1 Identification

· Product identifier
· Trade name: Custom Standard
· Part number: CUS-8383
· 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
  GHS08 Health hazard
  Carc. 1A  H350  May cause cancer.

GHS05 Corrosion

Eye Dam. 1  H318  Causes serious eye damage.

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

GHS05  GHS08

· Signal word Danger

· Hazard-determining components of labeling:
  propan-1-ol
  ethanol
  butanol
  butan-1-ol

· Hazard statements
  Causes serious eye damage.
  May cause cancer.

· Precautionary statements
  Obtain special instructions before use.

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

Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
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.
Immediately call a POISON CENTER/doctor.
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 = 0
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - Health = *1
    - Fire = 0
    - 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 1.0%
  - 64-17-5 ethanol 1.0%
  - 67-63-0 propan-2-ol 1.0%
  - 75-65-0 2-methylpropan-2-ol 1.0%
  - 71-23-8 propan-1-ol 1.0%
  - 78-92-2 butanol 1.0%
  - 78-83-1 butanol 1.0%
  - 71-36-3 butan-1-ol 1.0%

4 First-aid measures

- Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - 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.

(Contd. of page 1)
Trade name: Custom Standard

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

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents: Use fire fighting measures that suit the environment.
  - 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).
  Use neutralizing agent.
  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

  PAC-1:
  67-56-1 methanol 530 ppm
  64-17-5 ethanol 1,800 ppm
  67-63-0 propan-2-ol 400 ppm
  75-65-0 2-methylpropan-2-ol 150 ppm
  71-23-8 propan-1-ol 250 ppm
  78-92-2 butanol 150 ppm
  78-83-1 butanol 150 ppm
  71-36-3 butan-1-ol 60 ppm

  PAC-2:
  67-56-1 methanol 2,100 ppm
  64-17-5 ethanol 3,300* ppm
  67-63-0 propan-2-ol 2,000* ppm
  75-65-0 2-methylpropan-2-ol 1,300 ppm
  71-23-8 propan-1-ol 670 ppm
  78-92-2 butanol 220 ppm
  78-83-1 butanol 1,300 ppm
  71-36-3 butan-1-ol 800 ppm

  PAC-3:
  67-56-1 methanol 7,200* ppm

(Contd. of page 4)
Safety Data Sheet acc. to OSHA HCS

Trade name: Custom Standard

<table>
<thead>
<tr>
<th>Substance</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>15000* ppm</td>
</tr>
<tr>
<td>67-63-0 propan-2-ol</td>
<td>12000** ppm</td>
</tr>
<tr>
<td>75-65-0 2-methylpropan-2-ol</td>
<td>8000* ppm</td>
</tr>
<tr>
<td>71-23-8 propan-1-ol</td>
<td>4000* ppm</td>
</tr>
<tr>
<td>78-92-2 butanol</td>
<td>10000** ppm</td>
</tr>
<tr>
<td>78-83-1 butanol</td>
<td>8000* ppm</td>
</tr>
<tr>
<td>71-36-3 butan-1-ol</td>
<td>8000** ppm</td>
</tr>
</tbody>
</table>

### 7 Handling and Storage

- **Handling:**
- **Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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>Substance</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td></td>
</tr>
<tr>
<td>PEL Long-term value:</td>
<td>260 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>REL Short-term value:</td>
<td>325 mg/m³, 250 ppm</td>
</tr>
<tr>
<td>TLV Short-term value:</td>
<td>328 mg/m³, 250 ppm</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
</tr>
<tr>
<td>Long-term value:</td>
<td>262 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>Skin; BEI</td>
<td></td>
</tr>
</tbody>
</table>

| 64-17-5 ethanol            |              |
| PEL Long-term value:       | 1900 mg/m³, 1000 ppm |
| REL Long-term value:       | 1900 mg/m³, 1000 ppm |
| TLV Short-term value:      | 1880 mg/m³, 1000 ppm |

| 67-63-0 propan-2-ol        |              |
| PEL Long-term value:       | 980 mg/m³, 400 ppm |
| REL Short-term value:      | 1225 mg/m³, 500 ppm |
| TLV Short-term value:      | 984 mg/m³, 400 ppm |
| BEI                        |              |

(Contd. on page 5)
### Exposure limits and standards

<table>
<thead>
<tr>
<th>Compound</th>
<th>PEL</th>
<th>REL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>75-65-0 2-methylpropan-2-ol</td>
<td>Long-term value: 300 mg/m³, 100 ppm</td>
<td>Short-term value: 450 mg/m³, 150 ppm</td>
<td>Long-term value: 300 mg/m³, 100 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 300 mg/m³, 100 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-23-8 propan-1-ol</td>
<td>Long-term value: 500 mg/m³, 200 ppm</td>
<td>Short-term value: 625 mg/m³, 250 ppm</td>
<td>Long-term value: 500 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 305 mg/m³, 100 ppm</td>
<td>Skin</td>
</tr>
<tr>
<td>78-92-2 butanol</td>
<td>Long-term value: 450 mg/m³, 150 ppm</td>
<td>Short-term value: 455 mg/m³, 150 ppm</td>
<td>Long-term value: 305 mg/m³, 100 ppm</td>
</tr>
<tr>
<td>78-83-1 butanol</td>
<td>Long-term value: 300 mg/m³, 100 ppm</td>
<td></td>
<td>Long-term value: 150 mg/m³, 50 ppm</td>
</tr>
<tr>
<td>71-36-3 butan-1-ol</td>
<td>Long-term value: 300 mg/m³, 100 ppm</td>
<td>Ceiling limit value: 150 mg/m³, 50 ppm</td>
<td>Skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long-term value: 61 mg/m³, 20 ppm</td>
</tr>
</tbody>
</table>

