Section 1. Identification

1.1 Product identifier
Product name : ICP-MS Tuning Solution 10 ppm, Part Number 5190-0465
Part no. : 5190-0465
Validation date : 10/11/2022

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
100 ml

1.3 Details of the supplier of the safety data sheet
Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number
In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
H290 CORROSIVE TO METALS - Category 1
H331 ACUTE TOXICITY (inhalation) - Category 3
H315 SKIN IRRITATION - Category 2
H318 SERIOUS EYE DAMAGE - Category 1
H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

2.2 GHS label elements
Hazard pictograms :

Signal word : Danger

Hazard statements : H290 - May be corrosive to metals.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H331 - Toxic if inhaled.
H335 - May cause respiratory irritation.
H373 - May cause damage to organs through prolonged or repeated exposure. (teeth)

Precautionary statements
Prevention : P280 - Wear protective gloves. Wear eye or face protection.
P234 - Keep only in original packaging.
P260 - Do not breathe vapor.
P264 - Wash thoroughly after handling.

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Section 2. Hazards identification

**Response**
- P390 - Absorb spillage to prevent material damage.
- P314 - Get medical advice or attention if you feel unwell.
- P304 + P340, P311 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor.
- P362 + P364 - Take off contaminated clothing and wash it before reuse.
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P305 + P351 + P338, P310 - 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 or doctor.

**Storage**
- P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

**Disposal**
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3 Other hazards

**Hazards not otherwise classified**
- None known.

Section 3. Composition/information on ingredients

**Substance/mixture**
- Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>≤3</td>
<td>7697-37-2</td>
</tr>
<tr>
<td>Thallium nitrate</td>
<td>&lt;0.0025</td>
<td>10102-45-1</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

**Eye contact**
- Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

**Inhalation**
- Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Skin contact**
- Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Section 4. First aid measures

**Ingestion**
Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

**Potential acute health effects**

- **Eye contact**: Causes serious eye damage.
- **Inhalation**: Toxic if inhaled. May cause respiratory irritation.
- **Skin contact**: Causes skin irritation.
- **Ingestion**: No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

- **Eye contact**: Adverse symptoms may include the following:
  - Pain
  - Watering
  - Redness

- **Inhalation**: Adverse symptoms may include the following:
  - Respiratory tract irritation
  - Coughing

- **Skin contact**: Adverse symptoms may include the following:
  - Pain or irritation
  - Redness
  - Blistering may occur

- **Ingestion**: Adverse symptoms may include the following:
  - Stomach pains

4.3 Indication of immediate medical attention and special treatment needed, if necessary

**Notes to physician**: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments**: No specific treatment.

**Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

- **Suitable extinguishing media**: Use an extinguishing agent suitable for the surrounding fire.
- **Unsuitable extinguishing media**: None known.

5.2 Special hazards arising from the substance or mixture
Section 5. Fire-fighting measures

Specific hazards arising from the chemical
Hazardous thermal decomposition products

- In a fire or if heated, a pressure increase will occur and the container may burst.
- Decomposition products may include the following materials:
  - nitrogen oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters
Special protective equipment for fire-fighters

- Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
For emergency responders

- No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

- Stop leak if without risk. Move containers from spill area. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures
Advice on general occupational hygiene

- Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.
- Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Store locked up. Separate from alkalis. Keep away from metals. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations

Industrial sector specific solutions

Industrial applications, Professional applications.

Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>ACGIH TLV (United States, 1/2022).</td>
</tr>
<tr>
<td></td>
<td>TWA: 2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 5.2 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 4 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEL: 10 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>TWA: 2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 4 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEL: 10 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2020).</td>
</tr>
<tr>
<td></td>
<td>TWA: 2 ppm 10 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ 10 hours.</td>
</tr>
<tr>
<td></td>
<td>STEL: 4 ppm 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>STEL: 10 mg/m³ 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 5/2018).</td>
</tr>
<tr>
<td></td>
<td>TWA: 2 ppm 8 hours.</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ 8 hours.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2020).</td>
</tr>
<tr>
<td></td>
<td>[THALLIUM SOLUBLE COMPOUNDS] Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.1 mg/m³, (as Tl) 10 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 5/2018).</td>
</tr>
<tr>
<td></td>
<td>[Thallium, soluble compounds] Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.1 mg/m³, (as Tl) 8 hours.</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 1/2022).</td>
</tr>
<tr>
<td></td>
<td>[Thallium and compounds] Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.02 mg/m³, (as Tl) 8 hours. Form: Inhalable fraction</td>
</tr>
<tr>
<td></td>
<td>[Thallium, soluble compounds (as Tl)] Absorbed through skin.</td>
</tr>
<tr>
<td></td>
<td>TWA: 0.1 mg/m³, (as Tl) 8 hours. Form: Soluble</td>
</tr>
</tbody>
</table>

Thallium nitrate
Section 8. Exposure controls/personal protection

Biological exposure indices
No exposure indices known.

