1 Identification

- Product identifier
- Trade name: FID Test Mixture
- Part number: L483-1520
- 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. 2 H351 Suspected of causing cancer.
    - STOT SE 1 H370 Causes damage to organs.
  - GHS07
    - Skin Irrit. 2 H315 Causes skin irritation.
    - Eye Irrit. 2A H319 Causes serious eye irritation.

- Label elements
  - GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
  - Signal word Danger
Trade name: FID Test Mixture

· **Hazard-determining components of labeling:**
  - methanol
  - 2,6-xylidine
  - 2,6-dimethylaniline
  - dodecane
  - 1,1,2,2-tetrachloroethane

**Hazard statements**

- Highly flammable liquid and vapor.
- Toxic if inhaled.
- Causes skin irritation.
- Causes serious eye irritation.
- Suspected of causing cancer.
- Causes damage to organs.

**Precautionary statements**

- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Read label before use.
- 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 in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see on this label).
- Take off contaminated clothing and wash it before reuse.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- 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 = 2
- Fire = 3
- Reactivity = 0
Safety Data Sheet
acc. to OSHA HCS

Printing date 11/19/2018 Reviewed on 11/19/2018

Trade name: FID Test Mixture

- HMIS-ratings (scale 0 - 4)
  - HEALTH: Health = 2
  - FIRE: Fire = 3
  - REACTIVITY: 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:
  - 67-56-1 methanol 92.288%
  - 629-50-5 tridecane 1.264%
  - 576-26-1 2,6-xylenol 1.264%
  - 111-87-5 1-Octanol 1.264%
  - 1120-21-4 undecane 1.264%
  - 112-40-3 dodecane 1.264%
  - 87-62-7 2,6-xylidine 2,6-dimethylaniline 1.264%
  - 79-34-5 1,1,2,2-tetrachloroethane 0.126%

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. 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.
  - Indication of any immediate medical attention and special treatment needed
  - No further relevant information available.

(Contd. on page 4)
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

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>530 ppm</td>
<td></td>
</tr>
<tr>
<td>629-50-5 tridecane</td>
<td>0.0073 ppm</td>
<td></td>
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<tr>
<td>576-26-1 2,6-xylenol</td>
<td>2.4 mg/m³</td>
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</tr>
<tr>
<td>111-87-5 1-Octanol</td>
<td>5 ppm</td>
<td></td>
</tr>
<tr>
<td>1120-21-4 undecane</td>
<td>2.3 ppm</td>
<td></td>
</tr>
<tr>
<td>112-40-3 dodecane</td>
<td>1.7 ppm</td>
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</tr>
<tr>
<td>79-34-5 1,1,2,2-tetrachloroethane</td>
<td>3 ppm</td>
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<table>
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<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>2,100 ppm</td>
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<tr>
<td>629-50-5 tridecane</td>
<td>0.08 ppm</td>
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<tr>
<td>576-26-1 2,6-xylenol</td>
<td>26 mg/m³</td>
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<tr>
<td>111-87-5 1-Octanol</td>
<td>20 ppm</td>
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<td>1120-21-4 undecane</td>
<td>26 ppm</td>
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<tr>
<td>112-40-3 dodecane</td>
<td>18 ppm</td>
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<td>79-34-5 1,1,2,2-tetrachloroethane</td>
<td>120 ppm</td>
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</table>

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<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>7200* ppm</td>
<td></td>
</tr>
<tr>
<td>629-50-5 tridecane</td>
<td>2.3 ppm</td>
<td></td>
</tr>
</tbody>
</table>
Trade name: FID Test Mixture

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>576-26-1</td>
<td>2,6-xylenol</td>
<td>160 mg/m³</td>
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<tr>
<td>111-87-5</td>
<td>1-Octanol</td>
<td>150 ppm</td>
</tr>
<tr>
<td>1120-21-4</td>
<td>undecane</td>
<td>150 ppm</td>
</tr>
<tr>
<td>112-40-3</td>
<td>dodecane</td>
<td>110 ppm</td>
</tr>
<tr>
<td>79-34-5</td>
<td>1,1,2,2-tetrachloroethane</td>
<td>150 ppm</td>
</tr>
</tbody>
</table>

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.
  - 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.

8 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:
    
    |     |                |                        |
    |-----|----------------|------------------------|
    | 67-56-1 | methanol     |                        |
    | PEL   | Long-term value: 260 mg/m³, 200 ppm |
    | REL   | Short-term value: 325 mg/m³, 250 ppm |
    |       | Long-term value: 260 mg/m³, 200 ppm |
    |       | Skin          |                        |
    | TLV   | Short-term value: 328 mg/m³, 250 ppm |
    |       | Long-term value: 262 mg/m³, 200 ppm |
    |       | Skin; BEI     |                        |
    | 576-26-1 | 2,6-xylenol  |                        |
    | TLV   | Long-term value: NIC-5* mg/m³, NIC-1* ppm |
    |       | *inh. fraction+vapor; NIC-A3, NIC-DSEN |
Trade name: FID Test Mixture

79-34-5 1,1,2,2-tetrachloroethane

<table>
<thead>
<tr>
<th></th>
<th>Long-term value: 35 mg/m³, 5 ppm</th>
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<tbody>
<tr>
<td>PEL</td>
<td>Skin</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 7 mg/m³, 1 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin; See Pocket Guide Apps. A and C</td>
</tr>
<tr>
<td>TLV</td>
<td>Long-term value: 6.9 mg/m³, 1 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
</tr>
</tbody>
</table>

- Ingredients with biological limit values:
  67-56-1 methanol

<table>
<thead>
<tr>
<th></th>
<th>BEI 15 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></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.
    Avoid contact with the eyes and skin.

