1 Identification

- **Product identifier**
- **Product name:** ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3
- **Part number:** 6610030100
- **Application of the substance / the mixture** Reference material for laboratory use only
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Agilent Technologies, Inc.
  - 5301 Stevens Creek Blvd
  - Santa Clara, CA 95051, USA
  - **Information department:** e-mail: pdl-msds_author@agilent.com
  - **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**

  ![GHS05 Corrosion]

  Eye Dam. 1 H318 Causes serious eye damage.

  ![GHS07]

  Skin Irrit. 2 H315 Causes skin irritation.

**Label elements**

- **GHS label elements**
  The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

  ![GHS05]

**Signal word** Danger

- **Hazard-determining components of labeling:** Nitric acid
- **Hazard statements**
  H315 Causes skin irritation.
  H318 Causes serious eye damage.
- **Precautionary statements**
  P280 Wear protective gloves / eye protection / face protection.
  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.
  P321 Specific treatment (see on this label).

(Contd. on page 2)
Safety Data Sheet
acc. to OSHA HCS

Product name: ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3

(Contd. of page 1)

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - Health = 3
    - 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:
  Aqueous solution.
  Also contains substances at levels not considered to be hazardous.
- Dangerous components:
  - CAS: 7697-37-2
  - RTECS: QU5775000
  - Nitric acid
  - Ox. Liq. 2, H272; Skin Corr. 1A, H314 < 5%

4 First-aid measures

- Description of first aid measures
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact:
    - Immediately wash with water and soap and rinse thoroughly.
    - If skin irritation continues, consult a doctor.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Rinse mouth. Do not induce vomiting.
- 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.

(Contd. on page 3)
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - Special hazards arising from the substance or mixture
    - Formation of toxic gases is possible during heating or in case of fire.
- Advice for firefighters
  - Protective equipment: Wear self-contained respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Wear protective clothing.
- Environmental precautions:
  - Dilute with plenty of water.
  - Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  - Ensure adequate ventilation.
  - Absorb liquid components with liquid-binding material.
  - DO NOT USE 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.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - Store in cool, dry place in tightly closed receptacles.
  - 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:
      - Store in a cool location.
      - Please refer to the manufacturers 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 receptacle tightly sealed.
  - 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.
**Safety Data Sheet**

*acc. to OSHA HCS*

Product name: ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3

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### Control parameters

- **Components with limit values that require monitoring at the workplace:**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>PEL</th>
<th>REL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>Long-term value: 5 mg/m³, 2 ppm</td>
<td>Short-term value: 10 mg/m³, 4 ppm</td>
<td>Long-term value: 5 mg/m³, 2 ppm</td>
</tr>
</tbody>
</table>

### Additional information:
The lists that were valid during the creation were used as basis.

### 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 skin.
  - Avoid contact with the eyes and skin.

- **Breathing equipment:** 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

- **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
9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:** Liquid
    - **Color:** Colorless
    - **Odor:** Odorless
    - **Odor threshold:** Not determined.

- **pH-value at 20 °C (68 °F):** < 2

- **Change in condition**
  - **Melting point/Melting range:** Not determined.
  - **Boiling point/Boiling range:** 100 °C (212 °F)

- **Flash point:** Not applicable.

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

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Not determined.

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

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

- **Density at 20 °C (68 °F):** 1 g/cm³ (8.345 lbs/gal)
  - **Relative density** Not determined.
  - **Vapor 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.

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

10 Stability and reactivity

- **Reactivity** Stable under normal conditions.
- **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.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:** Strong oxidizing agents.
11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>7697-37-2 Nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD0</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Strong irritant with the danger of severe eye injury.
  - Sensitization: No sensitizing effects known.

- Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- Carcinogenic categories

<table>
<thead>
<tr>
<th>IARC (International Agency for Research on Cancer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NTP (National Toxicology Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OSHA-Ca (Occupational Safety &amp; Health Administration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

12 Ecological information

- Toxicity
  - Aquatic toxicity:

<table>
<thead>
<tr>
<th>7697-37-2 Nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50/48</td>
</tr>
</tbody>
</table>

- 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:
  Water hazard class 1 (Self-assessment): slightly hazardous for water
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation:**
    - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings**:
  - **Recommendation:** Dispose in accordance with national regulations.
  - **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
  - DOT, ADR, IMDG, IATA: UN3264
  - DOT: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
  - ADR: 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
  - IMDG, IATA: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

- **Transport hazard class(es)**
  - **DOT**
    - **Class**
      - 8 Corrosive substances
    - **Label**
      - 8
  - **ADR, IMDG, IATA**
    - **Class**
      - 8 Corrosive substances
    - **Label**
      - 8
  - **Packing group**
    - DOT, ADR, IMDG, IATA: III
  - **Environmental hazards:**
    - Marine pollutant: No
  - **Special precautions for user**
    - Warning: Corrosive substances
  - **Danger code (Kemler):** 80
  - **EMS Number:** F-A,S-B
  - **Segregation groups**
    - Acids
  - **Stowage Category**
    - B
Product name: ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3

- Stowage Code
  - SW2 Clear of living quarters.

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

- Transport/Additional information:
  - ADR
  - Excepted quantities (EQ)
    - Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

- UN "Model Regulation":
  - UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - Section 355 (extremely hazardous substances):
      - 7697-37-2 Nitric acid
    - Section 313 (Specific toxic chemical listings):
      - 7697-37-2 Nitric acid
    - TSCA (Toxic Substances Control Act):
      - All ingredients are listed.

- 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)
    - None of the ingredients is listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    - None of the ingredients is listed.
Product name: ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3

Hazard pictograms

GHS05

Signal word Danger

Hazard-determining components of labeling:
Nitric acid

Hazard statements
H315 Causes skin irritation.
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Precautionary statements
P280 Wear protective gloves / eye protection / face protection.
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.
P321 Specific treatment (see on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P332+P313 If skin irritation occurs: Get medical advice/attention.

Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

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.

Date of preparation / last revision: 06/14/2018

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)
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
Ox. Liq. 2: Oxidizing liquids – Category 2
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
### Product name: ICP-OES & MP-AES Wavecal: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn (5 mg/L); K (50 mg/L) in 5% HNO3

**Sources**