1 Identification

- **Product identifier**
- **Trade name:** Custom Standard (1X1 mL)
- **Part number:** CUS-13215
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **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:**
    Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
  - **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - GHS02 Flame
    Flam. Liq. 2  H225  Highly flammable liquid and vapor.
  - GHS06 Skull and crossbones
    Acute Tox. 3  H331  Toxic if inhaled.
  - GHS08 Health hazard
    Carc. 1A  H350  May cause cancer.
    STOT SE 1  H370  Causes damage to organs.

- **Label elements**
  - **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**
    GHS02  GHS06  GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - methanol
  - ethanol
  - 2-methylpropan-2-ol
  - propane, 2-ethoxy-2-methyl-

(Contd. on page 2)
Trade name: Custom Standard (1X1 mL)

· Hazard statements
  Highly flammable liquid and vapor.
  Toxic if inhaled.
  May cause cancer.
  Causes damage to organs.

· Precautionary statements
  Obtain special instructions before use.
  Do not handle until all safety precautions have been read and understood.
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Ground/bond container and receiving equipment.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Use only non-sparking tools.
  Take precautionary measures against static discharge.
  Do not breathe dust/fume/gas/mist/vapors/spray.
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  Use only outdoors or in a well-ventilated area.
  Wear protective gloves/protective clothing/eye protection/face protection.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  IF exposed or concerned: Get medical advice/attention.
  Specific treatment (see on this label).
  In case of fire: Use for extinction: CO2, powder or water spray.
  Store in a well-ventilated place. Keep container tightly closed.
  Store in a well-ventilated place. Keep cool.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 1
    Fire = 3
    Reactivity = 0

  · HMIS-ratings (scale 0 - 4)
    Health = *1
    Fire = 3
    Reactivity = 0

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

3 Composition/information on ingredients

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

· Dangerous components:

<table>
<thead>
<tr>
<th>Chemical Characterization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>94.943%</td>
</tr>
</tbody>
</table>
4 First-aid measures

· Description of first aid measures
· General information:
  Immediately remove any clothing soiled by the product.
  Remove breathing apparatus only after contaminated clothing have been completely removed.
  In case of irregular breathing or respiratory arrest provide artificial respiration.
· After inhalation:
  Supply fresh air or oxygen; call for doctor.
  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:
  If symptoms persist consult 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.
· For safety reasons unsuitable extinguishing agents: Water with full jet
· Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
· Advice for firefighters
· Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
  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).
  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.
Protective Action Criteria for Chemicals

- PAC-1:
  - 67-56-1 methanol 530 ppm
  - 75-65-0 2-methylpropan-2-ol 150 ppm
  - 64-17-5 ethanol 1,800 ppm
  - 108-20-3 diisopropyl ether 310 ppm
  - 994-05-8 tert-amyl methyl ether 60 ppm

- PAC-2:
  - 67-56-1 methanol 2,100 ppm
  - 75-65-0 2-methylpropan-2-ol 1,300 ppm
  - 64-17-5 ethanol 3300* ppm
  - 108-20-3 diisopropyl ether 1700* ppm
  - 994-05-8 tert-amyl methyl ether 120 ppm

- PAC-3:
  - 67-56-1 methanol 7200* ppm
  - 75-65-0 2-methylpropan-2-ol 8000* ppm
  - 64-17-5 ethanol 15000* ppm
  - 108-20-3 diisopropyl ether 10000** ppm
  - 994-05-8 tert-amyl methyl ether 170 ppm

Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Open and handle receptacle with care.
    Prevent formation of aerosols.
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
    Keep respiratory protective device available.

- 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 receptacle tightly sealed.
    Store in cool, dry conditions in well sealed receptacles.
  - Specific end use(s) No further relevant information available.

Exposure controls/personal protection

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

Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the remaining constituent has no known exposure limits. At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>PEL Long-term value</th>
<th>REL Short-term value</th>
<th>Skin Long-term value</th>
<th>TLV Short-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>260 mg/m³, 200 ppm</td>
<td>325 mg/m³, 250 ppm</td>
<td>260 mg/m³, 200 ppm</td>
<td>328 mg/m³, 250 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>262 mg/m³, 200 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin; BEI</td>
<td></td>
</tr>
<tr>
<td>75-65-0 2-methylpropan-2-ol</td>
<td>300 mg/m³, 100 ppm</td>
<td>450 mg/m³, 150 ppm</td>
<td>300 mg/m³, 100 ppm</td>
<td>303 mg/m³, 100 ppm</td>
</tr>
<tr>
<td>64-17-5 ethanol</td>
<td>1900 mg/m³, 1000 ppm</td>
<td></td>
<td>1900 mg/m³, 1000 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>BEI 15 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td>Parameter: Methanol (background, nonspecific)</td>
</tr>
</tbody>
</table>

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

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Store protective clothing separately.

