
</tr>
<tr>
<td>13106-76-8</td>
<td>ammonium molybdate(VI)</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>water, distilled, conductivity or of similar purity</td>
</tr>
</tbody>
</table>

#### 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) (Substances not listed)**
  7697-37-2 nitric acid  
  7647-14-5 sodium chloride  
  7664-39-3 Hydrofluoric acid  
  471-34-1 calcium carbonate  
  497-19-8 sodium carbonate  
  7439-89-6 iron  
  7757-79-1 potassium nitrate  
  7722-76-1 ammonium dihydrogenphosphate  
  7664-93-9 sulphuric acid  
  13446-18-9 magnesium nitrate hexahydrate  
  7429-90-5 aluminium  
  7440-32-6 titanium  
  13106-76-8 ammonium molybdate(VI)  
  7732-18-5 water, distilled, conductivity or of similar purity

#### TLV (Threshold Limit Value established by ACGIH)

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>TLV Category</th>
</tr>
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<tbody>
<tr>
<td>7664-93-9</td>
<td>sulphuric acid</td>
<td>A2</td>
</tr>
<tr>
<td>7429-90-5</td>
<td>aluminium</td>
<td>A4</td>
</tr>
<tr>
<td>13106-76-8</td>
<td>ammonium molybdate(VI)</td>
<td>A3</td>
</tr>
</tbody>
</table>

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

None of the ingredients is listed.
Trade name: ICP-MS Interference Check Standard 2

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

- **Hazard pictograms**

  ![GHS05](image1) ![GHS07](image2) ![GHS08](image3)

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - nitric acid
  - Hydrofluoric acid
  - sulphuric acid

- **Hazard statements**
  - H290 May be corrosive to metals.
  - H312 Harmful in contact with skin.
  - H314 Causes severe skin burns and eye damage.
  - H350 May cause cancer.

- **Precautionary statements**
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - 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.
  - IF exposed or concerned: Get medical advice/attention.
  - Specific treatment (see on this label).
  - Take off contaminated clothing and wash it before reuse.
  - 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.

- **National regulations:**
  - Additional classification according to Decree on Hazardous Materials:
    - Carcinogenic hazardous material group III (dangerous).

- **Information about limitation of use:**
  - Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

- **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** 04/08/2019 / -
- **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)
  - 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
  - Met. Corr. 1: Corrosive to metals – Category 1
  - Acute Tox. 4: Acute toxicity – Category 4
  - Skin Corr. 1A: Skin corrosion/irritation – Category 1A
  - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  - Carc. 1A: Carcinogenicity – Category 1A
1 Identification

- **Product identifier**
- **Trade name:** ICP-MS Interference Check Standard 2 Solution B
- **Article number:** ICP-MS-ICS-B

- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
  High-Purity Standards
  P.O. Box 41727
  Charleston, SC 29423
  Telephone: (843) 767-7900
  FAX: (843) 767-7906

- **Information department:** Product safety department
- **Emergency telephone number:**
  INFOTRAC
  Emergency telephone numbers 1-800-535-5053
  Other emergency telephone numbers 1-352-323-3500

2 Hazard(s) identification

- **Classification of the substance or mixture**

  ![](image)
  **GHS05 Corrosion**

  Met. Corr. 1   H290  May be corrosive to metals.
  Skin Corr. 1A  H314  Causes severe skin burns and eye damage.
  Eye Dam. 1  H318  Causes serious eye damage.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

  ![](image)
  **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.
Trade name: ICP-MS Interference Check Standard 2 Solution B

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)
  Health = 3
  Fire = 0
  Reactivity = 0

· HMIS-ratings (scale 0 - 4)
  HEALTH
  Health = 3
  FIRE
  Fire = 0
  REACTIVITY
  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 2.0%

