1 Identification

- **Product identifier**

- **Product Name:** 1000 µg/mL Beryllium

- **Part Number:**
  - PLBE2-2M
  - PLBE2-2Y
  - PLBE2-2T
  - PLBE2-2X

- **Application of the substance / the mixture** Certified Reference Material

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**
  - SPEX CertiPrep, LLC.
  - 203 Norcross Ave, Metuchen, NJ 08840 USA

- **Information department:** product safety department

- **Emergency telephone number:**
  - Emergency Phone Number (24 hours)
    - CHEMTREC (800-424-9300)
  - Outside US: 703-527-3887

2 Hazard(s) identification

- **Classification of the substance or mixture**

  ![GHS08 Health hazard]

  **Carc. 1A** H350 May cause cancer.

  ![GHS07]

  **Skin Irrit. 2** H315 Causes skin irritation.

  **Eye Irrit. 2A** H319 Causes serious eye irritation.

- **Label elements**

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

  - **Hazard pictograms**

    ![GHS07][GHS08]

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - Beryllium from Beryllium Acetate

- **Hazard statements**

  Causes skin irritation.
  Causes serious eye irritation.
  May cause cancer.

- **Precautionary statements**

  Wear protective gloves.
  Wear 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.

- **Classification system:**

  - **NFPA ratings (scale 0 - 4)**

    ![000]

    Health = 1
    Fire = 0
    Reactivity = 0

(Contd. on page 2)
Product Name: 1000 µg/mL Beryllium

- HMIS-ratings (scale 0 - 4)
  - Health = *1
  - Fire = 0
  - Reactivity = 0

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

3 Composition/information on ingredients

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

- Dangerous components:
  - 7697-37-2 nitric acid 2.0%
  - 7440-41-7 Beryllium from Beryllium Acetate 0.1%

- Chemical identification of the substance/preparation
  - 7732-18-5 water, distilled, conductivity or of similar purity 97.9%

4 First-aid measures

- Description of first aid measures
  - General information: Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
    - In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: 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: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions:
  - Do not allow product to reach sewage system or any water course.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - 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).
  - 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.
    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.
  - **Specific end use(s):** No further relevant information available.

### 8 Exposure controls/personal protection

- **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 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:**
    The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
    Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  - **Material of gloves**
    The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  - **Penetration time of glove material**
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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#### 7 Handling and storage (Contd. of page 2)

<table>
<thead>
<tr>
<th>Product Name: 1000 µg/mL Beryllium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7 Handling and storage</strong></td>
</tr>
<tr>
<td><strong>· Handling:</strong></td>
</tr>
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<tr>
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<tr>
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</tr>
<tr>
<td><strong>· Specific end use(s):</strong></td>
</tr>
<tr>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

#### 8 Exposure controls/personal protection (Contd. of page 2)

<table>
<thead>
<tr>
<th>Product Name: 1000 µg/mL Beryllium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8 Exposure controls/personal protection</strong></td>
</tr>
<tr>
<td><strong>· Additional information about design of technical systems:</strong> No further data; see item 7.</td>
</tr>
<tr>
<td><strong>· Control parameters</strong></td>
</tr>
<tr>
<td><strong>· Components with limit values that require monitoring at the workplace:</strong></td>
</tr>
<tr>
<td><strong>7697-37-2 nitric acid</strong></td>
</tr>
<tr>
<td>PEL Long-term value: 5 mg/m³, 2 ppm</td>
</tr>
<tr>
<td>REL Short-term value: 10 mg/m³, 4 ppm</td>
</tr>
<tr>
<td>Long-term value: 5 mg/m³, 2 ppm</td>
</tr>
<tr>
<td>TLV Short-term value: 10 mg/m³, 4 ppm</td>
</tr>
<tr>
<td>Long-term value: 5.2 mg/m³, 2 ppm</td>
</tr>
<tr>
<td><strong>7440-41-7 Beryllium from Beryllium Acetate</strong></td>
</tr>
<tr>
<td>PEL Long-term value: 0.002 mg/m³</td>
</tr>
<tr>
<td>Ceiling limit value: 0.005; 0.025* mg/m³</td>
</tr>
<tr>
<td>as Be; *30 min peak per 8-hr shift</td>
</tr>
<tr>
<td>REL Ceiling limit value: 0.0005 mg/m³</td>
</tr>
<tr>
<td>as Be; See Pocket Guide App. A</td>
</tr>
<tr>
<td>TLV Long-term value: 0.00005 mg/m³</td>
</tr>
<tr>
<td>as Be; inhalable; RSEN; soluble comp.: Skin, DSEN</td>
</tr>
</tbody>
</table>

- **· Additional information:** The lists that were valid during the creation were used as basis.
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - **Form:** Liquid
    - **Color:** According to product specification
  - **Odor:** Characteristic
  - **Odour Threshold:** Not applicable.
  - **pH-value:** Not applicable.
  - **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.
  - **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:** Not determined.
  - **Density at 20 °C (68 °F)**: 1.01091 g/cm³ (8.436 lbs/gal)
  - **Relative density** Not applicable.
  - **Vapor density** Not applicable.
  - **Evaporation rate** Not applicable.
  - **Solubility in / Miscibility with**
    - **Water:** Not miscible or difficult to mix.
  - **Partition coefficient (n-octanol/water):** Not applicable.
  - **Viscosity**
    - **Dynamic:** Not applicable.
    - **Kinematic:** Not applicable.
  - **Solvent content:**
    - **Organic solvents:** 0.0 %
    - **Water:** 97.9 %
  - **Solids content:** 0.1 %
  - **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: Irritant to skin and mucous membranes.
    - on the eye: Irritating effect.
  - **Sensitization:** No sensitizing effects known.
  - **Additional toxicological information:**
    The product shows the following dangers according to internally approved calculation methods for preparations:
    - Harmful
    - Irritant
    - Carcinogenic.

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    - 7440-41-7 Beryllium from Beryllium Acetate
  - **NTP (National Toxicology Program)**
    - 7440-41-7 Beryllium from Beryllium Acetate
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    - None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
  - **Bioaccumulative potential** No further relevant information available.
  - **Mobility in soil** No further relevant information available.

- **Additional ecological information:**
  - **General notes:**
    Water hazard class 1 (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.
  - **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

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

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

### 14 Transport information

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

- **UN proper shipping name**
  - **DOT, IATA**
    - 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
  - **ADR**
    - CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION)
### 42.0.4 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**
    - **Class** 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
  - **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:**
  - **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 SOLUTION), 8, III

### 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
    - 7440-41-7 Beryllium from Beryllium Acetate
  - **TSCA (Toxic Substances Control Act):**
    - All ingredients are listed.

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 7440-41-7 Beryllium from Beryllium Acetate
  - **Chemicals known to cause reproductive toxicity for females:**
    - None of the ingredients is listed.
### 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:** product safety department  
**Contact:**  
SPEX CertiPrep, LLC.  
1-732-549-7144  
**Date of preparation / last revision** 01/14/2016 / -

**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)  
- NPF: National Fire Protection Association (USA)  
- IMS: Hazardous Materials Identification System (USA)  
- PRT: Persistent, Bioaccumulative and Toxic  
- vPvB: very Persistent and very Bioaccumulative  
- NIOSH: National Institute for Occupational Safety  
- OSHA: Occupational Safety & Health  
- TLV: Threshold Limit Value  
- PEL: Permissible Exposure Limit  
- REL: Recommended Exposure Limit  
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2  
- Eye Irrit. 2A: Serious eye damage/irritation, Hazard Category 2A  
- Carc. 1A: Carcinogenicity, Hazard Category 1A