**Kit Name:**  ICH USP 232 Parenteral Kit  

**Kit PN:**  5191-4536  

This product is a kit, composed of the following individual chemical components:

### Kit Components

<table>
<thead>
<tr>
<th>Component Part Number</th>
<th>Component Name</th>
<th>Volume or mass/container and unit</th>
<th>No. of component containers/kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5190-9770</td>
<td>Pharma Internal Standard 1</td>
<td>100 mL</td>
<td>1</td>
</tr>
<tr>
<td>5191-4533</td>
<td>ICH/USP 232 Class 1 &amp; 2 Parenteral Elements</td>
<td>100 mL</td>
<td>1</td>
</tr>
<tr>
<td>5191-4534</td>
<td>ICH/USP 232 Parenteral Combined-1</td>
<td>100 mL</td>
<td>1</td>
</tr>
<tr>
<td>5191-4535</td>
<td>ICH/USP 232 Parenteral Combined-2</td>
<td>100 mL</td>
<td>1</td>
</tr>
</tbody>
</table>

SDSs for each component follow this cover sheet.

### Transportation Information for the Kit:

**Proper Shipping Names:**

<table>
<thead>
<tr>
<th>DOT</th>
<th>IATA/ICAO</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, Hydrochloric Acid, Hydrofluoric Acid), 8, III</td>
<td>UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, Hydrochloric Acid, Hydrofluoric Acid), 8, III</td>
<td>UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric Acid, Hydrochloric Acid, Hydrofluoric Acid), 8, III</td>
</tr>
</tbody>
</table>
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Pharma Internal Standard 1

Part number: 5190-9770

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.

GHS07

Acute Tox. 4  H302  Harmful if swallowed.
Acute Tox. 4  H312  Harmful in contact with skin.
Acute Tox. 4  H332  Harmful if inhaled.
Skin Irrit. 2  H315  Causes skin irritation.
Eye Irrit. 2  H319  Causes serious eye irritation.

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  GHS07

Signal word Warning

Hazard-determining components of labelling:
hydrofluoric acid

Hazard statements
H290  May be corrosive to metals.
Product name: Pharma Internal Standard 1

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

· Precautionary statements
  P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  P280 Wear protective gloves/protective clothing/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.
  P321 Specific treatment (see on this label).
  P406 Store in corrosive resistant container with a resistant inner liner.
  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:
  
<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS</th>
<th>RTECS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-39-3</td>
<td>231-634-8</td>
<td>MW 7875000</td>
<td>Hydrofluoric acid Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1A, H314</td>
</tr>
</tbody>
</table>

· Additional information:
  The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). 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
  · General information:
    Immediately remove any clothing soiled by the product.
    Symptoms of poisoning may occur even after several hours; therefore medical observation for at least 48 hours after the accident is recommended.
  · After inhalation:
    Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
    In case of unconsciousness place patient in recovery position for transport.
    Seek medical treatment.
48.1.36

· After skin contact:
  Immediately wash with water and soap and rinse thoroughly.
  Seek medical treatment.
  If skin irritation continues, consult a doctor.
· After eye contact:
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· After swallowing:
  Rinse mouth. Do not induce vomiting.
  Seek medical treatment.
· 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:
  Mouth respiratory protective device.
  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.
· Information about fire - and explosion protection: No special measures required.
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

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>CAS</th>
<th>Limit value description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>Nitric acid</td>
</tr>
<tr>
<td>WEL</td>
<td>Short-term value: 2.6 mg/m³, 1 ppm</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>Hydrofluoric acid</td>
</tr>
<tr>
<td>WEL</td>
<td>Short-term value: 2.5 mg/m³, 3 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 1.5 mg/m³, 1.8 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 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:
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.
**Product name:** Pharma Internal Standard 1

- **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 at 20 °C:** 1.00756 g/cm³
  - **Relative density**
  - **Vapour density**
  - **Evaporation rate**
  - **Solubility in / Miscibility with water:** Fully miscible.
  - **Partition coefficient: n-octanol/water:** Not determined.

---

(Contd. on page 6)
SECTION 10: Stability and reactivity

10.1 Reactivity
Stable under normal conditions.
Unfinished.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possible 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:
Harmful if swallowed, in contact with skin or if inhaled.

Primary irritant effect:
Skin corrosion/irritation
Causes skin irritation.

Serious eye damage/irritation
Causes serious eye irritation.

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.

(Contd. on page 7)
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. (NITRIC ACID, HYDROFLUORIC ACID)
- IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)

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

14.4 Packing group
- ADR, IMDG, IATA III

14.5 Environmental hazards:
- Not applicable.

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 Marpol and the IBC Code
- Not applicable.
48.1.36

- Transport/Additional information:
  - ADR
  - Limited quantities (LQ) 5L
    Code: E1
  - Excepted quantities (EQ) Max. net quantity per inner packaging: 30 ml
    Maximum net quantity per outer packaging: 1000 ml
  - Transport category 3
  - Tunnel restriction code E
  - UN "Model Regulation":
    UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC,
    N.O.S. (NITRIC ACID, HYDROFLUORIC ACID), 8, III

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.
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- 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
  Ox. Liq. 2: Oxidizing liquids – Category 2
  Met. Corr. 1: Corrosive to metals – Category 1
  Acute Tox. 2: Acute toxicity – Category 2
  Acute Tox. 4: Acute toxicity – Category 4
  Acute Tox. 1: Acute toxicity – Category 1
  Skin Corr. 1A: Skin corrosion/irritation – Category 1A
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

- Sources
  Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition,
  IUCLID.

