1 Identification

- **Product identifier**
- **Trade name:** Custom Standard
- **Part number:** CUS-8787
- **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  H311  Toxic in contact with skin.

  - GHS08 Health hazard
    Carc. 2  H351  Suspected of causing cancer.

  - GHS07
    Skin Irrit. 2  H315  Causes skin irritation.
    Skin Sens. 1  H317  May cause an allergic skin reaction.

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

  - GHS02
  - GHS06
  - GHS07
  - GHS08
Trade name: Custom Standard

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - tert-butyl methyl ether
  - chloroacetic acid
  - bromoacetic acid

- **Hazard statements**
  - Highly flammable liquid and vapor.
  - Toxic in contact with skin.
  - Causes skin irritation.
  - May cause an allergic skin reaction.
  - Suspected of causing cancer.

- **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.
  - Keep container tightly closed.
  - Ground/bond container and receiving equipment.
  - Use explosion-proof electrical/ventilating/lighting/equipment.
  - Use only non-sparking tools.
  - Take precautionary measures against static discharge.
  - Avoid breathing dust/fume/gas/mist/vapors/spray
  - Wash thoroughly after handling.
  - Contaminated work clothing must not be allowed out of the workplace.
  - 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 exposed or concerned: Get medical advice/attention.
  - Call a POISON CENTER/doctor if you feel unwell.
  - Specific treatment (see on this label).
  - If skin irritation or rash occurs: Get medical advice/attention.
  - Take off immediately all contaminated clothing and wash it before reuse.
  - In case of fire: Use for extinction: CO2, powder or water spray.
  - 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

  - **HMIS-ratings (scale 0 - 4)**
    - Health = 2
    - 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.

<table>
<thead>
<tr>
<th>Substance ID</th>
<th>Substance Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4</td>
<td>tert-butyl methyl ether</td>
<td>99.054%</td>
</tr>
<tr>
<td>79-08-3</td>
<td>bromoacetic acid</td>
<td>0.135%</td>
</tr>
<tr>
<td>5589-96-8</td>
<td>bromochloroacetic acid</td>
<td>0.135%</td>
</tr>
<tr>
<td>79-43-6</td>
<td>dichloroacetic acid</td>
<td>0.135%</td>
</tr>
<tr>
<td>631-64-1</td>
<td>dibromoacetic acid</td>
<td>0.135%</td>
</tr>
<tr>
<td>76-03-9</td>
<td>trichloroacetic acid</td>
<td>0.135%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- **Description of first aid measures**
- **General information:**
  Immediately remove any clothing soiled by the product.
  In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
  Supply fresh air and to be sure call for a 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**
  No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:**
  No special measures required.

6 Accidental release measures

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

(Contd. on page 4)
Trade name: Custom Standard

- 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>1634-04-4 tert-butyl methyl ether</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>79-11-8 chloroacetic acid</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>79-08-3 bromoacetic acid</td>
<td>0.023</td>
<td>mg/m³</td>
</tr>
<tr>
<td>79-43-6 dichloroacetic acid</td>
<td>1.5</td>
<td>ppm</td>
</tr>
<tr>
<td>76-03-9 trichloroacetic acid</td>
<td>1.5</td>
<td>ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4 tert-butyl methyl ether</td>
<td>570</td>
<td>ppm</td>
</tr>
<tr>
<td>79-11-8 chloroacetic acid</td>
<td>6.6</td>
<td>ppm</td>
</tr>
<tr>
<td>79-08-3 bromoacetic acid</td>
<td>0.26</td>
<td>mg/m³</td>
</tr>
<tr>
<td>79-43-6 dichloroacetic acid</td>
<td>8.9</td>
<td>ppm</td>
</tr>
<tr>
<td>76-03-9 trichloroacetic acid</td>
<td>16</td>
<td>ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4 tert-butyl methyl ether</td>
<td>5300*</td>
<td>ppm</td>
</tr>
<tr>
<td>79-11-8 chloroacetic acid</td>
<td>15</td>
<td>ppm</td>
</tr>
<tr>
<td>79-08-3 bromoacetic acid</td>
<td>1.5</td>
<td>mg/m³</td>
</tr>
<tr>
<td>79-43-6 dichloroacetic acid</td>
<td>140</td>
<td>ppm</td>
</tr>
<tr>
<td>76-03-9 trichloroacetic acid</td>
<td>99</td>
<td>ppm</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
  - Precautions for safe handling No special precautions are necessary if used correctly.
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.

