1 Identification

- Product Name: Initial Calibration Verification Standard, Part Number 5183-4682
- Part Number: 5183-4682
- Relevant identified uses of the substance or mixture and uses advised against: No further relevant information available.
- Application of the substance / the mixture
  Analytical Chemistry
  A 100mL Solution
- 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: 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
  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
  Corrosive
  Causes burns.
- Information concerning particular hazards for human and environment:
  The product has to be labeled due to the calculation procedure of international guidelines.
- Classification system:
  The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- 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
  Causes severe skin burns and eye damage.
- Precautionary statements
  Do not breathe dusts or mists.
  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  IF in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Immediately call a poison center/doctor.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.
3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

### Dangerous components:

- 7697-37-2 nitric acid 5.0%
- 87-69-4 (+)-tartaric acid <0.9%
- 7439-89-6 iron 0.1%
- 7439-95-4 magnesium 0.1%
- 7440-09-7 Potassium from Potassium nitrate 0.1%
- 7440-23-5 Sodium from Sodium carbonate 0.1%
- 7440-70-2 Calcium from Calcium carbonate 0.1%
- 7440-24-6 Strontium from Strontium carbonate 0.01%
- 7429-90-5 aluminium 0.001%
- 7439-92-1 Lead from Lead Oxide 0.001%
- 7439-96-5 manganese 0.001%
- 7439-98-7 molybdenum 0.001%
- 7440-02-0 nickel 0.001%
- 7440-22-4 silver 0.001%
- 7440-28-0 Thallium from Thallium nitrate 0.001%
- 7440-29-1 Thorium from Thorium nitrate hydrate 0.001%
- 7440-36-0 antimony 0.001%
- 7440-38-2 arsenic 0.001%
- 7440-39-3 Barium from Barium carbonate 0.001%
- 7440-41-7 Beryllium from Beryllium Acetate 0.001%
- 7440-43-9 cadmium (non-pyrophoric) 0.001%
- 7440-47-3 Chromium from Chromium(III) nitrate nonhydrate 0.001%
- 7440-48-4 cobalt 0.001%
- 7440-50-8 copper 0.001%
- 7440-61-1 Uranium from Uranyl Nitrate Hexahydrate 0.001%
- 7440-62-2 Vanadium from Ammonium trioxovanadate 0.001%
- 7440-66-6 zinc powder - zinc dust (stabilized) 0.001%
- 7782-49-2 selenium 0.001%
4 First-aid measures

- Description of first aid measures
  - General information: Immediately remove any clothing soiled by the product.
  - 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.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- 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.

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: 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
  - Wear protective equipment. Keep unprotected persons away.
  - Environmental precautions: Do not allow to enter sewers/surface or ground water.
  - Methods and material for containment and cleaning up:
    - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
    - Use neutralizing agent.
    - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
- 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
    - Ensure good ventilation/exhaustion at the workplace.
    - Prevent formation of aerosols.
- 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.
  - 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.
40.2.6

Control parameters

Components with limit values that require monitoring at the workplace:

7697-37-2 nitric acid

- PEL Long-term value: 5 mg/m³, 2 ppm
- REL Short-term value: 10 mg/m³, 4 ppm
- Long-term value: 5 mg/m³, 2 ppm
- TLV Short-term value: 10 mg/m³, 4 ppm
- Long-term value: 5.2 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:

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.

Breathing equipment:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands:

Protective gloves

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

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

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

Appearance:

Form: Liquid
Color: Colorless
Odor: Odorless
Odour Threshold: Not applicable.

pH-value: < 1

Change in condition

Melting point/Melting range: 0 °C (32°F)
Boiling point/Boiling range: 100 °C (212°F)

Flash point: Not applicable.
### 10 Stability and reactivity

- **Reactivity**
- **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**: Caustic effect on skin and mucous membranes.
    - **on the eye**: Strong caustic effect.
  - **Sensitization**: No sensitizing effects known.
  - **Additional toxicological information**: The product shows the following dangers according to internally approved calculation methods for preparations:
    - **Corrosive**
    - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **IARC (International Agency for Research on Cancer)**
  - 7439-92-1 Lead from Lead Oxide 2B
  - 7440-02-0 nickel 1
### Safety Data Sheet

**Product Name:** Initial Calibration Verification Standard, Part Number 5183-4682

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Toxicity Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-29-1</td>
<td>Thorium from Thorium nitrate hydrate</td>
<td>1</td>
</tr>
<tr>
<td>7440-38-2</td>
<td>arsenic</td>
<td>1</td>
</tr>
<tr>
<td>7440-41-7</td>
<td>Beryllium from Beryllium Acetate</td>
<td>1</td>
</tr>
<tr>
<td>7440-43-9</td>
<td>cadmium (non-pyrophoric)</td>
<td>1</td>
</tr>
<tr>
<td>7440-47-3</td>
<td>Chromium from Chromium(III) nitrate nonahydrate</td>
<td>3</td>
</tr>
<tr>
<td>7440-48-4</td>
<td>cobalt</td>
<td>2B</td>
</tr>
<tr>
<td>7782-49-2</td>
<td>selenium</td>
<td>3</td>
</tr>
</tbody>
</table>

