1 Identification

- **Product identifier**
- **Trade name:** Custom Standard
- **Part number:** ICUS-7033
- **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**
  - **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 = 1  
  Fire = 0  
  Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  
  HEALTH Health = 1  
  FIRE Fire = 0  
  REACTIVITY 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:** No special measures required.

- **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 Name</th>
<th>PAC (mg/m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>0.16</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>hydrogen fluoride</td>
<td>1.0</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
<td>83</td>
</tr>
<tr>
<td>10026-22-9</td>
<td>cobalt (II) nitrate hexahydrate</td>
<td>0.3</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>iron (III) nitrate nonahydrate</td>
<td>22</td>
</tr>
<tr>
<td>10099-74-8</td>
<td>lead dinitrate</td>
<td>0.24</td>
</tr>
<tr>
<td>13446-18-9</td>
<td>magnesium nitrate hexahydrate</td>
<td>16</td>
</tr>
<tr>
<td>10377-66-9</td>
<td>manganese dinitrate</td>
<td>9.8</td>
</tr>
<tr>
<td>1313-27-5</td>
<td>molybdenum trioxide</td>
<td>2.3</td>
</tr>
<tr>
<td>13478-00-7</td>
<td>Nitric acid, nickel(2+) salt, hexahydrate</td>
<td>1.5</td>
</tr>
<tr>
<td>7446-08-4</td>
<td>selenium dioxide</td>
<td>0.84</td>
</tr>
<tr>
<td>10102-45-1</td>
<td>thallium nitrate</td>
<td>0.078</td>
</tr>
<tr>
<td>1344-57-6</td>
<td>Uranium oxide (UO2)</td>
<td>0.68</td>
</tr>
<tr>
<td>7803-55-6</td>
<td>ammonium trioxovanadate</td>
<td>0.01</td>
</tr>
<tr>
<td>10196-18-6</td>
<td>zinc(II) nitrate hexahydrate</td>
<td>27</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
<td>2.9</td>
</tr>
<tr>
<td>14985-18-3</td>
<td>zirconyl nitrate hydrate</td>
<td>27</td>
</tr>
</tbody>
</table>

- **PAC-2:**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>PAC (mg/m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>nitric acid</td>
<td>24</td>
</tr>
<tr>
<td>7664-39-3</td>
<td>hydrogen fluoride</td>
<td>24</td>
</tr>
<tr>
<td>7784-27-2</td>
<td>aluminium nitrate</td>
<td>920</td>
</tr>
<tr>
<td>10026-22-9</td>
<td>cobalt (II) nitrate hexahydrate</td>
<td>23</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>iron (III) nitrate nonahydrate</td>
<td>110</td>
</tr>
<tr>
<td>10099-74-8</td>
<td>lead dinitrate</td>
<td>180</td>
</tr>
<tr>
<td>13446-18-9</td>
<td>magnesium nitrate hexahydrate</td>
<td>180</td>
</tr>
<tr>
<td>10377-66-9</td>
<td>manganese dinitrate</td>
<td>16</td>
</tr>
<tr>
<td>1313-27-5</td>
<td>molybdenum trioxide</td>
<td>43</td>
</tr>
</tbody>
</table>
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:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.
At this time, the other constituents have no known exposure limits.

7697-37-2 nitric acid

<table>
<thead>
<tr>
<th></th>
<th>Long-term value: 5 mg/m³, 2 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>Short-term value: 10 mg/m³, 4 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 5 mg/m³, 2 ppm</td>
</tr>
<tr>
<td></td>
<td>Short-term value: 10 mg/m³, 4 ppm</td>
</tr>
<tr>
<td></td>
<td>Long-term value: 5.2 mg/m³, 2 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

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

- **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: Undetermined.

- **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: Not determined.

- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17 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:**
  - Organic solvents: 0.0 %
  - Water: 95.0 %
  - VOC content: 0.0 g/l / 0.00 lb/gl

- **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.
Trade name: Custom Standard

- 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:**
    - 7697-37-2 nitric acid
      - Inhalative LC50/4 h: 67 mg/L (rat)
    - 7664-39-3 hydrogen fluoride
      - Oral LD50: 1276 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)**
    - 10026-22-9 cobalt (II) nitrate hexahydrate: 2B
    - 10099-74-8 lead dinitrate: 2A
    - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate: 1
    - 7446-08-4 selenium dioxide: 3
    - 543-81-7 acetic acid beryllium salt: 1
  - **NTP (National Toxicology Program)**
    - 10099-74-8 lead dinitrate: R
    - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate: 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:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.

- **Results of PBT and vPvB assessment**
  - **PBT:** Not applicable.
  - **vPvB:** Not applicable.
Safety Data Sheet  
acc. to OSHA HCS

Trade name: Custom Standard

- **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 II

- **Environmental hazards:** Not applicable.

- **Special precautions for user** Warning: Corrosive substances

- **Danger code (Kemler):** 80

- **EMS Number:** F-А, S-B

- **Segregation groups** Acids

- **Stowage Category** B

- **Stowage Code** SW2 Clear of living quarters.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
45.0

- Transport/Additional information:
  - DOT
  - Quantity limitations
    - On passenger aircraft/rail: 1 L
    - On cargo aircraft only: 30 L
  - IMDG
    - Limited quantities (LQ) 1L
    - Exempted 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
  - 7789-02-8 chromium (III) nitrate nonahydrate
  - 10026-22-9 cobalt (II) nitrate hexahydrate
  - 10031-43-3 cupric nitrate
  - 7782-61-8 iron (III) nitrate nonahydrate
  - 10099-74-8 lead dinitrate
  - 13446-18-9 magnesium nitrate hexahydrate
  - 10377-66-9 manganese dinitrate
  - 1313-27-5 molybdenum trioxide
  - 13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate
  - 7446-08-4 selenium dioxide
  - 10102-45-1 thallium nitrate
  - 7803-55-6 ammonium trioxovanadate
  - 10196-18-6 zinc(II) nitrate hexahydrate
  - 10022-31-8 barium nitrate
  - 543-81-7 acetic acid beryllium salt

- TSCA (Toxic Substances Control Act):
  - 7697-37-2 nitric acid
  - 7664-39-3 hydrogen fluoride
  - 10099-74-8 lead dinitrate
  - 10377-66-9 manganese dinitrate

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

1313-27-5 molybdenum trioxide
7446-08-4 selenium dioxide
10102-45-1 thallium nitrate
16962-40-6 ammonium hexafluorotitanate
1344-57-6 Uranium oxide (UO₂)
7803-55-6 ammonium trioxovanadate
10022-31-8 barium nitrate
7732-18-5 water

· **Proposition 65**

· **Chemicals known to cause cancer:**
  10099-74-8 lead dinitrate
  13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate
  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:**
  None of the ingredients is listed.

· **Carcinogenic categories**
  
  **EPA (Environmental Protection Agency)**
  10099-74-8 lead dinitrate B2
  10377-66-9 manganese dinitrate D
  7446-08-4 selenium dioxide D
  10102-45-1 thallium nitrate II
  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.*

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**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** 07/26/2017 / -
· **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)
  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.*