- 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.
Safety Data Sheet
acc. to OSHA HCS

Printing date 10/16/2017
Version Number 1
Reviewed on 10/16/2017

Trade name: Custom Standard

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

<table>
<thead>
<tr>
<th>Constituent</th>
<th>TLV Long-term value</th>
<th>Skin REL Long-term value</th>
<th>Skin TLV Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4 tert-butyl methyl ether</td>
<td>180 mg/m³, 50 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79-43-6 dichloroacetic acid</td>
<td>2.64 mg/m³, 0.5 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76-03-9 trichloroacetic acid</td>
<td>7 mg/m³, 1 ppm</td>
<td>3.34 mg/m³, 0.5 ppm</td>
<td></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: Not required.
· 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.

· 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.
· Eye protection:

Tightly sealed goggles
# 9 Physical and chemical properties

- **General Information**
  - **Appearance:**
    - **Form:** Fluid
    - **Color:** Colorless
  - **Odor:** Characteristic
  - **Odor threshold:** Not determined.
  - **pH-value:** Not determined.
  - **Change in condition**
    - **Melting point/Melting range:** -108.6°C (°F)
    - **Boiling point/Boiling range:** 55.2°C (°F)
  - **Flash point:** 0°C (°F)
  - **Flammability (solid, gaseous):** Not applicable.
  - **Ignition temperature:** 460°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:** 1.6 Vol %
    - **Upper:** 8.4 Vol %
  - **Vapor pressure at 20°C (68 °F):** 209.4 hPa (mm Hg)
  - **Density at 20°C (68 °F):** 0.75008 g/cm³ (lbs/gal)
  - **Relative density:** Not determined.
  - **Vapor density:** Not determined.
  - **Evaporation rate:** Not determined.
  - **Solubility in / Miscibility with Water at 25°C (77 °F):** 51 g/l
  - **Partition coefficient (n-octanol/water):** Not determined.
  - **Viscosity:**
    - **Dynamic at 20°C (68 °F):** 0.27 mPas
    - **Kinematic:** Not determined.
  - **Solvent content:**
    - **Organic solvents:** 99.1 %
    - **VOC content:** 99.05 %
      - 743.0 g/l / 6.20 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:

<table>
<thead>
<tr>
<th>· LD/LC50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE (Acute Toxicity Estimate)</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
</tr>
<tr>
<td>LD50 3,224 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50 979 mg/kg</td>
</tr>
<tr>
<td>Inhalative LC50/4 h 64.7 mg/L</td>
</tr>
</tbody>
</table>

1634-04-4 tert-butyl methyl ether
Oral LD50 4,000 mg/kg (rat)
Dermal LD50 1,000 mg/kg (rabbit)
Inhalative LC50/4 h 23,576 mg/L (rat)

79-08-3 bromoacetic acid
Oral LD50 50 mg/kg (rat)
Dermal LD50 59.9 mg/kg (rabbit)

79-43-6 dichloroacetic acid
Oral LD50 2,820 mg/kg (rat)
Dermal LD50 799 mg/kg (rabbit)

631-64-1 dibromoacetic acid
Oral LD50 1,737 mg/kg (rat)

76-03-9 trichloroacetic acid
Oral LD50 3,320 mg/kg (rat)

· Primary irritant effect:
  · on the skin: Irritant to skin and mucous membranes.
  · on the eye: No irritating effect.
  · Sensitization: Sensitization possible through skin contact.

· Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Irritant

· Carcinogenic categories

<table>
<thead>
<tr>
<th>· IARC (International Agency for Research on Cancer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1634-04-4 tert-butyl methyl ether 3</td>
</tr>
<tr>
<td>5589-96-8 bromochloroacetic acid 2B</td>
</tr>
<tr>
<td>79-43-6 dichloroacetic acid 2B</td>
</tr>
<tr>
<td>631-64-1 dibromoacetic acid 2B</td>
</tr>
<tr>
<td>76-03-9 trichloroacetic acid 2B</td>
</tr>
</tbody>
</table>

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

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.

