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

- Product identifier
- Trade name: ESI/APCI Positive Ion Performance Standard (5 x 1mL)
- Part number: G1946-85004
- Relevant identified uses of the substance or mixture and uses advised against
  Reagents and Standards for Analytical Chemical Laboratory Use
- 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:
  Telephone: 0800 603 1000
  pdl-msds_author@agilent.com
- Emergency telephone number: CHEMTREC®: +(44)-870-8200418

2 Hazards identification

- Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
  GHS02 flame
  Flam. Liq. 2 H225 Highly flammable liquid and vapour.

  GHS07
  Eye Irrit. 2 H319 Causes serious eye irritation.
  STOT SE 3 H336 May cause drowsiness or dizziness.

- Label elements
- Labelling according to Regulation (EC) No 1272/2008
  The product is classified and labelled according to the CLP regulation.
- Hazard pictograms

  GHS02  GHS07

- Signal word Danger
- Hazard-determining components of labelling:
  propan-2-ol
- Hazard statements
  H225 Highly flammable liquid and vapour.
  H319 Causes serious eye irritation.
  H336 May cause drowsiness or dizziness.
- Precautionary statements
  P101 If medical advice is needed, have product container or label at hand.
  P102 Keep out of reach of children.

(Contd. on page 2)
Trade name: ESI/APCI Positive Ion Performance Standard (5 x 1mL)

- P103 Read label before use.
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 Call a POISON CENTER/doctor if you feel unwell.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterisation: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.
- Dangerous components:
  - CAS: 67-63-0 propan-2-ol
  - EINECS: 200-661-7 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336
  - Additional information: For the wording of the listed hazard phrases refer to section 16.

4 First aid measures

- Description of first aid measures
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Generally the product does not irritate the skin.
- After eye contact:
  - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed No further relevant information available.
5 Firefighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- 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).
  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: No special precautions are necessary if used correctly.
  - Information about fire - and explosion protection:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: Store in a cool location.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions:
    Keep container tightly sealed.
    Store in cool, dry conditions in well sealed receptacles.
  - Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.
Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WEL Short-term</th>
<th>Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>propan-2-ol 67-63-0</td>
<td>1250 mg/m³, 500 ppm</td>
<td>999 mg/m³, 400 ppm</td>
</tr>
</tbody>
</table>

Additional information: The lists valid during the making 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.
Avoid contact with the eyes and skin.

Respiratory protection:

When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.

Protection of hands:

Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

Material of gloves:

For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness

Penetration time of glove material:

For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: > 4 hours

Eye protection:

Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

<table>
<thead>
<tr>
<th>Form</th>
<th>Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>According to product specification</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>
Trade name: ESI/APCI Positive Ion Performance Standard (5 x 1mL)

<table>
<thead>
<tr>
<th>· Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point:</td>
</tr>
<tr>
<td>Undetermined.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range:</td>
</tr>
<tr>
<td>82 °C</td>
</tr>
</tbody>
</table>

| · Flash point:                          |
|    12 °C                               |

| · Flammability (solid, gas):            |
|    Not applicable.                      |

| · Ignition temperature:                 |
|    425 °C                              |

| · Decomposition temperature:            |
|    Not determined.                      |

| · Auto-ignition temperature:            |
|    Product is not selfigniting.         |

| · Explosive properties:                 |
|    Product is not explosive. However, formation of explosive air/vapour mixtures are possible. |

| · Explosion limits:                    |
|    Lower: 2 Vol %                      |
|    Upper: 12 Vol %                     |

| · Vapour pressure at 20 °C:             |
|    35 hPa                              |

| · Density:                              |
|    Not determined.                      |

| · Relative density                      |
|    Not determined.                      |

| · Vapour density                        |
|    Not determined.                      |

| · Evaporation rate                      |
|    Not determined.                      |

| · Solubility in / Miscibility with water:|
|    Not miscible or difficult to mix.    |

| · Partition coefficient: n-octanol/water:|
|    Not determined.                      |

| · Viscosity:                            |
|    Dynamic: Not determined.             |
|    Kinematic: Not determined.           |

| · Solvent content:                      |
|    Organic solvents: 44.0 %             |
|    Water: 56.0 %                        |
|    VOC (EC) 44.01 %                     |

| · Solids content:                       |
|    0.0 %                               |

| · Other information                     |
|    No further relevant information available. |

10 Stability and reactivity

| · Reactivity:                           |
|    No further relevant information available. |

| · 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 Based on available data, the classification criteria are not met.

- LD/LC50 values relevant for classification:
  67-63-0 propan-2-ol

<table>
<thead>
<tr>
<th>Mode of Exposure</th>
<th>LD50/LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>4,710 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal</td>
<td>12,800 mg/kg (rat)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>12,800 mg/kg (rabbit)</td>
</tr>
<tr>
<td></td>
<td>72.6 mg/L (rat)</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
  - Skin corrosion/irritation Based on available data, the classification criteria are not met.
  - Serious eye damage/irritation Causes serious eye irritation.
  - Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
  - CMR effects (carcinogenity, 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
    May cause drowsiness or dizziness.
  - 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.

12 Ecological information

- Toxicity
  - Aquatic toxicity No further relevant information available.
  - Persistence and degradability No further relevant information available.

- Behaviour 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 (German Regulation) (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.
  - Other adverse effects No further relevant information available.

13 Disposal considerations

- Waste treatment methods

- Recommendation
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.

- European waste catalogue

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 3</td>
<td>Flammable</td>
</tr>
<tr>
<td>HP 4</td>
<td>Irritant - skin irritation and eye damage</td>
</tr>
</tbody>
</table>
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: ESI/APCI Positive Ion Performance Standard (5 x 1mL)

14 Transport information

- UN-Number
- ADR, IMDG, IATA
  UN1993

- UN proper shipping name
  - ADR
    1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))
  - IMDG, IATA
    FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL (ISOPROPYL ALCOHOL))

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

  - Class
    3 Flammable liquids.
  - Label
    3

- Packing group
  - ADR, IMDG, IATA
    II

- Environmental hazards:
  Not applicable.

- Special precautions for user
  Warning: Flammable liquids.
  - Danger code (Kemler):
    33
  - EMS Number:
    F-E,S-E
  - Stowage Category
    B

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

- Transport/Additional information:

  - ADR
    - Limited quantities (LQ)
      1L
      Code: E2
      Maximum net quantity per inner packaging: 30 ml
      Maximum net quantity per outer packaging: 500 ml
  - Transport category
    2
  - Tunnel restriction code
    D/E

  - IMDG
    - Limited quantities (LQ)
      1L
      Code: E2
      Maximum net quantity per inner packaging: 30 ml
      Maximum net quantity per outer packaging: 500 ml

(Contd. of page 6)
15 Regulatory information

- **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.
  - Seveso category P5c FLAMMABLE LIQUIDS
  - Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
  - Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
  - 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.

- **Relevant phrases**
  - H225 Highly flammable liquid and vapour.
  - H319 Causes serious eye irritation.
  - H336 May cause drowsiness or dizziness.

- **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)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Flam. Liq. 2: Flammable liquids – Category 2
  - Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.