- **NTP (National Toxicology Program)**
  - 7439-92-1 Lead from Lead Oxide R
  - 7440-02-0 nickel R
  - 7440-38-2 arsenic R
  - 7440-41-7 Beryllium from Beryllium Acetate R
  - 7440-43-9 cadmium (non-pyrophoric) R
  - 7782-49-2 selenium R

- **OSHA-Ca (Occupational Safety & Health Administration)**
  - 7440-38-2 arsenic R
  - 7440-43-9 cadmium (non-pyrophoric) R

### 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:**
  - Water hazard class 2 (Self-assessment): hazardous for water
  - Do not allow product to reach ground water, water course or sewage system.
  - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
  - Danger to drinking water if even small quantities leak into the ground.
- **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:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

- **UN-Number**
  - DOT, ADR, IMDG, IATA: UN3264

- **UN proper shipping name**
  - **DOT:** Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
  - **ADR:** 3264 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid solution)
  - **IMDG, IATA:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION)
Product Name: Initial Calibration Verification Standard, Part Number 5183-4682

40.2.6

- **Transport hazard class(es)**
  - **DOT**
  - **Class**
    - **Label**
  - **ADR, IMDG, IATA**
  - **Class**
    - **Label**
  - **Packing group**
    - **DOT, ADR, IMDG, IATA**
    - **Label**
  - **Environmental hazards:**
    - **Marine pollutant:**
  - **Special precautions for user**
    - **Warning:**
    - **Danger code (Kemler):**
    - **EMS Number:**
    - **Segregation groups**
  - **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
    - **Transport/Additional information:**
      - **ADR**
        - **Excepted quantities (EQ)**
      - **IMDG**
        - **Limited quantities (LQ)**
          - **Excepted quantities (EQ)**
        - **UN "Model Regulation":**

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
    - 7429-90-5 aluminium
    - 7439-92-1 Lead from Lead Oxide
    - 7439-96-5 manganese
    - 7440-02-0 nickel

(Contd. on page 8)
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<tr>
<th>Substance ID</th>
<th>Substance Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-22-4</td>
<td>silver</td>
</tr>
<tr>
<td>7440-28-0</td>
<td>Thallium from Thallium nitrate</td>
</tr>
<tr>
<td>7440-36-0</td>
<td>antimony</td>
</tr>
<tr>
<td>7440-38-2</td>
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</tr>
<tr>
<td>7440-48-4</td>
<td>cobalt</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>copper</td>
</tr>
</tbody>
</table>

- **TSCA (Toxic Substances Control Act):**
  
  All ingredients are listed.

- **Proposition 65**

  - **Chemicals known to cause cancer:**
    
    - 7439-92-1 Lead from Lead Oxide
    - 7440-02-0 nickel
    - 7440-38-2 arsenic
    - 7440-41-7 Beryllium from Beryllium Acetate
    - 7440-43-9 cadmium (non-pyrophoric)
    - 7440-48-4 cobalt

  - **Chemicals known to cause reproductive toxicity for females:**
    
    None of the ingredients is listed.

  - **Chemicals known to cause reproductive toxicity for males:**
    
    - 7440-43-9 cadmium (non-pyrophoric)

  - **Chemicals known to cause developmental toxicity:**
    
    - 7440-43-9 cadmium (non-pyrophoric)

- **Carcinogenic categories**

  - **EPA (Environmental Protection Agency)**
    
    - 7439-92-1 Lead from Lead Oxide B2
    - 7439-96-5 manganese D
    - 7440-22-4 silver D
    - 7440-38-2 arsenic A
    - 7440-39-3 Barium from Barium carbonate D, CBD(inh), NL(oral)
    - 7440-41-7 Beryllium from Beryllium Acetate B1, K/L(inh), CBD(oral)
    - 7440-43-9 cadmium (non-pyrophoric) B1
    - 7440-50-8 copper D
    - 7440-66-6 zinc powder -zinc dust (stabilized) D, I, II
    - 7782-49-2 selenium D

- **TLV (Threshold Limit Value established by ACGIH)**

  - 7429-90-5 aluminium A1
  - 7439-92-1 Lead from Lead Oxide A3
  - 7439-98-7 molybdenum A3
  - 7440-02-0 nickel A5
  - 7440-38-2 arsenic A1
  - 7440-39-3 Barium from Barium carbonate A4
  - 7440-43-9 cadmium (non-pyrophoric) A2
  - 7440-48-4 cobalt A3
  - 7440-61-1 Uranium from Uranyl Nitrate Hexahydrate A1
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· NIOSH-Ca (National Institute for Occupational Safety and Health)
  7440-02-9 nickel
  7440-38-2 arsenic
  7440-43-9 cadmium (non-pyrophoric)
  7440-61-1 Uranium from Uranyl Nitrate Hexahydrate

· 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
  Causes severe skin burns and eye damage.

· Precautionary statements
  Do not breathe dusts or mists.
  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Immediately call a poison center/doctor.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16 Other information

Disclaimer: 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.

· Department issuing SDS: product safety department
· Contact: Agilent Technologies, Inc.
  800-227-9770
· Date of preparation / last revision 05/13/2015 / -
· 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)
  Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
  Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1