1 Identification

· Product identifier
  · Trade name: NexION KED Setup Solution
  · Article number: ICP-MS-SS-3

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    High-Purity Standards
    7221 Investment Drive, North Charleston, SC 29418 United States
    Telephone: +1-843-767-7900
    Fax: +1-843-767-7906
    highpuritystandards.com
    Email: info@highpuritystandards.com

· 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
  The product is not classified, according to the Globally Harmonized System (GHS).

· Label elements
  · GHS label elements Void
  · Hazard pictograms Void
  · Signal word Void
  · Hazard statements Void

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 0
    Fire = 0
    Reactivity = 0

  · HMIS-ratings (scale 0 - 4)
    HEALTH *0
    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.
Trade name: NexION KED Setup Solution

4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - 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: Use fire fighting measures that suit the environment.
  - Special hazards arising from the substance or mixture: No further relevant information available.

- Advice for firefighters
  - Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- 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).
- 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:
  - 7647-01-0 hydrochloric acid 1.8 ppm
  - 7440-48-4 cobalt 0.18 mg/m³
  - 7440-45-1 cerium 30 mg/m³

  PAC-2:
  - 7647-01-0 hydrochloric acid 22 ppm
Trade name: NexION KED Setup Solution

7 Handling and storage

- Handling:
  - Precautions for safe handling: No special measures required.
  - 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: None.
- 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7647-01-0 hydrochloric acid</td>
<td>PEL Ceiling limit value: 7 mg/m³, 5 ppm</td>
</tr>
<tr>
<td></td>
<td>REL Ceiling limit value: 7 mg/m³, 5 ppm</td>
</tr>
<tr>
<td></td>
<td>TLV Ceiling limit value: 2.98 mg/m³, 2 ppm</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.
- Exposure controls
- General protective and hygienic measures:
  - The usual precautionary measures for handling chemicals should be followed.
- Breathing equipment: Not required.
- 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.
Trade name: NexION KED Setup Solution

- **Penetration time of glove material**
  The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>Form: Fluid</td>
</tr>
<tr>
<td>Color: teal</td>
</tr>
<tr>
<td>Odor: Characteristic</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td>pH-value: Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 100 °C (212 °F)</td>
</tr>
</tbody>
</table>

| 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. |

<table>
<thead>
<tr>
<th>Explosion limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower: Not determined.</td>
</tr>
<tr>
<td>Upper: Not determined.</td>
</tr>
</tbody>
</table>

| Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 mm Hg)  |

| Density at 20 °C (68 °F): 1.0015 g/cm³ (8.35752 lbs/gal) |

| Bulk density: 1.002 kg/m³ |
| 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: 99.0 %                     |

(Contd. of page 3)
Trade name: NexION KED Setup Solution

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:
      - 7647-01-0 hydrochloric acid
      - Oral LD50 900 mg/kg (rabbit)
    - Primary irritant effect:
      - on the skin: No irritant effect.
      - on the eye: No irritating effect.
      - Sensitization: No sensitizing effects known.
    - Additional toxicological information:
      The product is not subject to classification according to internally approved calculation methods for preparations:
      When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    - 7647-01-0 hydrochloric acid 3
    - 7440-48-4 cobalt 2B
  - NTP (National Toxicology Program)
    - 7440-48-4 cobalt R
  - 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**: Not hazardous for water.
  - **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**: Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings**:
  - **Recommendation**: Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
  - **DOT, ADR, IMDG, IATA**: not regulated
- **UN proper shipping name**
  - **DOT, ADR, IMDG, IATA**: not regulated
- **Transport hazard class(es)**
  - **DOT, ADR, ADN, IMDG, IATA**
    - **Class**: not regulated
- **Packing group**
  - **DOT, ADR, IMDG, IATA**: not regulated
- **Environmental hazards**: Not applicable.
- **Special precautions for user**: Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**: Not applicable.
- **UN "Model Regulation"**: not regulated
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - **Section 355 (extremely hazardous substances):**
      - 7647-01-0 hydrochloric acid
    - **Section 313 (Specific toxic chemical listings):**
      - 7647-01-0 hydrochloric acid
      - 7440-48-4 cobalt
    - **TSCA (Toxic Substances Control Act):**
      All components have the value ACTIVE.
    - **Hazardous Air Pollutants**
      - 7647-01-0 hydrochloric acid
      - 7440-48-4 cobalt
    - **Proposition 65**
      - **Chemicals known to cause cancer:**
        - 7440-48-4 cobalt
      - **Chemicals known to cause reproductive toxicity for females:**
        None of the ingredients is listed.
      - **Chemicals known to cause reproductive toxicity for males:**
        None of the ingredients is listed.
      - **Chemicals known to cause developmental toxicity:**
        None of the ingredients is listed.
    - **Carcinogenic categories**
      - **EPA (Environmental Protection Agency)**
        None of the ingredients is listed.
      - **TLV (Threshold Limit Value established by ACGIH)**
        - 7647-01-0 hydrochloric acid
        - 7440-48-4 cobalt
      - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
        None of the ingredients is listed.
    - **GHS label elements**: Void
      - **Hazard pictograms**: Void
      - **Signal word**: Void
      - **Hazard statements**: Void
    - **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.
Trade name: NexION KED Setup Solution

- **Contact:**
  High-Purity Standards
  Tel: 843-767-7900
  Fax: 843-767-7906

- **Date of preparation / last revision:** 10/23/2019 / -

- **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