- Data compared to the previous version altered, All sections have been updated.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: ICH/USP 232 Class 1 & 2 Parenteral Elements

Part number: 5191-4533

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

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.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.

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.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

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.
P321 Specific treatment (see on this label).

(Contd. on page 2)
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:**

<table>
<thead>
<tr>
<th>CAS: 7697-37-2</th>
<th>Nitric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>EINECS: 231-714-2</td>
<td>Ox. Liq. 2; H272;</td>
</tr>
<tr>
<td>RTECS: QU5775000</td>
<td>&lt;2%</td>
</tr>
</tbody>
</table>

- **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**
  - **General information:** Immediately remove any clothing soiled by the product.
  - **After inhalation:** Supply fresh air; consult doctor in case of complaints.
  - **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. If symptoms persist, consult a doctor.
  - **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.
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 14.02.2019
Revision: 14.02.2019
Version number 1

Product name: ICH/USP 232 Class 1 & 2 Parenteral Elements

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.

6.3 Methods and material for containment and cleaning up:
- Use neutralising agent.
- 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
- 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

8.1 Control parameters
- Ingredients with limit values that require monitoring at the workplace:
  - CAS: 7697-37-2 Nitric acid
    - WEL Short-term value: 2.6 mg/m³, 1 ppm
  - Additional information: Lists used were valid at the time of SDS preparation.

8.2 Exposure controls
- 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.
Product name: ICH/USP 232 Class 1 & 2 Parenteral Elements

- Respiratory protection:
  Not required.
  Use suitable respiratory protective device in case of insufficient ventilation.

- 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

- 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: 0 °C
  - 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.
### 48.1.23

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

- **Vapour pressure at 20 °C:** 23 hPa

- **Density at 20 °C:** 1.00956 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 at 20 °C:** 0.952 mPas
  - **Kinematic:** Not determined.

### 9.2 Other information

No further relevant information available.

### SECTION 10: Stability and reactivity

- **10.1 Reactivity**
  Stable under normal conditions.
  No further relevant information available.

- **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** Causes skin irritation.
  - **Serious eye damage/irritation** Causes serious eye irritation.

- **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.
Product name: ICH/USP 232 Class 1 & 2 Parenteral Elements

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:
Not hazardous for water.
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 UN3264
ADR 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

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

Class 8 Corrosive substances.

(Contd. on page 7)
Product name: ICH/USP 232 Class 1 & 2 Parenteral Elements

(Contd. from page 6)

- **Label**: 8
- **14.4 Packing group**: ADR, IMDG, IATA III
- **14.5 Environmental hazards**: Not applicable.
- **14.6 Special precautions for user**: Warning: Corrosive substances. 80
- **EMS Number**: F-A,S-B
- **Segregation groups**: Acids
- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**: Not applicable.
- **Transport/Additional information**: 
  - ADR
  - Limited quantities (LQ) 5L
  - Excepted quantities (EQ) Code: E1
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml
  - Transport category 3
  - Tunnel restriction code E
  - **UN "Model Regulation"**: UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

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.
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
  - **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  
Ox. Liq. 2: Oxidizing liquids – Category 2  
Met. Corr. 1: Corrosive to metals – Category 1  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A

(Contd. on page 8)
**Product name:** ICH/USP 232 Class 1 & 2 Parenteral Elements

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Irrit. 2:</strong> Skin corrosion/irritation – Category 2</td>
<td></td>
</tr>
<tr>
<td><strong>Eye Irrit. 2:</strong> Serious eye damage/eye irritation – Category 2</td>
<td></td>
</tr>
</tbody>
</table>

**Sources**
- *Data compared to the previous version altered, All sections have been updated.*
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: ICH/USP 232 Parenteral Combined-1

Part number: 5191-4534

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.

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

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 GHS07

Signal word Danger

Hazard-determining components of labelling:

Nitric acid

hydrofluoric acid

(Contd. on page 2)
Product name: ICH/USP 232 Parenteral Combined-1

(Hazard statements)
H290 May be corrosive to metals.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.

(Precautionary statements)
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/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).
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):

<table>
<thead>
<tr>
<th>CAS</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>Nitric acid</td>
<td>≥2.5-%&lt;5%</td>
</tr>
<tr>
<td>231-714-2</td>
<td>Ox. Liq. 2, H272; Met. Corr. 1, H290; Skin Corr. 1A, H314</td>
<td>2.5-%&lt;5%</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>Hydrofluoric acid</td>
<td>≥0.1-%&lt;1%</td>
</tr>
<tr>
<td>231-634-8</td>
<td>Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; Skin Corr. 1A, H314</td>
<td>0.1-%&lt;1%</td>
</tr>
</tbody>
</table>

(Additional information):
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). 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
General information:
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may occur even after several hours; therefore medical observation for at least 48 hours after the accident is recommended.
After inhalation:
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient in recovery position for transport.

