1 Identification

- Product identifier
- Trade name: Custom Standard
- Part number: ICUS-3098
- 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
  - GHS05 Corrosion
    Eye Dam. 1 H318 Causes serious eye damage.
  - 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).
  - Hazard pictograms
    - GHS05

- Signal word Danger
- Hazard-determining components of labeling:
  nitric acid
- Hazard statements
  Causes skin irritation.
  Causes serious eye damage.
- Precautionary statements
  Wash thoroughly after handling.
  Wear protective gloves / eye protection / face protection.
  If on skin: Wash with plenty of water.
Trade name: Custom Standard

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see on this label). If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - Health = 3
    - 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:
    - 7697-37-2 nitric acid: 4.95%

4 First-aid measures

  - Description of first aid measures
    - After inhalation: 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: Use fire fighting measures that suit the environment.
  - Special hazards arising from the substance or mixture: No further relevant information available.
Trade name: Custom Standard

- **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.

**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**:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical</th>
<th>PAC-1 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>0.16 ppm</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
<td>83 mg/m³</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>9 mg/m³</td>
</tr>
<tr>
<td>7631-99-4</td>
<td>sodium nitrate, containing in the dry state more than 16.3 per cent by weight of nitrogen</td>
<td>4.1 mg/m³</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
<td>2.9 mg/m³</td>
</tr>
<tr>
<td>10043-35-3</td>
<td>boric acid</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>554-13-2</td>
<td>lithium carbonate</td>
<td>3.1 mg/m³</td>
</tr>
<tr>
<td>10042-76-9</td>
<td>strontium nitrate</td>
<td>5.7 mg/m³</td>
</tr>
</tbody>
</table>

- **PAC-2**:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical</th>
<th>PAC-2 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>24 ppm</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
<td>920 mg/m³</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>7631-99-4</td>
<td>sodium nitrate, containing in the dry state more than 16.3 per cent by weight of nitrogen</td>
<td>45 mg/m³</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
<td>350 mg/m³</td>
</tr>
<tr>
<td>10043-35-3</td>
<td>boric acid</td>
<td>23 mg/m³</td>
</tr>
<tr>
<td>554-13-2</td>
<td>lithium carbonate</td>
<td>34 mg/m³</td>
</tr>
<tr>
<td>10042-76-9</td>
<td>strontium nitrate</td>
<td>62 mg/m³</td>
</tr>
</tbody>
</table>

- **PAC-3**:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical</th>
<th>PAC-3 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>92 ppm</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
<td>5,500 mg/m³</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>600 mg/m³</td>
</tr>
<tr>
<td>7631-99-4</td>
<td>sodium nitrate, containing in the dry state more than 16.3 per cent by weight of nitrogen</td>
<td>270 mg/m³</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
<td>2,100 mg/m³</td>
</tr>
<tr>
<td>10043-35-3</td>
<td>boric acid</td>
<td>830 mg/m³</td>
</tr>
<tr>
<td>554-13-2</td>
<td>lithium carbonate</td>
<td>210 mg/m³</td>
</tr>
</tbody>
</table>
Trade name: Custom Standard

| 10042-76-9 strontium nitrate | 370 mg/m³ |

### 7 Handling and storage

- **Handling:**
  - **Precautions for safe handling:** No special precautions are necessary if used correctly.
  - **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**
- **Components with limit values that require monitoring at the workplace:**
  | 7697-37-2 nitric acid |
  | PEL | Long-term value: 5 mg/m³, 2 ppm |
  | REL | Short-term value: 10 mg/m³, 4 ppm |
  | TLV | Short-term value: 10 mg/m³, 4 ppm |
  | | Long-term value: 5.2 mg/m³, 2 ppm |
- **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.
    Avoid contact with the skin.
    Avoid contact with the eyes and skin.
  - **Breathing equipment:** Not required.
  - **Protection of hands:**
    Protective gloves
  - **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.

(Contd. on page 5)
Trade name: Custom Standard

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: 100 °C (212 °F)

- Flash point: Not applicable.

- Flammability (solid, gaseous): Not applicable.

- 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: Not determined.

- Vapor pressure at 20 °C (68 °F): 23 hPa (17.3 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:
  - Water: 93.5 %
  - VOC content: 0.00 %
    - 0.0 g/l / 0.00 lb/gl

- Solids content: 1.5 %
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)
      - Inhalative LC50/4 h: 1,354 mg/L (rat)
    - 7697-37-2 nitric acid
      - Inhalative LC50/4 h: 67 mg/L (rat)
- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - 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)
    None of the ingredients is listed.
  - 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.
Trade name: Custom Standard

Additional ecological information:
- 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.

General notes:
- 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: UN3264
- UN proper shipping name
  - DOT: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
  - IMDG, IATA: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

Transport hazard class(es)

- DOT
  - Class: 8 Corrosive substances
  - Label: 8

- IMDG, IATA
  - Class: 8 Corrosive substances
  - Label: 8

- Packing group
  - DOT, IMDG, IATA: III
- Environmental hazards: Not applicable.

Special precautions for user
- Warning: Corrosive substances
- Danger code (Kemler): 80
Trade name: Custom Standard

| · EMS Number: | F-A,S-B |
| · Segregation groups | Acids |
| · Stowage Category | A |
| · 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: 5 L
    - On cargo aircraft only: 60 L

· IMDG
  · Limited quantities (LQ): 5L
  · Exempted quantities (EQ): Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

## 15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  · Sara
  · Section 355 (extremely hazardous substances):
    - 7697-37-2 nitric acid

· Section 313 (Specific toxic chemical listings):
  - 7697-37-2 nitric acid
  - 7784-27-2 aluminium nitrate
  - 7757-79-1 potassium nitrate
  - 10022-31-8 barium nitrate
  - 554-13-2 lithium carbonate
  - 10042-76-9 strontium nitrate

· TSCA (Toxic Substances Control Act):
  - 7697-37-2 nitric acid
  - 7757-79-1 potassium nitrate
  - 7631-99-4 sodium nitrate, containing in the dry state more than 16.3 per cent by weight of nitrogen
  - 10022-31-8 barium nitrate
  - 10043-35-3 boric acid
  - 554-13-2 lithium carbonate
  - 10042-76-9 strontium nitrate
  - 7732-18-5 water

· TSCA new (21st Century Act) (Substances not listed)
  · Proposition 65
  · Chemicals known to cause cancer:
    None of the ingredients is listed.
Trade name: Custom Standard

- 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:
  554-13-2 lithium carbonate

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    10022-31-8 barium nitrate  D, CBD(inh), NL(oral)
    10043-35-3 boric acid  I (oral)
  - TLV (Threshold Limit Value established by ACGIH)
    10022-31-8 barium nitrate  A4
    10043-35-3 boric acid  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

- Signal word
  Danger

- Hazard-determining components of labeling:
  nitric acid

- Hazard statements
  Causes skin irritation.
  Causes serious eye damage.

- Precautionary statements
  Wash thoroughly after handling.
  Wear protective gloves / eye protection / face protection.
  If on skin: Wash with plenty of water.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
  Continue rinsing.
  Immediately call a poison center/doctor.
  Specific treatment (see on this label).
  If skin irritation occurs: Get medical advice/attention.
  Take off contaminated clothing and wash it before reuse.

- 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
  03/16/2018 / 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)
**Trade name:** Custom Standard

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  
Skin Irrit. 2: Skin corrosion/irritation – Category 2  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
* Data compared to the previous version altered.