1 Identification

- Product identifier
- Product Name: 1000 µg/mL Iron
- Part Number: 
  - PLFE2-2M
  - PLFE2-2Y
  - PLFE2-2T
  - PLFE2-2X
- 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
  - 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

- Signal word Warning
- Hazard statements
  - Causes skin irritation.
  - Causes serious eye irritation.
- 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).
  - If skin irritation occurs: Get medical advice/attention.
  - If eye irritation persists: Get medical advice/attention.
- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 1
    - Fire = 0
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - HEALTH 1
      - Health = 1
    - FIRE 0
      - Fire = 0
    - REACTIVITY 0
      - Reactivity = 0
- Other hazards
  - Results of PBT and vPvB assessment
  - PBT: Not applicable.

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

- Chemical characterization: Mixtures
  Description: Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:
  - 7697-37-2 nitric acid 2.0%
- Chemical identification of the substance/preparation
  - 7439-89-6 iron 0.1%
  - 7732-18-5 water, distilled, conductivity or of similar purity 97.9%

4 First-aid measures

- Description of first aid measures
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: If symptoms persist consult 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.
  - Advice for firefighters
    - Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols.
  - Information about protection against explosions and fires: No special measures required.
  - Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: No special requirements.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions: Keep receptacle tightly sealed.
    - Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters

Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Material</th>
<th>PEL Long-term value</th>
<th>REL Short-term value</th>
<th>TLV Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2 nitric acid</td>
<td>5 mg/m³, 2 ppm</td>
<td>10 mg/m³, 4 ppm</td>
<td>10 mg/m³, 4 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 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/substance/preparation. Due to missing tests no recommendation to the glove material can be given for the product/substance/preparation/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

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 self-igniting.

Danger of explosion: Product does not present an explosion hazard.
### 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:
  - Irritant
- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    - None of the ingredients is listed.
  - **NTP (National Toxicology Program)**
    - None of the ingredients is listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    - None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
42.0.14

- **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: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
  - ADR: 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
  - IMDG: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION)
- **Transport hazard class(es)**
  - DOT
    - Class: 8 Corrosive substances
    - Label: 8
  - ADR, IMDG, IATA
    - Class: 8 Corrosive substances
    - Label: 8
- **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
42.0.14

· IMDG
· Limited quantities (LQ)
· Excepted quantities (EQ)
· UN "Model Regulation":

IMDG

Limited quantities (LQ)
Excepted quantities (EQ)

5L
Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 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
- TSCA (Toxic Substances Control Act):
  All ingredients are listed.
- Proposition 65
- Chemicals known to cause cancer:
  None of the ingredients is listed.
- Chemicals known to cause reproductive toxicity for females:
  None of the ingredients is listed.
- Chemicals known to cause reproductive toxicity for males:
  None of the ingredients is listed.
- Chemicals known to cause developmental toxicity:
  None of the ingredients is listed.
- Carcinogenic categories
- EPA (Environmental Protection Agency)
  None of the ingredients is listed.
- TLV (Threshold Limit Value established by ACGIH)
  None of the ingredients is listed.
- NIOSH-Ca (National Institute for Occupational Safety and Health)
  None of the ingredients is listed.
- GHS label elements: The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

GHS07

· Signal word: Warning
· Hazard statements
  Causes skin irritation.
  Causes serious eye irritation.
- 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).
  If skin irritation occurs: Get medical advice/attention.
  If eye irritation persists: Get medical advice/attention.
- 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: product safety department

(Contd. on page 7)
Product Name: 1000 µg/mL Iron

- Contact:
  SPEX CertiPrep, LLC.
  1-732-549-7144

- Date of preparation / last revision 04/27/2016 / -

- 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)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  MSHA: 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/eye irritation, Hazard Category 2A