(Contd. on page 3)
Seek medical treatment.

· After skin contact:
  Immediately wash with water and soap and rinse thoroughly.
  Seek medical treatment.
  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.
  Seek medical treatment.

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:
    · Mouth respiratory protective device.
    · 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.
· Information about fire - and explosion protection: No special measures required.
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

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>CAS</th>
<th>Ingredient</th>
<th>WEL Short-term value</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>Nitric acid</td>
<td>2.6 mg/m³, 1 ppm</td>
<td>Lists used were valid at the time of SDS preparation.</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>hydrofluoric acid</td>
<td>2.5 mg/m³, 3 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 1.5 mg/m³, 1.8 ppm</td>
<td></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 skin.
  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:
  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

(Contd. on page 5)
**Product name:** ICH/USP 232 Parenteral Combined-1

- **Penetration time of glove material**
  The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**
  Tightly sealed goggles

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**SECTION 9: Physical and chemical properties**

- **9.1 Information on basic physical and chemical properties**
  - **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 self-igniting.

- **Explosive properties:** Not determined.

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

- **Vapour pressure at 20 °C:** 23 hPa

- **Density at 20 °C:** 1.01372 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.
**SECTION 10: Stability and reactivity**

- **10.1 Reactivity**
  Stable under normal conditions.
  No further relevant information available.

- **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**
  Harmful if swallowed, in contact with skin or if inhaled.

- **LD/LC50 values relevant for classification:**
  **CAS: 7697-37-2 Nitric acid**
  Inhalative LC50/4 h 130 mg/l (rat)

- **Primary irritant effect:**
  **Skin corrosion/irritation**
  Causes skin irritation.
  **Serious eye damage/irritation**
  Causes serious eye damage.

- **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:
    | CAS: 7697-37-2 Nitric acid |
    | 180 mg/l (crustacean)     |
    | CAS: 7440-50-8 Copper    |
    | 0.044 mg/l (crustacean)  |
    | 0.02 mg/l (crustacean)   |
    | 0.57 mg/l (Algae)        |
    | 0.665 mg/l (fish)        |

· 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 UN3264
  · ADR 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)
  · IMDG, IATA CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)
48.1.23

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

14.4 Packing group
- ADR, IMDG, IATA
- Class 8
- Label 8

14.5 Environmental hazards:
Not applicable.

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 Marpol and the IBC Code
Not applicable.

Transport/Additional information:
- ADR
  - Limited quantities (LQ): 5L
  - Excepted quantities (EQ): Code: E1
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml
  - Transport category: 3
  - Tunnel restriction code: E

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

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.
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
  - 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)
Product name: ICH/USP 232 Parenteral Combined-1

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
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Ox. Liq. 2: Oxidizing liquids – Category 2
Met. Corr. 1: Corrosive to metals – Category 1
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
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

· Sources

· Data compared to the previous version altered. All sections have been updated.
**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
  - **Product name:** ICH/USP 232 Parenteral Combined-2
  - **Part number:** 5191-4535

- **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](image)

  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](image)

- **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; Eye Dam. 1, H318; STOT SE 3, H335 |
  | EINECS: 231-595-7 |
  | RTECS: MW 96020000 |

  | ≥35%<10% |

- **Additional information:**
  - The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). 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.
SECTION 7: Handling and storage

- 7.1 Precautions for safe handling: Store in cool, dry place in tightly closed receptacles.
- Information about fire - and explosion protection: No special measures required.
- 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

<table>
<thead>
<tr>
<th>CAS: 7647-01-0 Hydrochloric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></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 and skin.
    - Respiratory protection:
      Not required.
      Use suitable respiratory protective device in case of insufficient ventilation.
    - 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

(Contd. on page 4)
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 breakthrough 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

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour:</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour:</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value:</td>
<td>&lt;2</td>
</tr>
</tbody>
</table>

- Change in condition
  - Melting point/freezing point: Not determined. 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 at 20 °C: 1.0111 g/cm³
Product name: ICH/USP 232 Parenteral Combined-2

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with water</td>
<td>Fully miscible.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity:</td>
<td></td>
</tr>
<tr>
<td>Dynamic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>9.2 Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity**
  - Stable under normal conditions.
  - No further relevant information available.
- **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.

(Contd. on page 6)
**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: UN1789
- **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:**
    - Not applicable.
  - **14.6 Special precautions for user**
    - **Warning:** Corrosive substances.
    - **Danger code (Kemler):** 80
    - **EMS Number:** F-A,S-B
    - **Segregation groups:** Acids

(Contd. on page 7)
Product name: ICH/USP 232 Parenteral Combined-2

- **Stowage Category**: E

- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**: Not applicable.

- **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 1789 HYDROCHLORIC ACID SOLUTION, 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
  - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- **Sources**

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