Breathing equipment:
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 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is
direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil 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:** Fluid
    - **Form:** Fluid
    - **Color:** According to product specification
    - **Odor:** Characteristic
    - **Odor threshold:** Not determined.

  - **pH-value:** Not determined.

  - **Change in condition**
    - **Melting point/Melting range:** Undetermined.
    - **Boiling point/Boiling range:** Undetermined.

  - **Flash point:** 9 ºC (48.2 ºF)

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

  - **Ignition temperature:** 455 ºC (851 ºF)

  - **Decomposition temperature:** Not determined.

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

  - **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

  - **Explosion limits:**
    - **Lower:** 5.5 Vol %
    - **Upper:** 44 Vol %

  - **Vapor pressure at 20 ºC (68 ºF):** 100 hPa (75 mm Hg)

  - **Density:** Not determined.
  - **Relative density:** Not determined.
  - **Vapor density:** Not determined.
  - **Evaporation rate:** Not determined.
48.1.26

· Solubility in / Miscibility with Water: Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water): Not determined.
· Solvent content: Organic solvents: 96.5 % VOC content: 96.46 % 964.6 g/l / 8.05 lb/gal
· 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:
  · LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>Component</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>5,628 mg/kg (rat)</td>
<td>15,800 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>75-65-0 2-methylpropan-2-ol</td>
<td>2,743 mg/kg (rat)</td>
<td>&gt;2,000 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>64-17-5 ethanol</td>
<td>&gt;5,000 mg/kg (rat)</td>
<td>20,000 mg/L (rat)</td>
<td></td>
</tr>
</tbody>
</table>

· Primary irritant effect:
  · on the skin: No irritant effect.
  · on the eye: No irritating effect.
Trade name: Custom Standard (1X1 mL)

- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Toxic

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    64-17-5 ethanol 1
  - **NTP (National Toxicology Program)**
    None of the ingredients is listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    None of the ingredients is listed.

**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.
    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**

- **Not Regulated, De minimus Quantities** -
- **UN-Number**
  - **DOT, IMDG, IATA** UN1230
- **UN proper shipping name**
  - **DOT** Methanol
<table>
<thead>
<tr>
<th>IMDG, IATA</th>
<th>METHANOL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transport hazard class(es)</strong></td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td>- Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>- Label</td>
<td>3, 6.1</td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
</tr>
<tr>
<td>- Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>- Label</td>
<td>3/6.1</td>
</tr>
<tr>
<td>IATA</td>
<td></td>
</tr>
<tr>
<td>- Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>- Label</td>
<td>3 (6.1)</td>
</tr>
</tbody>
</table>

- **Packing group**
  - DOT, IMDG, IATA: II

- **Environmental hazards:** Not applicable.

- **Special precautions for user**
  - Warning: Flammable liquids

- **DOT, IMDG, IATA**
  - EMS Number: 336
  - Stowage Category: B
  - Stowage Code: SW2 Clear of living quarters.

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

- **Transport/Additional information:**
  - DOT
    - Quantity limitations:
      - On passenger aircraft/rail: 1 L
      - On cargo aircraft only: 60 L

  - IMDG
    - Limited quantities (LQ): 1L
    - Exected quantities (EQ):
      - Code: E2
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 500 ml
Trade name: Custom Standard (1X1 mL)

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - Section 355 (extremely hazardous substances):
      None of the ingredients is listed.
    - Section 313 (Specific toxic chemical listings):
      67-56-1 methanol
      75-65-0 2-methylpropan-2-ol
  - TSCA (Toxic Substances Control Act):
    67-56-1 methanol
    75-65-0 2-methylpropan-2-ol
    64-17-5 ethanol
    624-95-3 3,3-dimethylbutan-1-ol
    108-20-3 diisopropyl ether
    637-92-3 propane, 2-ethoxy-2-methyl-
    75-85-4 2-methylbutan-2-ol
    994-05-8 tert-amyl methyl ether
  - TSCA new (21st Century Act): (Substances not listed)
    762-75-4 tert-butyl formate
  - Proposition 65
    - Chemicals known to cause cancer:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for females:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for males:
      None of the ingredients is listed.
    - Chemicals known to cause developmental toxicity:
      67-56-1 methanol
      64-17-5 ethanol
  - Carcinogenic categories
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  - TLV (Threshold Limit Value established by ACGIH)
    75-65-0 2-methylpropan-2-ol A4
    64-17-5 ethanol A3
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
National regulations:

Information about limitation of use:
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.
Exceptions can be made by the authorities in certain cases.

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.

Department issuing SDS: Document Control / Regulatory
Contact: regulatory@ultrasci.com
Date of preparation / last revision 04/11/2019 / 2

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)
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
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Carc. 1A: Carcinogenicity – Category 1A
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1

* Data compared to the previous version altered.