1 Identification

- **Product identifier**
  - **Trade name:** Custom Standard
  - **Part number:** ICUS-3076
  - **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](image)
  
  Eye Dam. 1  H318  Causes serious eye damage.
  - ![GHS07](image)
  
  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](image)

- **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.

- **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.
## 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**

<table>
<thead>
<tr>
<th>PAC-1</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>hydrogen fluoride</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
</tr>
<tr>
<td>16919-19-0</td>
<td>alkali fluorosilicates (NH4)</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>
</tr>
<tr>
<td>7803-55-6</td>
<td>ammonium trioxovanadate</td>
</tr>
<tr>
<td>10099-74-8</td>
<td>lead dinitrate</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
</tr>
<tr>
<td>471-34-1</td>
<td>calcium carbonate</td>
</tr>
<tr>
<td>10196-18-6</td>
<td>zinc(II) nitrate hexahydrate</td>
</tr>
<tr>
<td>10377-66-9</td>
<td>manganese dinitrate</td>
</tr>
<tr>
<td>7722-76-1</td>
<td>ammonium dihydrogenorthophosphate</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
</tr>
<tr>
<td>13446-18-9</td>
<td>magnesium nitrate hexahydrate</td>
</tr>
<tr>
<td>10026-22-9</td>
<td>cobalt (II) nitrate hexahydrate</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>iron (III) nitrate nonahydrate</td>
</tr>
<tr>
<td>10022-68-1</td>
<td>Nitric acid, cadmium salt, tetrahydrate</td>
</tr>
<tr>
<td>13478-00-7</td>
<td>Nitric acid, nickel(2+) salt, hexahydrate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
</tr>
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<td>lead dinitrate</td>
</tr>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
</tr>
</tbody>
</table>
7 Handling and storage

- **Handling:** No special precautions are necessary if used correctly.
- **Precautions for safe handling:** No special measures required.
- **Conditions for safe storage, including any incompatibilities:**
- **Storage:** No special requirements.
- **Further information about storage in one common storage facility:** Not required.
- **Specific end use(s):** Keep receptacle tightly sealed.

(Contd. on page 5)
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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Long-term value</th>
<th>Short-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2 nitric acid</td>
<td>5 mg/m³, 2 ppm</td>
<td>10 mg/m³, 4 ppm</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.
  - 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.
  - Eye protection:
    - Tightly sealed goggles

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.

(Contd. on page 6)
### 4.0.5 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:
- **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:** 94.9 %
- **VOC content:** 0.00 %
  - 0.0 g/l / 0.00 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.

(Contd. of page 5)
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      
      | ATE (Acute Toxicity Estimate) |
      | Oral LD50 | 1,276,000 mg/kg (rat) |
      | Dermal LD50 | 5,000 mg/kg |
      | Inhalative LC50/4 h | 365 mg/L |

      - 7697-37-2 nitric acid
        - Inhalative LC50/4 h 67 mg/L (rat)

      - 7664-39-3 hydrogen fluoride
        - Oral LD50 1,276 mg/kg (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)
      - 10099-74-8 lead dinitrate 2A
      - 10026-22-9 cobalt (II) nitrate hexahydrate 2B
      - 10022-68-1 Nitric acid, cadmium salt, tetrahydrate 1
      - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate 1

    - NTP (National Toxicology Program)
      - 10099-74-8 lead dinitrate R
      - 10022-68-1 Nitric acid, cadmium salt, tetrahydrate K
      - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate K

    - 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.
Trade name: Custom Standard

- 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
  - 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: II
- Environmental hazards:
  - Not applicable.
- Special precautions for user
  - Warning: Corrosive substances
  - Danger code (Kemler): 80
  - EMS Number: F-A,S-B
  - Segregation groups: Acids
  - Stowage Category: B
### 46.0.5

- **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: 30 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 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, II

### 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
      7664-39-3 hydrogen fluoride
  - **Section 313 (Specific toxic chemical listings)**:
    7697-37-2 nitric acid
    7664-39-3 hydrogen fluoride
    7784-27-2 aluminium nitrate
    7803-55-6 ammonium trioxovanadate
    10099-74-8 lead dinitrate
    7757-79-1 potassium nitrate
    10196-18-6 zinc(II) nitrate hexahydrate
    7789-02-8 chromium (III) nitrate nonahydrate
    10377-66-9 manganese dinitrate
    10031-43-3 cupric nitrate
    10022-31-8 barium nitrate
    13446-18-9 magnesium nitrate hexahydrate
    10026-22-9 cobalt (II) nitrate hexahydrate
    7782-61-8 iron (III) nitrate nonahydrate
    10022-68-1 Nitric acid, cadmium salt, tetrahydrate
    13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate
  - **TSCA (Toxic Substances Control Act)**:
    7697-37-2 nitric acid
    7664-39-3 hydrogen fluoride
    16919-19-0 alkali fluorosilicates (NH4)
Trade name: Custom Standard

<table>
<thead>
<tr>
<th>Compound ID</th>
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<td>ammonium dihydrogenorthophosphate</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>water</td>
</tr>
</tbody>
</table>

- **TSCA new (21st Century Act) (Substances not listed)**
- **Proposition 65**
- **Chemicals known to cause cancer:**
  - 10099-74-8 lead dinitrate
  - 10022-68-1 Nitric acid, cadmium salt, tetrahydrate
  - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate

- **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:**
  None of the ingredients is listed.

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - 10099-74-8 lead dinitrate: B2
    - 10377-66-9 manganese dinitrate: D
    - 10022-31-8 barium nitrate: D, CBD(inh), NL(oral)
  - **TLV (Threshold Limit Value established by ACGIH)**
    - 10099-74-8 lead dinitrate: A3
    - 10022-31-8 barium nitrate: 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 03/12/2018 / -

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)
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