## 1 Identification

- **Product identifier**
  - **Trade name:** Custom Standard
  - **Part number:** CUS-9349-1ML
  - **Application of the substance / the mixture:** Laboratory chemicals

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    ULTRA Scientific, Inc.
    250 Smith Street
    North Kingstown, RI  02852
    USA

- **Information department:**
  - Telephone: (401) 294-9400
  - Fax: (401) 295-2300
  - E-mail: regulatory@ultrasci.com

- **Emergency telephone number:**
  - US: (800) 424-9300
  - Outside US: (703) 527-3887

## 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.
    - Repr. 2 H361 Suspected of damaging fertility or the unborn child.
    - STOT SE 1 H370 Causes damage to organs.
    - STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

- **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
Safety Data Sheet
acc. to OSHA HCS

Printing date 10/04/2017 Reviewed on 10/04/2017
Version Number 1

Trade name: Custom Standard

··· Hazard-determining components of labeling:
me thanol
1,2-dichloroethane-d4
toluene-d8
2-methyl-2-propan-d9-ol

··· Hazard statements
Highly flammable liquid and vapor.
Toxic if inhaled.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to organs.
May cause damage to organs through prolonged or repeated exposure.

··· 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.
Get medical advice/attention if you feel unwell.
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 Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>79.456%</td>
</tr>
<tr>
<td>25725-11-5 2-methyl-2-propan-d9-ol</td>
<td>7.9014%</td>
</tr>
<tr>
<td>17060-07-0 1,2-dichloroethane-d4</td>
<td>1.58%</td>
</tr>
<tr>
<td>3855-82-1 1,4-dichlorobenzene-d4</td>
<td>1.58%</td>
</tr>
<tr>
<td>2037-26-5 toluene-d8</td>
<td>1.58%</td>
</tr>
<tr>
<td>460-00-4 1-bromo-4-fluorobenzene</td>
<td>1.58%</td>
</tr>
<tr>
<td>1868-53-7 dibromofluoromethane</td>
<td>1.58%</td>
</tr>
<tr>
<td>540-36-3 1,4-difluorobenzene</td>
<td>1.58%</td>
</tr>
<tr>
<td>363-72-4 pentafluorobenzene</td>
<td>1.58%</td>
</tr>
<tr>
<td>3114-55-4 chlorobenzene-d5</td>
<td>1.58%</td>
</tr>
</tbody>
</table>

4 First-aid measures

· Description of first aid measures
· General information:
  Immediately remove any clothing soiled by the product. Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident. 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

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>530 ppm</td>
</tr>
<tr>
<td>2037-26-5 toluene-d8</td>
<td>67 ppm</td>
</tr>
<tr>
<td>460-00-4 1-bromo-4-fluorobenzene</td>
<td>12 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>2,100 ppm</td>
</tr>
<tr>
<td>2037-26-5 toluene-d8</td>
<td>560 ppm</td>
</tr>
<tr>
<td>460-00-4 1-bromo-4-fluorobenzene</td>
<td>130 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>7200* ppm</td>
</tr>
<tr>
<td>2037-26-5 toluene-d8</td>
<td>3,700 ppm</td>
</tr>
<tr>
<td>460-00-4 1-bromo-4-fluorobenzene</td>
<td>790 mg/m3</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.
Trade name: Custom Standard

- **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:**
  
  The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
  
  At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>PEL</th>
<th>REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>Long-term value: 260 mg/m³, 200 ppm</td>
<td>Short-term value: 325 mg/m³, 250 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 260 mg/m³, 200 ppm</td>
<td>Long-term value: 328 mg/m³, 250 ppm</td>
</tr>
<tr>
<td></td>
<td>Skin</td>
<td>Skin</td>
</tr>
</tbody>
</table>

- **Ingredients with biological limit values:**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>BEI</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>15 mg/L</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:**

  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**

  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 6)
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

### 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:** 64.7°C (°F)

- **Flash point:** 9°C (°F)

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

- **Ignition temperature:** 455°C (°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 (mm Hg)

- **Density:** Not determined.

