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

- 1.1 Product identifier
- Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]
- Part number: 5190-8369

- 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
Reference material for laboratory use only

- 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

   GHS03 flame over circle

   Ox. Liq. 3  H272  May intensify fire; oxidiser.

   GHS05 corrosion

   Skin Corr. 1B  H314  Causes severe skin burns and eye damage.
   Eye Dam. 1  H318  Causes serious eye damage.

- Classification according to Directive 67/548/EEC or Directive 1999/45/EC

   C; Corrosive
   R34:  Causes burns.
   Xi; Irritant
   R41:  Risk of serious damage to eyes.
   O; Oxidising
   R8:  Contact with combustible material may cause fire.

- Information concerning particular hazards for human and environment:
The product has to be labelled due to the calculation procedure of the “General Classification guideline for preparations of the EU” in the latest valid version.

- Classification system:
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]

- **Hazard pictograms**
  - GHS03
  - GHS05

- **Signal word** Danger

- **Hazard-determining components of labelling:**
  - Nitric acid

- **Hazard statements**
  - H272 May intensify fire; oxidiser.
  - H314 Causes severe skin burns and eye damage.

- **Precautionary statements**
  - P221 Take any precaution to avoid mixing with combustibles.
  - P280 Wear protective gloves/protective clothing/eye protection/face protection.
  - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P310 Immediately call a POISON CENTER/doctor.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **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: 7697-37-2
    - EINECS: 231-714-2
    - RTECS: QU5775000
    - Nitric acid
    - C R35; O R8
    - Ox. Liq. 3, H272; Skin Corr. 1A, H314
    - < 10%

  - **Additional information:** For the wording of the listed risk phrases refer to section 16.

**SECTION 4: First aid measures**

- **4.1 Description of first aid measures**
  - **General information:** Immediately remove any clothing soiled by the product.
  - **After inhalation:** In case of unconsciousness place patient in recovery position for transport.
  - **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
  - **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
  - **After swallowing:** Rinse mouth. Do not induce vomiting.
  - Drink plenty of water and provide fresh air. Call for a doctor immediately.

- **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:
    CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- 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 respirator 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:
  Use neutralising agent.
  Dispose of contaminated material as waste according to item 13.
  Ensure adequate ventilation.
  Absorb liquid components with liquid-binding material.
  DO NOT USE SAWDUST.

- 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
  Ensure good ventilation/extraction at the workplace.
  Store in cool, dry place in tightly closed receptacles.
  Prevent formation of aerosols.
  - Information about fire - and explosion protection: Protect from heat.

- 7.2 Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles:
      Store in a cool location.
      Please refer to the manufacturer’s certificate for specific storage and transport temperature conditions.
      Store only in the original receptacle.
      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.
      Protect from heat and direct sunlight.
      - 7.3 Specific end use(s) No further relevant information available.
SECTIONS 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:**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WEL Short-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>2.6 mg/m³, 1 ppm</td>
</tr>
</tbody>
</table>

- 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.
  - Avoid contact with the eyes and skin.
- Respiratory protection:
  - In case of brief exposure or low pollution use respiratory filter device.
  - In case of intensive or longer exposure use self-contained respiratory protective device.
- Protection of hands:
  - Chemical-resistant, impervious gloves with an approved standards should be worn at all times.
  - The selection of the glove material is based on the penetration times, rates of diffusion and its degradation.

- Material of gloves
  - PVC gloves
  - Neoprene gloves
- Penetration time of glove material
  - The protection time of the gloves can not be accurately estimated for mixtures consisting of several substances.
  - Refer to and observe manufacturers break through times of the protective gloves.
- 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 at 20 °C: < 2
### Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]

**Change in condition**
- Melting point/Melting range: Not determined.
- Boiling point/Boiling range: 100 °C

**Flash point:** Not applicable.

**Flammability (solid, gaseous):** Not determined.

**Ignition temperature:**
- Decomposition temperature: Not determined.
- Self-igniting: Product is not self-igniting.
- Danger of explosion: Product does not present an explosion hazard.

**Explosion limits:**
- Lower: Not determined.
- Upper: Not determined.

**Vapour pressure at 20 °C:** 23 hPa

**Density at 20 °C:** 1.02263 g/cm³
- 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.

**Viscosity:**
- Dynamic: Not determined.
- Kinematic: Not determined.

**9.2 Other information**
- No further relevant information available.

### 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.
- **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:

<table>
<thead>
<tr>
<th>LD/LC50 values relevant for classification: 7697-37-2 Nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral</strong></td>
</tr>
<tr>
<td><strong>Inhalative</strong></td>
</tr>
</tbody>
</table>

(Contd. on page 6)
Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]

- Primary irritant effect:
  - on the skin: Caustic effect on skin and mucous membranes.
  - on the eye: Strong caustic effect.
    Strong irritant with the danger of severe eye injury.
- Sensitisation: No sensitising effects known.
- Additional toxicological information:
  The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
  - Corrosive
  - Irritant
  Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity:
    7697-37-2 Nitric acid
    LC50/48 180 mg/l (crustacean)

- 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.

- 12.5 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- 12.6 Other adverse effects No further relevant information available.

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 UN2031
  - ADR 2031 NITRIC ACID solution
  - IMDG, IATA NITRIC ACID solution

(Contd. on page 7)
Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]

- **14.3 Transport hazard class(es)**
  - ADR, IMDG, IATA

  - **Class**
    - 8 Corrosive substances.
  - **Label**
    - 8

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

- **14.5 Environmental hazards:**
  - **Marine pollutant:**
    - No

- **14.6 Special precautions for user**
  - **Warning:** Corrosive substances.
  - **Danger code (Kemler):**
    - 80
  - **EMS Number:**
    - F-A-S-B
  - **Segregation groups**
    - Acids

- **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - **Not applicable.**

- **Transport/Additional information:**
  - **ADR**
  - **Limited quantities (LQ)**
    - 1L
  - **Transport category**
    - 2
  - **Tunnel restriction code**
    - E
  - **UN "Model Regulation":**
    - UN2031, NITRIC ACID solution, 8, II

**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Philippines Inventory of Chemicals and Chemical Substances**
    - All ingredients are listed.
  - **Australian Inventory of Chemical Substances**
    - All ingredients are listed.
  - **Standard for the Uniform Scheduling of Medicines and Poisons**
    - 7697-37-2 Nitric acid
      - S5, S6

- **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.

- **Relevant phrases**
  - H272 May intensify fire; oxidiser.
  - H314 Causes severe skin burns and eye damage.
  - R35 Causes severe burns.
  - R8 Contact with combustible material may cause fire.
Product name: Calcium Standard: 10000 µg/mL Ca in 5% HNO3 [500ml bottle]

- **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)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - Ox. Liq. 3: Oxidising Liquids, Hazard Category 3
  - Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
  - Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
  - Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

- **Sources**
  - Data compared to the previous version altered.