**Ingredients with biological limit values:**

<table>
<thead>
<tr>
<th>Compound</th>
<th>BEI</th>
<th>Medium</th>
<th>Time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-56-1 methanol</td>
<td>15 mg/L</td>
<td>urine</td>
<td>end of shift</td>
<td>Methanol (background, nonspecific)</td>
</tr>
<tr>
<td>67-63-0 propan-2-ol</td>
<td>40 mg/L</td>
<td>urine</td>
<td>end of shift at end of workweek</td>
<td>Acetone (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.
- Avoid contact with the eyes and skin.
45.2.5

- **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.

- **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**

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form: Fluid</td>
<td></td>
</tr>
<tr>
<td>Color: According to product specification</td>
<td></td>
</tr>
<tr>
<td>Odor: Characteristic</td>
<td></td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
<td></td>
</tr>
<tr>
<td>pH-value: Not determined.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 100°C (°F)</td>
</tr>
</tbody>
</table>

| Flash point: Not applicable.                          |
| Flammability (solid, gaseous): Not applicable.        |
| Ignition temperature:                                |
| Decomposition temperature: Not determined.           |
| Auto igniting: Product is not selfigniting.          |
| Danger of explosion: Product does not present an explosion hazard. |
| Explosion limits:                                   |
| Lower: Not determined.                               |
Upper:

- Vapor pressure at 20°C (68 °F): 23 hPa (mm Hg)
- Density at 20°C (68 °F): 0.98388 g/cm³ (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: 7.0 %
- Water: 92.0 %
- VOC content: 7.00 %
  68.9 g/l / 0.57 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)
    | Route       | Value          |
    |-------------|----------------|
    | Oral LD50   | >29,070 mg/kg (rat) |
    | Dermal LD50 | >51,355 mg/kg  |
    | Inhalative LC50/4 h | 192 mg/L |

67-56-1 methanol
- Oral LD50 5,628 mg/kg (rat)
- Dermal LD50 15,800 mg/kg (rabbit)

64-17-5 ethanol
- Oral LD50 >5,000 mg/kg (rat)
<table>
<thead>
<tr>
<th>Trade name: Custom Standard</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>67-63-0 propan-2-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalative LC50/4 h</strong></td>
</tr>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
<tr>
<td><strong>Inhalative LC50/4 h</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>75-65-0 2-methylpropan-2-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>71-23-8 propan-1-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
<tr>
<td><strong>Inhalative LC50/4 h</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>78-92-2 butanol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>78-83-1 butanol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
<tr>
<td><strong>Inhalative LC50/4 h</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>71-36-3 butan-1-ol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral LD50</strong></td>
</tr>
<tr>
<td><strong>Dermal LD50</strong></td>
</tr>
<tr>
<td><strong>Inhalative LC50/4 h</strong></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - **on the skin:** No irritant effect.
  - **on the eye:** Strong irritant with the danger of severe eye injury.
  - **Sensitization:** No sensitizing effects known.

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

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    | 64-17-5 ethanol | 1 |
    | 67-63-0 propan-2-ol | 3 |
  - **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.
      Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    - 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: not regulated
- UN proper shipping name
  - DOT, IMDG, IATA: not regulated
- Transport hazard class(es)
  - DOT, IMDG, IATA: not regulated
  - Class: not regulated
- Packing group
  - DOT, IMDG, IATA: not regulated
- Environmental hazards:
  - Not applicable.
- Special precautions for user
  - Not applicable.
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.
- UN "Model Regulation": not regulated
### 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):
    
    | Chemical          | CAS Number |
    |-------------------|------------|
    | methanol          | 67-56-1    |
    | propan-2-ol       | 67-63-0    |
    | 2-methylpropan-2-ol| 75-65-0    |
    | butanol           | 78-92-2    |
    | butan-1-ol        | 71-36-3    |
  
- TSCA (Toxic Substances Control Act):
  
  All ingredients are listed.

- 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:
    
    | Chemical          | CAS Number |
    |-------------------|------------|
    | methanol          | 67-56-1    |
    | ethanol           | 64-17-5    |

- Carcinogenic categories
  
  - EPA (Environmental Protection Agency)
    
    | Chemical          | CAS Number | Classification |
    |-------------------|------------|----------------|
    | butan-1-ol        | 71-36-3    | D              |
  
  - TLV (Threshold Limit Value established by ACGIH)
    
    | Chemical          | CAS Number | Class |
    |-------------------|------------|-------|
    | ethanol           | 64-17-5    | A3    |
    | propan-2-ol       | 67-63-0    | A4    |
    | 2-methylpropan-2-ol| 75-65-0    | A4    |
    | butan-1-ol        | 71-23-8    | A4    |

- 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
  
  - GHS05
  
  - GHS08

- Signal word
  
  Danger

- Hazard-determining components of labeling:
  
  propan-1-ol
Trade name: Custom Standard

ethanol
butanol
butan-1-ol

Hazard statements
Causes serious eye damage.
May cause cancer.

Precautionary statements
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
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.
Immediately call a POISON CENTER/doctor.
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 09/22/2017 / -

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
BEI: Biological Exposure Limit
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Carc. 1A: Carcinogenicity – Category 1A