1 Identification

- Product identifier
  - Trade name: Custom Standard
  - Part number: ICUS-3087
- 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
  - GHS07
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Irrit. 2A H319 Causes serious eye irritation.
- Label elements
  - GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms
    - GHS07
- Signal word Warning
- Hazard statements
  Causes skin irritation.
  Causes serious eye irritation.
- 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.
  Specific treatment (see on this label).
  If skin irritation occurs: Get medical advice/attention.
  If eye irritation persists: Get medical advice/attention.
  Take off contaminated clothing and wash it before reuse.
Trade name: Custom Standard

- Classification system:
  - NFPA ratings (scale 0 - 4)
    Health = 2
    Fire = 0
    Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    HEALTH 2
    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 1.98%

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. If symptoms persist, 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.

- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- 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).

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

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<thead>
<tr>
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<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>iron (III) nitrate nonahydrate</td>
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<tr>
<td>10196-18-6</td>
<td>zinc(II) nitrate hexahydrate</td>
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<tr>
<td>3251-23-8</td>
<td>copper dinitrate</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>hydrogen fluoride</td>
</tr>
<tr>
<td>87-69-4</td>
<td>(+)-tartaric acid</td>
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<tr>
<td>10099-74-8</td>
<td>lead dinitrate</td>
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<tr>
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<td>cobalt (II) nitrate hexahydrate</td>
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<td>13478-00-7</td>
<td>Nitric acid, nickel(2+) salt, hexahydrate</td>
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<tr>
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<td>molybdenum trioxide</td>
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<tr>
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<td>antimony</td>
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<tr>
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# Safety Data Sheet

acc. to OSHA HCS

Printing date 11/27/2017  
Reviewed on 11/27/2017

**Trade name:** Custom Standard

## 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:**
    
    | Component | Limit Value |
    |-----------|-------------|
    | 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 |
    | 7697-37-2 nitric acid | REL: Short-term value: 10 mg/m³, 4 ppm, Long-term value: 5 mg/m³, 2 ppm |
    | 7784-27-2 aluminium nitrate | | 5,500 mg/m³ |
    | 7782-61-8 iron (III) nitrate nonahydrate | | 640 mg/m³ |
    | 10196-18-6 zinc(II) nitrate hexahydrate | | 1,800 mg/m³ |
    | 3251-23-8 copper dinitrate | | 190 mg/m³ |
    | 7664-39-3 hydrogen fluoride | | 44 ppm |
    | 87-69-4 (+)-tartaric acid | | 100 mg/m³ |
    | 10099-74-8 lead dinitrate | | 1,100 mg/m³ |
    | 10026-22-9 cobalt (II) nitrate hexahydrate | | 140 mg/m³ |
    | 10377-66-9 manganese dinitrate | | 96 mg/m³ |
    | 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate | | 320 mg/m³ |
    | 7446-07-3 tellurium dioxide | | 26 mg/m³ |
    | 10022-31-8 barium nitrate | | 2,100 mg/m³ |
    | 7803-55-6 ammonium trioxovanadate | | 80 mg/m³ |
    | 1327-53-3 diarsenic trioxide | | 9.1 mg/m³ |
    | 1313-27-5 molybdenum trioxide | | 260 mg/m³ |
    | 7440-36-0 antimony | | 80 mg/m³ |
    | 7446-08-4 selenium dioxide | | 9.5 mg/m³ |

---

**Notes:**

1. **Handling and storage**
2. **Exposure controls/personal protection**
3. **Components with limit values that require monitoring at the workplace**
### 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 eyes and skin.

**Breathing equipment:** Not required.

**Protection of hands:**

![Protective gloves](Diagram)

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](Diagram)

### Physical and chemical properties

#### Information on basic physical and chemical properties

**General Information**

**Appearance:**
- **Form:** Fluid
- **Color:** Colorless
- **Odor:** Odorless
- **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.
46.0.5
· 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 at 20 °C (68 °F): 0.952 mPas
  Kinematic: Not determined.
· Solvent content:
  Water: 95.8 %
  VOC content: 0.00 %
  0.0 g/l / 0.00 lb/gl
· Solids content: 2.2 %
· 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 1,276,000 mg/kg (rat)
  Dermal LD50 5,000 mg/kg
  Inhalative LC50/4 h 436 mg/L
46.0.5

7617-37-2 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: Irritating effect.
  · 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  |
    | 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate | 1   |
    | 1327-53-3 diarsenic trioxide | 1   |
    | 543-81-7 acetic acid beryllium salt | 1   |
    | 7446-08-4 selenium dioxide | 3   |

  - NTP (National Toxicology Program)
    | 10099-74-8 lead dinitrate | R   |
    | 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate | K   |
    | 1327-53-3 diarsenic trioxide | K   |
    | 543-81-7 acetic acid beryllium salt | 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.

· 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

- **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
  - **Excepted 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
      - 7664-39-3 hydrogen fluoride
      - 1327-53-3 diarsenic trioxide

  - **Section 313 (Specific toxic chemical listings):**
    - 7697-37-2 nitric acid
    - 7784-27-2 aluminium nitrate
    - 7782-61-8 iron (III) nitrate nonahydrate
    - 10196-18-6 zinc(II) nitrate hexahydrate
    - 3251-23-8 copper dinitrate
    - 7789-02-8 chromium (III) nitrate nonahydrate
    - 7664-39-3 hydrogen fluoride
    - 10099-74-8 lead dinitrate
    - 10026-22-9 cobalt (II) nitrate hexahydrate
    - 10377-66-9 manganese dinitrate
    - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate
    - 10022-31-8 barium nitrate
    - 7803-55-6 ammonium trioxovanadate
    - 1327-53-3 diarsenic trioxide
    - 1313-27-5 molybdenum trioxide
    - 7440-36-0 antimony
    - 543-81-7 acetic acid beryllium salt
    - 7446-08-4 selenium dioxide

- **TSCA (Toxic Substances Control Act):**
  - 7697-37-2 nitric acid
  - 3251-23-8 copper dinitrate
  - 7664-39-3 hydrogen fluoride

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

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
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<tr>
<td>87-69-4</td>
<td>(+)-tartaric acid</td>
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<td>selenium dioxide</td>
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<tr>
<td>7732-18-5</td>
<td>water</td>
</tr>
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</table>

- **TSCA new (21st Century Act) (Substances not listed)**
- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 10099-74-8 lead dinitrate
    - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate
    - 1327-53-3 diarsenic trioxide
    - 543-81-7 acetic acid beryllium salt
  - **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:**
    1327-53-3 diarsenic trioxide

- **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)
    - 1327-53-3 diarsenic trioxide A
    - 7446-08-4 selenium dioxide D
  - **TLV (Threshold Limit Value established by ACGIH)**
    - 10099-74-8 lead dinitrate A3
    - 10022-31-8 barium nitrate A4
    - 1327-53-3 diarsenic trioxide A1
  - **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).
Trade name: Custom Standard

- **Hazard pictograms**

  GHS07

- **Signal word** Warning

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

- **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.
  Specific treatment (see on this label).
  If skin irritation occurs: Get medical advice/attention.
  If eye irritation persists: 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.

- **Department issuing SDS**: Document Control / Regulatory
- **Contact**: regulatory@ultrasci.com
- **Date of preparation / last revision**: 11/27/2017 / 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
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

- * Data compared to the previous version altered.*