- 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:**
    - **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:** 64.7 °C (148.5 °F)

- **Flash point:** 9 °C (48.2 °F)

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

- **Ignition temperature:** 455 °C (851 °F)

- **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 °C (68 °F):** 100 hPa (75 mm Hg)

- **Density at 20 °C (68 °F):** 0.80589 g/cm³ (6.72515 lbs/gal)

- **Relative density** Not determined.

- **Vapor 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:** 94.8 %
  - **VOC content:** 94.82 %

- **Solids content:** 1.3 %

- **Other information** No further relevant information available.
10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**: No further relevant information available.
- **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**:
    
    | ATE (Acute Toxicity Estimate) | Oral LD50 | Dermal LD50 | Inhalative LC50/4 h |
    |-------------------------------|-----------|-------------|---------------------|
    | methanol (67-56-1)            | 14,848 mg/kg | >3,530 mg/kg | >3.14 mg/L          |
    | methanol (629-50-5)           | >5,000 mg/kg (rat) | >2,000 mg/kg (rat) | >4.951 mg/L (rat) |
    | 2,6-xylanol (576-26-1)       | 296 mg/kg (rat) | 1,000 mg/kg (rabbit) |             |
    | 1-Octanol (111-87-5)         | 1,790 mg/kg (mouse) | >3,200 mg/kg (rat) |             |
    | undecane (1120-21-4)         | 5,000 mg/kg (rat) | >5,000 mg/kg (rabbit) | >5.6 mg/L (rat) |
    | dodecane (112-40-3)          | >5,000 mg/kg (rat) | >5,000 mg/kg (rabbit) | >5.6 mg/L (rat) |
    | 2,6-dimethylaniline (87-62-7) | 840 mg/kg (rat) |             |             |
Trade name: FID Test Mixture

79-34-5 1,1,2,2-tetrachloroethane

| Oral LD50 | 200 mg/kg (rat) |

- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** Irritating effect.
  - **Sensitization:** No sensitizing effects known.
  - **Additional toxicological information:**
    The product shows the following dangers according to internally approved calculation methods for preparations:
    - Toxic
    - Irritant

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    87-62-7 2,6-xylidine 2,6-dimethylaniline 2B
    79-34-5 1,1,2,2-tetrachloroethane 2B
  - **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 1 (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 of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
Safety Data Sheet
acc. to OSHA HCS

Printing date 11/19/2018
Version Number 2
Reviewed on 11/19/2018

Trade name: FID Test Mixture

(Contd. of page 9)

14 Transport information

- UN-Number
  - DOT, IMDG, IATA UN1230

- UN proper shipping name
  - DOT Methanol solution
  - IMDG, IATA METHANOL solution

- Transport hazard class(es)
  - DOT
    - Class 3 Flammable liquids
    - Label 3, 6.1
  - IMDG
    - Class 3 Flammable liquids
    - Label 3/6.1
  - IATA
    - Class 3 Flammable liquids
    - Label 3 (6.1)

- Packing group
  - DOT, IMDG, IATA II

- Environmental hazards:
  Not applicable.

- Special precautions for user
  - Warning: Flammable liquids
  - Danger code (Kemler): 336
  - EMS Number: F-E,S-D
  - 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

(Contd. on page 11)

US
Trade name: FID Test Mixture

- IMDG
- Limited quantities (LQ): 1L
- Exempted quantities (EQ): Code: E2
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 500 ml
- UN "Model Regulation": UN 1230 METHANOL SOLUTION, 3 (6.1), II

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
      576-26-1 2,6-xylenol
      87-62-7 2,6-xylidine 2,6-dimethylaniline
      79-34-5 1,1,2,2-tetrachloroethane
  - TSCA (Toxic Substances Control Act):
    All ingredients are listed.
  - TSCA new (21st Century Act) (Substances not listed)
    87-62-7 2,6-xylidine 2,6-dimethylaniline
  - Proposition 65
    - Chemicals known to cause cancer:
      87-62-7 2,6-xylidine 2,6-dimethylaniline
      79-34-5 1,1,2,2-tetrachloroethane
    - 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
  - Carcinogenic categories
    - EPA (Environmental Protection Agency)
      79-34-5 1,1,2,2-tetrachloroethane L
    - TLV (Threshold Limit Value established by ACGIH)
      79-34-5 1,1,2,2-tetrachloroethane A3
    - NIOSH-Ca (National Institute for Occupational Safety and Health)
      79-34-5 1,1,2,2-tetrachloroethane

(Contd. on page 12)
Trade name: FID Test Mixture

· **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** 11/19/2018 / 1
- **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
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  - Carc. 2: Carcinogenicity – Category 2
  - STOT SE 1: Specific target organ toxicity (single exposure) – Category 1