8.2 Exposure controls
Appropriate engineering controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics
The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance
Physical state: Liquid.
Color: Colorless.
Odor: Acrid.
Odor threshold: Not available.
pH: To 2
Melting point/freezing point: 0°C (32°F)
Section 9. Physical and chemical properties and safety characteristics

Boiling point, initial boiling point, and boiling range:
- 100°C (212°F)

Flash point:
- Not available.

Evaporation rate:
- Not available.

Flammability:
- Not applicable.

Lower and upper explosion limit/flammability limit:
- Not available.

Relative vapor density:
- Not available.

Relative density:
- 1

Density:
- 1 g/cm³

Solubility(ies):
- Media
- Result
  - Water
  - Soluble

Miscible with water:
- Yes.

Partition coefficient: n-octanol/water:
- Not applicable.

Auto-ignition temperature:
- Not available.

Decomposition temperature:
- Not available.

Viscosity:
- Not available.

Particle characteristics:
- Median particle size:
  - Not applicable.

---

Vapor pressure:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapor Pressure at 20°C</th>
<th>Vapor pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>nitric acid</td>
<td>48</td>
<td>6.4</td>
</tr>
<tr>
<td>water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

---

Section 10. Stability and reactivity

10.1 Reactivity:
- No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability:
- The product is stable.

10.3 Possibility of hazardous reactions:
- Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid:
- No specific data.

10.5 Incompatible materials:
- Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
- Reactive or incompatible with the following materials:
  - Alkalis
  - Metals
  - Reactive or incompatible with the following materials: oxidizing materials and organic materials.

10.6 Hazardous decomposition products:
- Under normal conditions of storage and use, hazardous decomposition products should not be produced.
# Section 11. Toxicological information

## 11.1 Information on toxicological effects

### Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>2500 ppm</td>
<td>1 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>130 mg/m³</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

Not available.

**Sensitization**

Not available.

### Mutagenicity

**Conclusion/Summary**: Not available.

### Carcinogenicity

**Conclusion/Summary**: Not available.

### Classification

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thallium nitrate</td>
<td>-</td>
<td>2A</td>
<td>-</td>
</tr>
</tbody>
</table>

### Reproductive toxicity

**Conclusion/Summary**: Not available.

### Teratogenicity

**Conclusion/Summary**: Not available.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP-MS Tuning Solution 10 ppm, Part Number 5190-0465</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>nitric acid</td>
<td>Category 3</td>
<td>-</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>Category 2</td>
<td>-</td>
<td>teeth</td>
</tr>
<tr>
<td>Thallium nitrate</td>
<td>Category 2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure**

**Potential acute health effects**

- **Eye contact**: Causes serious eye damage.
- **Inhalation**: Toxic if inhaled. May cause respiratory irritation.
- **Skin contact**: Causes skin irritation.
- **Ingestion**: No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

---

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Section 11. Toxicological information

Eye contact: Adverse symptoms may include the following:
- pain
- watering
- redness

Inhalation: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing

Skin contact: Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur

Ingestion: Adverse symptoms may include the following:
- stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Reproductive toxicity: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP-MS Tuning Solution 10 ppm, Part Number 5190-0465</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>6.5</td>
<td>80.6</td>
</tr>
<tr>
<td>nitric acid</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>0.13</td>
<td>1.61125</td>
</tr>
<tr>
<td>Thallium nitrate</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>Acute LC50 180000 µg/l Marine water</td>
<td>Crustaceans - Carcinus maenas - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td>Thallium nitrate</td>
<td>Acute LC50 72 ppm Fresh water Chronic NOEC 0.89 µg/l Fresh water</td>
<td>Fish - Gambusia affinis - Adult Daphnia - Daphnia magna - Neonate</td>
<td>96 hours 21 days</td>
</tr>
</tbody>
</table>

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Section 12. Ecological information

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>-0.21</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3264</td>
<td>UN3264</td>
<td>UN3264</td>
<td>UN3264</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Corrosive liquid, acidic, inorganic, n. o.s. (nitric acid, solution)</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O. S. (nitric acid, solution)</td>
<td>LIQUIDO CORROSIVO, ACIDO, INORGANICO, N. E.P. (nitric acid, solution)</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O. S. (nitric acid, solution)</td>
</tr>
</tbody>
</table>

Date of issue : 10/11/2022
Section 14. Transport information

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th>8</th>
<th>8</th>
<th>8</th>
<th>8</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
<td>III</td>
</tr>
</tbody>
</table>

