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

1.1 Product identifier

Product name: Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]

Part number: 5190-8363

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 Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia

Further information obtainable from: e-mail: pdl-msds_author@agilent.com

1.4 Emergency telephone number:
CHEMTREC®: +(61) - 290372994

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

\[
\begin{align*}
\text{Flame over circle} & \quad \text{Ox. Liq. 3 } \text{H272 May intensify fire; oxidiser.} \\
\text{Corrosion} & \quad \text{Skin Corr. 1B } \text{H314 Causes severe skin burns and eye damage.} \\
\text{Eye Dam. 1 } \text{H318 Causes serious eye damage.}
\end{align*}
\]

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.

(Contd. on page 2)
Product name: Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]

- **Hazard pictograms**
  
  ![GHS03](image) ![GHS05](image)

- **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.

- **Information concerning particular hazards for human and environment:**
- **Safety phrases:**
  - 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  - 36/37/39 Wear suitable protective clothing, gloves and eyeface protection.
  - 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
  - 60 This material and its container must be disposed of as hazardous waste.

- **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 | Nitric acid | C R35; O R8 |
  | EINECS: 231-714-2 | Ox. Liq. 3, H272; Skin Corr. 1A, H314 |
  | RTECS: QU7575000 |

- **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.
Product name: Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]

(Contd. from page 2)

- 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 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:
  - 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.
- 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.

(Contd. on page 4)
Product name: **Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]**

(Contd. from page 3)

- **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.

---

**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:**

<table>
<thead>
<tr>
<th>7697-37-2 Nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>NES Short-term value: 10 mg/m³, 4 ppm</td>
</tr>
<tr>
<td>Long-term value: 5.2 mg/m³, 2 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

  **Protective gloves**

- **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**

(Contd. on page 5)
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
  - 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.
- 10.3 Possibility of hazardous reactions
  - No dangerous reactions known.
- 10.4 Conditions to avoid
  - Heat.
- 10.5 Incompatible materials: Strong oxidizing agents.

(Contd. from page 6)
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

- LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2 Nitric acid</td>
<td>430 mg/kg (Human)</td>
<td>130 mg/l (rat)</td>
</tr>
</tbody>
</table>

Primary irritant effect:

- on the skin: Caustic effect on skin and mucous membranes.
- on the eye: Strong caustic effect.
- 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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50/48</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2 Nitric acid</td>
<td>180 mg/l (crustacean)</td>
</tr>
</tbody>
</table>

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.
Product name: Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]

(Contd. from page 6)

• 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
  • ADG, IMDG, IATA: UN2031
  • ADG: 2031 NITRIC ACID solution
  • IMDG, IATA: NITRIC ACID solution

• 14.3 Transport hazard class(es)
  • ADG, IMDG, IATA

  • Class: 8 Corrosive substances.
  • Label: 8

• 14.4 Packing group
  • ADG, 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:
  • ADG
    • 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

(Contd. on page 8)
Product name: Bismuth Standard: 10000 µg/mL Bi in 5% HNO3 [500ml bottle]

- **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.

- **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**
  