1 Identification

- **Product identifier**
  - **Trade name:** Custom Standard
- **Part number:** CUS-5460
- **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: +1-800-424-9300
    - Outside US: +1-703-527-3887

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.
  - **GHS07**
    - Skin Irrit. 2  H315  Causes skin irritation.

- **Label elements**
  - **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
Trade name: Custom Standard

- **Hazard pictograms**

  ![Pictograms](image)

  GHS02  GHS06  GHS07  GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  methanol
  1,2-dichloroethane-d4
  toluene-d8
  dibromofluoromethane

- **Hazard statements**
  Highly flammable liquid and vapor.
  Toxic if inhaled.
  Causes skin irritation.
  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.
  Specific treatment (see on this label).
  Get medical advice/attention if you feel unwell.
  Take off contaminated clothing and wash it before reuse.
  If skin irritation occurs: 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)**

    ![Ratings](image)

    Health = 1
    Fire = 3
    Reactivity = 0

  (Contd. on page 3)
Safe Data Sheet
acc. to OSHA HCS

Printing date 07/09/2018  Reviewed on 07/09/2018

Version Number 2

Trade name: Custom Standard

- HMIS-ratings (scale 0 - 4)
  
<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

- 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.

<table>
<thead>
<tr>
<th>Chemical characterization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol</td>
<td>89.886%</td>
</tr>
<tr>
<td>1-bromo-4-fluorobenzene</td>
<td>2.528%</td>
</tr>
<tr>
<td>dibromofluoromethane</td>
<td>2.528%</td>
</tr>
<tr>
<td>toluene-d8</td>
<td>2.528%</td>
</tr>
<tr>
<td>1,2-dichloroethane-d4</td>
<td>2.528%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
- General information:
  Initially 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.
6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions**: Prevent seepage into sewage system, workpits and cellars.
- **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</td>
<td>methanol</td>
</tr>
<tr>
<td>460-00-4</td>
<td>1-bromo-4-fluorobenzene</td>
</tr>
<tr>
<td>2037-26-5</td>
<td>toluene-d8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1</td>
<td>methanol</td>
</tr>
<tr>
<td>460-00-4</td>
<td>1-bromo-4-fluorobenzene</td>
</tr>
<tr>
<td>2037-26-5</td>
<td>toluene-d8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1</td>
<td>methanol</td>
</tr>
<tr>
<td>460-00-4</td>
<td>1-bromo-4-fluorobenzene</td>
</tr>
<tr>
<td>2037-26-5</td>
<td>toluene-d8</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**

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
<th>PEL</th>
<th>REL</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol</td>
<td>260 mg/m³, 200 ppm</td>
<td>260 mg/m³, 200 ppm</td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Ingredients with biological limit values:**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>BEI</th>
<th>Medium</th>
<th>Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol</td>
<td>15 mg/L</td>
<td>urine</td>
<td>end of shift</td>
<td>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 skin.
    - Avoid contact with the eyes and skin.
- **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:**
  - **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.
    - **Penetration time of glove material**
      - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
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:
  - 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.

- Solvent content:
  - Organic solvents: 92.4 %

(Contd. on page 7)
47.0

**VOC content:**
92.41 %
924.1 g/l / 7.71 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 10,297 mg/kg
      - Dermal LD50 110,742 mg/kg (rabbit)
      - Inhalative LC50/4 h 3.22 mg/L
    - **67-56-1 methanol**
      - Oral LD50 5,628 mg/kg (rat)
      - Dermal LD50 15,800 mg/kg (rabbit)
    - **460-00-4 1-bromo-4-fluorobenzene**
      - Oral LD50 2,700 mg/kg (rat)
      - Inhalative LC50/4 h 18,000 mg/L (rat)
    - **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)
    - **17060-07-0 1,2-dichloroethane-d4**
      - Oral LD50 680 mg/kg (rat)
      - Dermal LD50 2,800 mg/kg (rabbit)

- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** No 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**

(Contd. on page 8)
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:** Not known to be hazardous to water.
  - **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

- **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
Trade name: Custom Standard

- Label
  - 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
    - 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
**Trade name:** Custom Standard

<table>
<thead>
<tr>
<th>· TSCA (Toxic Substances Control Act):</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
</tr>
<tr>
<td>460-00-4 1-bromo-4-fluorobenzene</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· TSCA new (21st Century Act) (Substances not listed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1868-53-7 dibromofluoromethane</td>
</tr>
<tr>
<td>2037-26-5 toluene-d8</td>
</tr>
<tr>
<td>17060-07-0 1,2-dichloroethane-d4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· Proposition 65</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>· Chemicals known to cause cancer:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· Chemicals known to cause reproductive toxicity for females:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· Chemicals known to cause reproductive toxicity for males:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
</tr>
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<table>
<thead>
<tr>
<th>· Carcinogenic categories</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>· EPA (Environmental Protection Agency)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· TLV (Threshold Limit Value established by ACGIH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· NIOSH-Ca (National Institute for Occupational Safety and Health)</th>
</tr>
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</tbody>
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<table>
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<tr>
<th>· Hazard pictograms</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS02  GHS06  GHS07  GHS08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· Signal word</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>· Hazard-determining components of labeling:</th>
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<tbody>
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</table>

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<tr>
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</thead>
<tbody>
<tr>
<td>Obtain special instructions before use.</td>
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</table>
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). Get medical advice/attention if you feel unwell. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: 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.

· 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 07/09/2018 / 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
(Contd. of page 11)

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
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