1 Identification

- **Product identifier**
  - **Product Name:** 10 µg/mL Rhodium
  - **Part Name:** CLRH1-1AM CLRH1-1AY

- **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** The product is not classified, according to the Globally Harmonized System (GHS).
- **Label elements**
  - **GHS label elements** Not Regulated
  - **Hazard pictograms** Not Regulated
  - **Signal word** Not Regulated
  - **Hazard statements** Not Regulated
  - **Classification system:**
    - **NFPA ratings (scale 0 - 4)**
      Health = 0
      Fire = 0
      Reactivity = 0
    - **HMIS-ratings (scale 0 - 4)**
      HEALTH
      Health = *0
      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:**
  - 7647-01-0 hydrochloric acid 2.0%

- **Chemical identification of the substance/preparation**
  - 15336-18-2 Rhodium from triammonium hexachlororhodate 0.001%
  - 7732-18-5 water, distilled, conductivity or of similar purity 97.999%

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:** Do not give anything to eat or drink - Do not induce vomiting
  - **Information for Doctor:**
    - **Most important symptoms and effects, both acute and delayed** No farther 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: Dilute with plenty of water.
- 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
  - PAC-2:
    7647-01-0 hydrochloric acid 22 ppm
  - PAC-3:
    7647-01-0 hydrochloric acid 100 ppm

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
  - Components with limit values that require monitoring at the workplace:
    - 7647-01-0 hydrochloric acid
      - PEL Ceiling limit value: 7 mg/m³, 5 ppm
      - REL Ceiling limit value: 7 mg/m³, 5 ppm
      - TLV Ceiling limit value: 2.98 mg/m³, 2 ppm
- Additional information: The lists that were valid during the creation were used as basis.
  - Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
    - Respiratory protection: 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

### 9 Physical and chemical properties

- **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.
- **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 at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)
- **Density at 20 °C (68 °F):** 1.00311 g/cm³ (8.37095 lbs/gal)
- **Relative density:** Not applicable.
- **Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not applicable.
- **Viscosity:**
  - Dynamic: Not applicable.
  - Kinematic: Not applicable.
- **Solvent content:**
  - Water: 98.0 %
  - VOC content: 0.00 %
- **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: No irritant effect.
    - on the eye: No irritating effect.
    - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    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
  - 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.
  - 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.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
  - DOT, ADR, IMDG, IATA: UN1789
- **UN proper shipping name**
  - DOT: Hydrochloric acid
  - ADR: 1789 HYDROCHLORIC ACID
  - IMDG, IATA: HYDROCHLORIC ACID
- **Transport hazard class(es)**
  - DOT: 8 Corrosive substances
Product Name: 10 µg/mL Rhodium

- **Label**
  - 8

- **ADR, IMDG, IATA**

- **Class**
  - 8 Corrosive substances

- **Label**
  - 8

- **Packing group**
  - DOT, ADR, IMDG, IATA
  - II

- **Transport/Additional information:**

- **ADR**
  - Excepted quantities (Eq)
    - Code: E2
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 500 ml

- **IMDG**
  - Limited quantities (LQ)
    - 1 L
    - Code: E2
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 500 ml

- **UN "Model Regulation":**
  - UN 1789 HYDROCHLORIC ACID, 8, II

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**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **Sara**
  - Section 313 (Specific toxic chemical listings):
    - 7647-01-0 hydrochloric acid

- **TSCA (Toxic Substances Control Act):**
  - All components have the value ACTIVE.

- **Hazardous Air Pollutants**
  - 7647-01-0 hydrochloric acid

- **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)**
  - 7647-01-0 hydrochloric acid A4
  - 15336-18-2 Rhodium from triammonium hexachlororhodate A4
Product Name: 10 µg/mL Rhodium

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- NIOSH-Ca (National Institute for Occupational Safety and Health)
  None of the ingredients is listed.
- GHS label elements Not Regulated
- Hazard pictograms Not Regulated
- Signal word Not Regulated
- Hazard statements Not Regulated
- 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
- Contact: SPEX CertiPrep, LLC. 1-732-549-7144
- Date of preparation / last revision 09/13/2019 / -
- 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)
  - 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