### Additional information

**DOT Classification**
- **Reportable quantity**: 50000 lbs / 22700 kg [5996.7 gal / 22700 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- **Limited quantity**: Yes.
- **Quantity limitation**: Passenger aircraft/rail: 5 L. Cargo aircraft: 60 L.
- **Special provisions**: IB3, T7, TP1, TP28

**TDG Classification**
- Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).
- **Explosive Limit and Limited Quantity Index**: 5
- **Passenger Carrying Road or Rail Index**: 5
- **Special provisions**: 16

**Mexico Classification**
- **Special provisions**: 223, 274

**IMDG**
- **Emergency schedules**: F-A, S-B
- **Special provisions**: 223, 274

**IATA**
- **Quantity limitation**: Passenger and Cargo Aircraft: 5 L. Packaging instructions: 852.
- **Special provisions**: A3, A803

**Special precautions for user**
- **Transport within user's premises**: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments**
- Not available.

Section 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**U.S. Federal regulations**
- **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
- **Clean Water Act (CWA) 307**: Thallium nitrate
- **Clean Water Act (CWA) 311**: nitric acid

**Clean Air Act Section 112**
- **Class I Substances**: Listed
- **Class II Substances**: Not listed

**Clean Air Act Section 602**
- **Class I Substances**: Not listed
- **Class II Substances**: Not listed
Section 15. Regulatory information

DEA List I Chemicals
(Precursor Chemicals) : Not listed
DEA List II Chemicals
(Essential Chemicals) : Not listed

SARA 302/304
Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ (lbs)</th>
<th>SARA 302 TPQ (gallons)</th>
<th>SARA 304 RQ (lbs)</th>
<th>SARA 304 RQ (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>≤3</td>
<td>Yes.</td>
<td>1000</td>
<td>85.7</td>
<td>1000</td>
<td>85.7</td>
</tr>
</tbody>
</table>

SARA 304 RQ : 50000 lbs / 22700 kg [5996.7 gal / 22700 L]

SARA 311/312
Classification : CORROSIVE TO METALS - Category 1
                ACUTE TOXICITY (inhalation) - Category 3
                SKIN IRRITATION - Category 2
                SERIOUS EYE DAMAGE - Category 1
                SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
                SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitric acid</td>
<td>≤3</td>
<td>OXIDIZING LIQUIDS - Category 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CORROSIVE TO METALS - Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACUTE TOXICITY (inhalation) - Category 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SKIN CORROSION - Category 1A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SERIOUS EYE DAMAGE - Category 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HNOC - Corrosive to digestive tract</td>
</tr>
</tbody>
</table>

SARA 313

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form R - Reporting requirements</td>
<td>nitric acid</td>
<td>7697-37-2</td>
</tr>
<tr>
<td>Supplier notification</td>
<td>nitric acid</td>
<td>7697-37-2</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: NITRIC ACID
New York     : The following components are listed: Nitric acid
New Jersey   : The following components are listed: NITRIC ACID
Pennsylvania : The following components are listed: NITRIC ACID

California Prop. 65

⚠️ WARNING: This product can expose you to Cobalt metal powder, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>No significant risk level</th>
<th>Maximum acceptable dosage level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt metal powder</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Date of issue : 10/11/2022

12/14
Section 15. Regulatory information

International regulations

**Chemical Weapon Convention List Schedules I, II & III Chemicals**
Not listed.

**Montreal Protocol**
Not listed.

**Stockholm Convention on Persistent Organic Pollutants**
Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**
Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**
Not listed.

Inventory list

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Not determined</td>
</tr>
<tr>
<td>Canada</td>
<td>At least one component is not listed in DSL but all such components are listed in NDSL.</td>
</tr>
<tr>
<td>China</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Eurasian Economic Union</td>
<td><strong>Russian Federation inventory</strong>: All components are listed or exempted.</td>
</tr>
<tr>
<td>Japan</td>
<td><strong>Japan inventory (CSCL)</strong>: Not determined.</td>
</tr>
<tr>
<td></td>
<td><strong>Japan inventory (ISHL)</strong>: All components are listed or exempted.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Philippines</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Not determined</td>
</tr>
<tr>
<td>Turkey</td>
<td>Not determined</td>
</tr>
<tr>
<td>United States</td>
<td>All components are active or exempted.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>All components are listed or exempted.</td>
</tr>
</tbody>
</table>

Section 16. Other information

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORROSIVE TO METALS - Category 1</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>ACUTE TOXICITY (inhalation) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SKIN IRRITATION - Category 2</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE - Category 1</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

History

| Date of issue            | 10/11/2022 |
| Date of previous issue   | 05/26/2022 |
| Version                  | 7.1        |
Section 16. Other information

Key to abbreviations:
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- N/A = Not available
- UN = United Nations

 Indicates information that has changed from previously issued version.

Notice to reader

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