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

- Product identifier
  - Trade name: Custom Standard (100 mL)
- Part number: CUS-8256
- Relevant identified uses of the substance or mixture and uses advised against
  Reagents and Standards for Analytical Chemical Laboratory Use

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.
    - GHS08 health hazard
    - Carc. 2 H351 Suspected of causing cancer.
    - GHS07
    - Eye Irrit. 2 H319 Causes serious eye irritation.
    - STOT SE 3 H335 May cause respiratory irritation.

- 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
  - GHS08

- Signal word Danger

- Hazard-determining components of labelling:
  - tetrahydrofuran

(Contd. on page 2)
Trade name: Custom Standard (100 mL)

- **Hazard statements**
  - H225 Highly flammable liquid and vapour.
  - H319 Causes serious eye irritation.
  - H351 Suspected of causing cancer.
  - H335 May cause respiratory irritation.

- **Precautionary statements**
  - P101 If medical advice is needed, have product container or label at hand.
  - P102 Keep out of reach of children.
  - P103 Read label before use.
  - P201 Obtain special instructions before use.
  - P202 Do not handle until all safety precautions have been read and understood.
  - 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.
  - P308+P313 IF exposed or concerned: Get medical advice/attention.
  - 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.

- **Additional information:**
  - EUH019 May form explosive peroxides.

- **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: 109-99-9 tetrahydrofuran
  - EINECS: 203-726-8
  - Flamm. Liq. 2, H225; Carc. 2, H351; Eye Irrit. 2, H319; STOT SE 3, H335
  - 99.762%
4 First aid measures

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

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

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - **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.

7 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.
Trade name: Custom Standard (100 mL)

- **Information about fire - and explosion protection:**
  - 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 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**

<table>
<thead>
<tr>
<th>Ingredients with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-99-9 tetrahydrofuran</td>
</tr>
<tr>
<td>WEL</td>
</tr>
<tr>
<td>Sk</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.
  - Store protective clothing separately.
  - 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

(Contd. on page 5)
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: Liquid
    - Colour: Colourless
  - **Odour:** Ether-like
  - **Odour threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - **Melting point/freezing point:** -108.5 °C
  - **Initial boiling point and boiling range:** 65.5 °C
- **Flash point:** -21 °C
- **Flammability (solid, gas):** Not applicable.
- **Ignition temperature:** 230 °C
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Product is not selfigniting.
- **Explosive properties:** May form explosive peroxides.
- **Explosion limits:**
  - Lower: 1.5 Vol %
  - Upper: 12 Vol %
- **Vapour pressure at 20 °C:** 150 hPa
- **Density at 20 °C:** 0.88995 g/cm³
- **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: 100.0 %
  - VOC (EC) 99.97 %

(Contd. on page 6)
48.1.26

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:
  - 109-99-9 tetrahydrofuran
    - Oral LD50 2,500 mg/kg (rat)
- 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 (carcinogenicity, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity: Based on available data, the classification criteria are not met.
  - Carcinogenicity: Suspected of causing cancer.
- Reproductive toxicity: Based on available data, the classification criteria are not met.
- STOT-single exposure: May cause respiratory irritation.
- 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.
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: Custom Standard (100 mL)

- 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
  - HP 3 Flammable
  - HP 4 Irritant - skin irritation and eye damage
  - HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
  - HP 7 Carcinogenic
  - HP 15 Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste.

- Uncleaned packaging:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - ADR, IMDG, IATA UN1993

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

- 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

(Contd. on page 8)
### Trade name: Custom Standard (100 mL)

<table>
<thead>
<tr>
<th>Stowage Category</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport in bulk according to Annex II of Marpol and the IBC Code</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Transport/Additional information:</td>
<td></td>
</tr>
<tr>
<td>ADR</td>
<td></td>
</tr>
<tr>
<td>Limited quantities (LQ)</td>
<td>1L</td>
</tr>
<tr>
<td>Excepted quantities (EQ)</td>
<td>Code: E2</td>
</tr>
<tr>
<td>Maximum net quantity per inner packaging:</td>
<td>30 ml</td>
</tr>
<tr>
<td>Maximum net quantity per outer packaging:</td>
<td>500 ml</td>
</tr>
<tr>
<td>Transport category</td>
<td>2</td>
</tr>
<tr>
<td>Tunnel restriction code</td>
<td>D/E</td>
</tr>
<tr>
<td>IMDG</td>
<td></td>
</tr>
<tr>
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<tr>
<td>UN &quot;Model Regulation&quot;:</td>
<td>UN 1993 FLAMMABLE LIQUID, N.O.S. (TETRAHYDROFURAN), 3, II</td>
</tr>
</tbody>
</table>

### 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.
  - H335 May cause respiratory irritation.
  - H351 Suspected of causing cancer.

- 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)
### Trade name: Custom Standard (100 mL)

- **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
- **Carc. 2:** Carcinogenicity – Category 2
- **STOT SE 3:** Specific target organ toxicity (single exposure) – Category 3