· Chemical identification of the substance/preparation
  7440-47-3 chromium 0.002%
  7440-48-4 cobalt 0.002%
  7440-50-8 copper 0.002%
  6156-78-1 Manganese(II) acetate tetrahydrate 0.002%
  7440-02-0 nickel 0.002%
  7803-55-6 Ammonium Vanadate 0.002%
  7782-49-2 selenium 0.001%
  7440-66-6 zinc 0.001%
  7440-43-9 cadmium (non-pyrophoric) 0.001%
  7440-38-2 arsenic 0.001%
  7440-22-4 silver 0.0003%
Trade name: ICP-MS Interference Check Standard 2 Solution B

7732-18-5 water, distilled, conductivity or of similar purity 97.9835%

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 |
      | 7440-47-3 chromium   | 1.5 mg/m³ |
      | 7440-48-4 cobalt     | 0.18 mg/m³ |
      | 7440-50-8 copper     | 3 mg/m³ |
      | 6136-78-1 Manganese(II) acetate tetrahydrate | 13 mg/m³ |

(Contd. on page 4)
### 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.

---

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-02-0 nickel</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td>7803-55-6 Ammonium Vanadate</td>
<td>0.01 mg/m³</td>
</tr>
<tr>
<td>7782-49-2 selenium</td>
<td>0.6 mg/m³</td>
</tr>
<tr>
<td>7440-66-6 zinc</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>7440-43-9 cadmium (non-pyrophoric)</td>
<td>0.10 mg/m³</td>
</tr>
<tr>
<td>7440-38-2 arsenic</td>
<td>1.5 mg/m³</td>
</tr>
<tr>
<td>7440-22-4 silver</td>
<td>0.3 mg/m³</td>
</tr>
</tbody>
</table>

**PAC-2:**
- 7697-37-2 nitric acid | 24 ppm |
- 7440-47-3 chromium | 17 mg/m³ |
- 7440-48-4 cobalt | 2 mg/m³ |
- 7440-50-8 copper | 33 mg/m³ |
- 6156-78-1 Manganese(II) acetate tetrahydrate | 22 mg/m³ |
- 7440-02-0 nickel | 50 mg/m³ |
- 7803-55-6 Ammonium Vanadate | 0.11 mg/m³ |
- 7782-49-2 selenium | 6.6 mg/m³ |
- 7440-66-6 zinc | 21 mg/m³ |
- 7440-43-9 cadmium (non-pyrophoric) | 0.76 mg/m³ |
- 7440-38-2 arsenic | 17 mg/m³ |
- 7440-22-4 silver | 170 mg/m³ |

**PAC-3:**
- 7697-37-2 nitric acid | 92 ppm |
- 7440-47-3 chromium | 99 mg/m³ |
- 7440-48-4 cobalt | 20 mg/m³ |
- 7440-50-8 copper | 200 mg/m³ |
- 6156-78-1 Manganese(II) acetate tetrahydrate | 740 mg/m³ |
- 7440-02-0 nickel | 99 mg/m³ |
- 7803-55-6 Ammonium Vanadate | 80 mg/m³ |
- 7782-49-2 selenium | 40 mg/m³ |
- 7440-66-6 zinc | 120 mg/m³ |
- 7440-43-9 cadmium (non-pyrophoric) | 4.7 mg/m³ |
- 7440-38-2 arsenic | 100 mg/m³ |
- 7440-22-4 silver | 990 mg/m³ |
Trade name: ICP-MS Interference Check Standard 2 Solution B

- 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:
<table>
<thead>
<tr>
<th>7697-37-2 nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>Long-term value: 5 mg/m³, 2 ppm</td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td>Long-term value: 5.2 mg/m³, 2 ppm</td>
</tr>
</tbody>
</table>

- 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.
Trade name: ICP-MS Interference Check Standard 2 Solution B

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Liquid
      - Color: Colorless
    - Odor: Characteristic
    - Odor threshold: Not determined.
  - pH-value: Not determined.
- Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: 100 °C (212 °F)
- Flash point: Not applicable.
- Flammability (solid, gaseous): Not applicable.
- Decomposition temperature: Not determined.
- Auto igniting: Product is not selfigniting.
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not determined.
  - Upper: Not determined.
- Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)
- Density: Not determined.
  - Relative density: Not determined.
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
- Solubility in / Miscibility with
  - Water: Not miscible or difficult to mix.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content:
  - Water: 98.0 %