- **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.
45.2.5 · Solvent content:
Organic solvents: 81.0 %
VOC content: 81.04 %
810.4 g/l / 6.76 lb/gl
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:
· LD/LC50 values that are relevant for classification:
  ATE (Acute Toxicity Estimate)
  Oral LD50 15,122 mg/kg
  Dermal LD50 177,182 mg/kg (rabbit)
  Inhalative LC50/4 h 3.57 mg/L
  67-56-1 methanol
  Oral LD50 5,628 mg/kg (rat)
  Dermal LD50 15,800 mg/kg (rabbit)
  17060-07-0 1,2-dichloroethane-d4
  Oral LD50 680 mg/kg (rat)
  Dermal LD50 2,800 mg/kg (rabbit)
  2037-26-5 toluene-d8
  Oral LD50 >5,580 mg/kg (rat)
  Dermal LD50 12,196 mg/kg (rabbit)
  Inhalative LC50/4 h 12,500 mg/L (rat)
  460-00-4 1-bromo-4-fluorobenzene
  Oral LD50 2,700 mg/kg (rat)
  Inhalative LC50/4 h 18,000 mg/L (rat)
  3114-55-4 chlorobenzene-d5
  Oral LD50 2,910 mg/kg (rat)
  Primary irritant effect:
  on the skin: No irritant effect.
  on the eye: No irritating effect.
### Trade name: Custom Standard

<table>
<thead>
<tr>
<th>45.2.5</th>
<th>Sensitization: No sensitizing effects known.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Additional toxicological information:</strong></td>
</tr>
<tr>
<td></td>
<td>The product shows the following dangers according to internally approved calculation methods for preparations:</td>
</tr>
<tr>
<td></td>
<td>Toxic</td>
</tr>
<tr>
<td></td>
<td><strong>Carcinogenic categories</strong></td>
</tr>
<tr>
<td></td>
<td><strong>IARC (International Agency for Research on Cancer)</strong></td>
</tr>
<tr>
<td></td>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td></td>
<td><strong>NTP (National Toxicology Program)</strong></td>
</tr>
<tr>
<td></td>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td></td>
<td><strong>OSHA-Ca (Occupational Safety &amp; Health Administration)</strong></td>
</tr>
<tr>
<td></td>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

#### 12 Ecological information

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Aquatic toxicity: No further relevant information available.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persistence and degradability No further relevant information available.</td>
</tr>
<tr>
<td></td>
<td>Behavior in environmental systems:</td>
</tr>
<tr>
<td></td>
<td>Bioaccumulative potential No further relevant information available.</td>
</tr>
<tr>
<td></td>
<td>Mobility in soil No further relevant information available.</td>
</tr>
<tr>
<td></td>
<td><strong>Additional ecological information:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>General notes:</strong> Water hazard class 2 (Self-assessment): hazardous for water</td>
</tr>
<tr>
<td></td>
<td>Do not allow product to reach ground water, water course or sewage system.</td>
</tr>
<tr>
<td></td>
<td>Danger to drinking water if even small quantities leak into the ground.</td>
</tr>
<tr>
<td></td>
<td><strong>Results of PBT and vPvB assessment</strong></td>
</tr>
<tr>
<td></td>
<td>PBT: Not applicable.</td>
</tr>
<tr>
<td></td>
<td>vPvB: Not applicable.</td>
</tr>
<tr>
<td></td>
<td><strong>Other adverse effects</strong> No further relevant information available.</td>
</tr>
</tbody>
</table>

#### 13 Disposal considerations

<table>
<thead>
<tr>
<th>Waste treatment methods</th>
<th>Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncleaned packagings</td>
<td>Recommendation: Disposal must be made according to official regulations.</td>
</tr>
</tbody>
</table>

#### 14 Transport information

<table>
<thead>
<tr>
<th>UN-Number</th>
<th>DOT, IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1230</td>
<td>UN1230</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>DOT</td>
</tr>
<tr>
<td>Methanol</td>
<td>Methanol</td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td>METHANOL</td>
</tr>
</tbody>
</table>
### 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

**IMDG**

- **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

**UN "Model Regulation":**

UN 1230 METHANOL, 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
- TSCA (Toxic Substances Control Act):
  67-56-1 methanol
  460-00-4 1-bromo-4-fluorobenzene
  363-72-4 pentafluorobenzene
- 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
- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  - TLV (Threshold Limit Value established by ACGIH)
    None of the ingredients is listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
- 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
  1,2-dichloroethane-d4
  toluene-d8
  2-methyl-2-propan-d9-ol
- Hazard statements
  Highly flammable liquid and vapor.
  Toxic if inhaled.
  May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause damage to organs.
May cause damage to organs through prolonged or repeated exposure.

- **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.

- **National regulations:**
  - **Additional classification according to Decree on Hazardous Materials:**
    Carcinogenic hazardous material group III (dangerous).

- **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**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Date of preparation / last revision** 10/04/2017 / -

- **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
Trade name: Custom Standard

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
Repr. 2: Reproductive toxicity – Category 2
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2