14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: UN2350

- **UN proper shipping name**
  - DOT: Butyl methyl ether
  - IMDG, IATA: BUTYL METHYL ETHER

- **Transport hazard class(es)**
  - **DOT**
    - Class: 3 Flammable liquids
Trade name: Custom Standard

<table>
<thead>
<tr>
<th>· Label</th>
<th>3, 6.1</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>· Packing group</td>
<td></td>
</tr>
<tr>
<td>· DOT, IMDG, IATA</td>
<td>II</td>
</tr>
<tr>
<td>· Environmental hazards:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Special precautions for user</td>
<td>Warning: Flammable liquids</td>
</tr>
<tr>
<td>· Danger code (Kemler):</td>
<td>336</td>
</tr>
<tr>
<td>· EMS Number:</td>
<td>F-E,S-D</td>
</tr>
<tr>
<td>· Stowage Category</td>
<td>B</td>
</tr>
</tbody>
</table>

- 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 2350 BUTYL METHYL ETHER, 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):
  - 79-11-8 chloroacetic acid

- Section 313 (Specific toxic chemical listings):
  - 1634-04-4 tert-butyl methyl ether
  - 79-11-8 chloroacetic acid

(Contd. on page 10)
Trade name: Custom Standard

- **TSCA (Toxic Substances Control Act):**
  - 1634-04-4 tert-butyl methyl ether
  - 79-11-8 chloroacetic acid
  - 79-08-3 bromoacetic acid
  - 79-43-6 dichloroacetic acid
  - 631-64-1 dibromoacetic acid
  - 76-03-9 trichloroacetic acid

- **Proposition 65**
- **Chemicals known to cause cancer:**
  - 5589-96-8 bromochloroacetic acid
  - 79-43-6 dichloroacetic acid
  - 631-64-1 dibromoacetic acid
  - 76-03-9 trichloroacetic acid
- **Chemicals known to cause reproductive toxicity for females:**
  None of the ingredients is listed.
- **Chemicals known to cause reproductive toxicity for males:**
  - 79-43-6 dichloroacetic acid
- **Chemicals known to cause developmental toxicity:**
  - 79-43-6 dichloroacetic acid

- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)**
  - 79-43-6 dichloroacetic acid L
  - 76-03-9 trichloroacetic acid SC
- **TLV (Threshold Limit Value established by ACGIH)**
  - 1634-04-4 tert-butyl methyl ether A3
  - 79-11-8 chloroacetic acid A4
  - 79-43-6 dichloroacetic acid A3
  - 76-03-9 trichloroacetic acid A3

- **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](image1) ![GHS06](image2) ![GHS07](image3) ![GHS08](image4)

- **Signal word** Danger
- **Hazard-determining components of labeling:**
  - tert-butyl methyl ether
  - chloroacetic acid
  - bromoacetic acid
- **Hazard statements**
  Highly flammable liquid and vapor.
Toxic in contact with skin.
Causes skin irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.

- **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.
  Keep container tightly closed.
  Ground/bond container and receiving equipment.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Use only non-sparking tools.
  Take precautionary measures against static discharge.
  Avoid breathing dust/fume/gas/mist/vapors/spray
  Wash thoroughly after handling.
  Contaminated work clothing must not be allowed out of the workplace.
  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 exposed or concerned: Get medical advice/attention.
  Call a POISON CENTER/doctor if you feel unwell.
  Specific treatment (see on this label).
  If skin irritation or rash occurs: Get medical advice/attention.
  Take off immediately all contaminated clothing and wash it before reuse.
  In case of fire: Use for extinction: CO2, powder or water spray.
  Store in a well-ventilated place. Keep cool.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **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:** 10/16/2017 / -
- **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
  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
  Flam. Liq. 2: Flammable liquids – Category 2
  Acute Tox. 3: Acute toxicity – Category 3
### Trade name: Custom Standard

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irr. 2</td>
<td>Skin corrosion/irritation – Category 2</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitisation – Category 1</td>
</tr>
<tr>
<td>Carc. 2</td>
<td>Carcinogenicity – Category 2</td>
</tr>
</tbody>
</table>

(Contd. of page 11)