(Contd. of page 5)
47.1.4 VOC content: 0.00 %
                  0.0 g/l / 0.00 lb/gal

Solids content: 0.0 %

Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- 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: 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)
    - 7440-47-3 chromium 3
    - 7440-48-4 cobalt 2B
    - 7440-02-0 nickel 2B
    - 7782-49-2 selenium 3
    - 7440-43-9 cadmium (non-pyrophoric) 1
    - 7440-38-2 arsenic 1

  - NTP (National Toxicology Program)
    - 7440-48-4 cobalt R
    - 7440-02-0 nickel R
    - 7440-43-9 cadmium (non-pyrophoric) K
    - 7440-38-2 arsenic K

(Contd. on page 8)
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:
    Generally 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 package:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - DOT, ADR, IMDG, IATA: UN3264
- UN proper shipping name
  - DOT: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
  - ADR: 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
  - IMDG, IATA: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
Trade name: ICP-MS Interference Check Standard 2 Solution B

### Transport hazard class(es)

- **DOT**
  - **Class**: 8
  - **Label**: 8

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

### Packing group

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

### Environmental hazards:

- Not applicable.

### Special precautions for user

- **Danger code (Kemler)**: 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 MARPOL73/78 and the IBC Code

- Not applicable.

### Transport/Additional information:

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

- **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)**: 5L
  - **Excepted quantities (EQ)**: Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

- **UN "Model Regulation"**:
  - UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

(Contd. on page 10)
## 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
      - 7440-47-3 chromium
      - 7440-48-4 cobalt
      - 7440-50-8 copper
      - 7440-02-0 nickel
      - 7803-55-6 Ammonium Vanadate
      - 7782-49-2 selenium
      - 7440-66-6 zinc
      - 7440-43-9 cadmium (non-pyrophoric)
      - 7440-38-2 arsenic
      - 7440-22-4 silver
    - **TSCA (Toxic Substances Control Act):**
      - 7697-37-2 nitric acid
      - 7440-47-3 chromium
      - 7440-48-4 cobalt
      - 7440-50-8 copper
      - 7440-02-0 nickel
      - 7803-55-6 Ammonium Vanadate
      - 7782-49-2 selenium
      - 7440-66-6 zinc
      - 7440-43-9 cadmium (non-pyrophoric)
      - 7440-38-2 arsenic
      - 7440-22-4 silver
      - 7732-18-5 water, distilled, conductivity or of similar purity
    - **Proposition 65**
      - **Chemicals known to cause cancer:**
        - 7440-48-4 cobalt
        - 7440-02-0 nickel
        - 7440-43-9 cadmium (non-pyrophoric)
        - 7440-38-2 arsenic
      - **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)
Trade name: ICP-MS Interference Check Standard 2 Solution B

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

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency) (Substances not listed)**
    - 7697-37-2 nitric acid
    - 7440-48-4 cobalt
    - 6136-78-1 Manganese(II) acetate tetrahydrate
    - 7440-02-0 nickel
    - 7803-55-6 Ammonium Vanadate
    - 7732-18-5 water, distilled, conductivity or of similar purity

- **TLV (Threshold Limit Value established by ACGIH)**
  - 7440-47-3 chromium A4
  - 7440-48-4 cobalt A3
  - 7440-02-0 nickel A5
  - 7440-43-9 cadmium (non-pyrophoric) A2
  - 7440-38-2 arsenic A1

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
  - 7440-02-0 nickel
  - 7440-43-9 cadmium (non-pyrophoric)
  - 7440-38-2 arsenic

- **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.
  - 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.
47.1.4 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 11/26/2018 / -
  · 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
    Met. Corr.1: Corrosive to metals – Category 1
    Skin Corr. 1A: Skin corrosion/irritation – Category 1A
    Eye Dam. 1: Serious eye damage/eye irritation – Category 1