 SECTION 1: Identification of the substance/mixture and of the company/undertaking

· 1.1 Product identifier
· Product name: Rhodium Standard: 1000 µg/mL Rh in 20% HCl [100ml bottle]
· Part number: 5190-8509
· 1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.
· Application of the substance / the mixture Reagents and Standards for Analytical Chemical Laboratory Use
· 1.3 Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Agilent Technologies Manufacturing GmbH & Co. KG
  Hewlett-Packard-Str. 8
  76337 Waldbronn
  Germany
· Further information obtainable from: e-mail: pdl-msds_author@agilent.com
· 1.4 Emergency telephone number: CHEMTREC®: +(44)-870-8200418

 SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008
  GHS05 corrosion
  Met. Corr.1 H290 May be corrosive to metals.

· 2.2 Label elements
· Labelling according to Regulation (EC) No 1272/2008
  The product is classified and labelled according to the CLP regulation.
· Hazard pictograms
  GHS05

· Signal word Warning
· Hazard statements
  H290 May be corrosive to metals.
· Precautionary statements
  P234 Keep only in original container.
  P390 Absorb spillage to prevent material damage.
  P406 Store in corrosive resistant container with a resistant inner liner.
· 2.3 Other hazards
· Results of PBT and vPvB assessment
  PBT: Not applicable.
  vPvB: Not applicable.
SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
  - Description:
    Aqueous solution.
    Also contains substances at levels not considered to be hazardous.

- Dangerous components:

| CAS: 7647-01-0 | Hydrochloric acid | Skin Corr. 1B, H314; STOT SE 3, H335 | <10% |
| EINECS: 231-595-7 | | | |
| RTECS: MW 9620000 | | | |

- Additional information:
  The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/w). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.
  For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

- 4.1 Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing: Rinse mouth. Do not induce vomiting.

- 4.2 Most important symptoms and effects, both acute and delayed
  No further relevant information available.

- 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

SECTION 5: Firefighting measures

- 5.1 Extinguishing media
  - Suitable extinguishing agents: Use fire extinguishing methods suitable for surrounding conditions.

- 5.2 Special hazards arising from the substance or mixture
  - Formation of toxic gases is possible during heating or in case of fire.

- 5.3 Advice for firefighters

- Protective equipment: Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  - Wear protective equipment. Keep unprotected persons away.

- 6.2 Environmental precautions:
  - Dilute with plenty of water.
  - Do not allow to enter sewers/surface or ground water.

- 6.3 Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Use neutralising agent.
  - Dispose of contaminated material as waste according to item 13.

(Contd. on page 3)
Product name: Rhodium Standard: 1000 µg/mL Rh in 20% HCl [100ml bottle]

47.0

6.4 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Store in cool, dry place in tightly closed receptacles.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Please refer to the manufacturer’s certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.

Information about storage in one common storage facility: Store away from foodstuffs.
Further information about storage conditions: Keep container tightly sealed.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters
Ingredients with limit values that require monitoring at the workplace:

CAS: 7647-01-0 Hydrochloric acid

WEL: Short-term value: 8 mg/m³, 5 ppm
      Long-term value: 2 mg/m³, 1 ppm
      (gas and aerosol mists)

Additional information: Lists used were valid at the time of SDS preparation.

8.2 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.
Respiratory protection: Not required.
Protection of hands:
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374

Protective gloves
Product name: Rhodium Standard: 1000 µg/mL Rh in 20% HCl [100ml bottle]

- Material of gloves
  PVC gloves
  Neoprene gloves
- 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

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties
- General Information
- Appearance:
  Form: Liquid
  Colour: Colourless
  Odour: Odourless
  Odour threshold: Not determined.
- pH-value: <2
- Change in condition
  Melting point/freezing point: Not determined.
  Initial boiling point and boiling range: 100 °C
- Flash point: Not applicable.
- Flammability (solid, gas): Not determined.
- Ignition temperature: Not determined.
- Decomposition temperature: Not determined.
- Auto-ignition temperature: Product is not selfigniting.
- Explosive properties: Not determined.
- Explosion limits:
  Lower: Not determined.
  Upper: Not determined.
- Vapour pressure at 20 °C: 23 hPa
- Density: Not determined.
  Relative density: Not determined.
  Vapour density: Not determined.
  Evaporation rate: Not determined.
- Solubility in / Miscibility with water: Fully miscible.
- Partition coefficient: n-octanol/water: Not determined.

(Contd. on page 5)
SECTION 10: Stability and reactivity

- **10.1 Reactivity** Stable under normal conditions.
- **10.2 Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
  Formation of toxic gases is possible during heating or in case of fire.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** Heat.
- **10.5 Incompatible materials:**
  Strong oxidizing agents.
  Metals.
- **10.6 Hazardous decomposition products:**
  Formation of toxic gases is possible during heating or in case of fire.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
  - **Acute toxicity** Based on available data, the classification criteria are not met.
  - **Primary irritant effect:**
    - **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
    - **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
  - **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
  - **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
    - **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
    - **Carcinogenicity** Based on available data, the classification criteria are not met.
  - **Reproductive toxicity** Based on available data, the classification criteria are not met.
  - **STOT-single exposure** Based on available data, the classification criteria are not met.
  - **STOT-repeated exposure** Based on available data, the classification criteria are not met.
  - **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- **12.1 Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
  - **General notes:**
    Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
    Do not allow undiluted product to reach ground water, water course or sewage system.
    Must not reach sewage water or drainage ditch undiluted or unneutralised.
SECTION 13: Disposal considerations

- 13.1 Waste treatment methods
  - Recommendation
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  - European waste catalogue
    Waste disposal key numbers from EWC have to be assigned depending on origin and processing.

- Uncleaned packaging:
  - Recommendation: Dispose of in accordance with national regulations.
  - Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

- 14.1 UN-Number
  - ADR, IMDG, IATA
    UN3264
  - ADR
    3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID)
  - IMDG, IATA
    CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID)

- 14.3 Transport hazard class(es)
  - ADR, IMDG, IATA
    8 Corrosive substances.

- 14.4 Packing group
  - ADR, IMDG, IATA
    II

- 14.5 Environmental hazards:
  - Not applicable.

- 14.6 Special precautions for user
  - Danger code (Kemler):
    80
  - EMS Number:
    F-A,S-B
  - Segregation groups
    Acids
  - Stowage Category
    E

- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
  - Not applicable.
Product name: Rhodium Standard: 1000 µg/mL Rh in 20% HCl [100ml bottle]

- Transport/Additional information:
  - ADR
  - Limited quantities (LQ) 1L
  - Excepted quantities (EQ) Code: E2
    Maximum net quantity per inner packaging: 30 ml
    Maximum net quantity per outer packaging: 500 ml
  - Transport category 2
  - Tunnel restriction code E
  - UN ”Model Regulation”: UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID), 8, II

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Directive 2012/18/EU
  - Named dangerous substances - ANNEX I None of the ingredients is listed.
  - 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

- 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
  IATA: International Air Transport Association
  GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  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)
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  Met. Corr.1: Corrosive to metals – Category 1
  Skin Corr. 1B: Skin corrosion/irritation – Category 1B
  STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- Sources
  - Data compared to the previous version altered. All sections have been updated.