1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Cadmium Standard for AAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>51994</td>
</tr>
<tr>
<td>Brand</td>
<td>Fluka</td>
</tr>
<tr>
<td>Supplier</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td>Address</td>
<td>3050 Spruce Street</td>
</tr>
<tr>
<td></td>
<td>SAINT LOUIS MO 63103</td>
</tr>
<tr>
<td></td>
<td>USA</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
<tr>
<td>Emergency Phone #</td>
<td>(314) 776-6555</td>
</tr>
<tr>
<td>Preparation Information</td>
<td>Sigma-Aldrich Corporation</td>
</tr>
<tr>
<td></td>
<td>Product Safety - Americas Region</td>
</tr>
<tr>
<td></td>
<td>1-800-521-8956</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen, Target Organ Effect, Corrosive

Target Organs
Lungs, Teeth., Cardiovascular system.

GHS Classification
Skin irritation (Category 2)
Eye irritation (Category 2A)
Carcinogenicity (Category 1B)
Acute aquatic toxicity (Category 3)
Chronic aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word
Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H350 May cause cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P273 Avoid release to the environment.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.

HMIS Classification
Health hazard: 3  
Chronic Health Hazard: *  
Flammability: 0  
Physical hazards: 2

NFPA Rating  
Health hazard: 3  
Fire: 0  
Reactivity Hazard: 0

Potential Health Effects
Inhalation  May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin  May be harmful if absorbed through skin. Causes skin burns.
Eyes  Causes eye burns.
Ingestion  May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7697-37-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-714-2</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>007-004-00-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ox. Liq. 3; Skin Corr. 1A; H272, H314</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>Cadmium nitrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>10325-94-7</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>233-710-6</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>048-001-00-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ox. Sol. 2; Carc. 1B; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1; H272, H302, H312, H332, H350, H410</td>
<td>0.1 - 1 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice  
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled  
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact  
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact  
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed  
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability  
Not flammable or combustible.

Suitable extinguishing media  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters  
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>7697-37-2</td>
<td>TWA 2 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>Cadmium nitrate</td>
<td>10325-94-7</td>
<td>TWA 0.0020 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

The value in mg/m3 is approximate.

Remarks
Suspected human carcinogen

Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies
Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies

Potential Occupational Carcinogen See Appendix A

Potential Occupational Carcinogen See Appendix A

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
- Form: liquid
- Colour: no data available

Safety data
- pH: no data available
- Melting point/freezing point: no data available
- Boiling point: no data available
- Flash point: no data available
- Ignition temperature: no data available
- Autoignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: no data available
- Density: no data available
- Water solubility: no data available
- Partition coefficient: n-octanol/water: no data available
- Relative vapour density: no data available
Odour no data available
Odour Threshold no data available
Evaporation rate no data available

10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
no data available

**Materials to avoid**
Gives off hydrogen by reaction with metals.

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

- **Oral LD50**
  no data available

- **Inhalation LC50**
  no data available

- **Dermal LD50**
  no data available

- **Other information on acute toxicity**
  no data available

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
Eyes: no data available

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
no data available

**Carcinogenicity**

- **IARC:** 1 - Group 1: Carcinogenic to humans (Cadmium nitrate)

- **NTP:** Known to be human carcinogen The reference note has been added by TD based on the background information of the NTP. (Cadmium nitrate)

- **OSHA:** 1910.1027 (Cadmium nitrate)

**Reproductive toxicity**
no data available

**Teratogenicity**
no data available
Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available
Aspiration hazard
no data available
Potential health effects
  Inhalation  May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
  Ingestion  May be harmful if swallowed.
  Skin  May be harmful if absorbed through skin. Causes skin burns.
  Eyes  Causes eye burns.
Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Synergistic effects
no data available
Additional Information
RTECS: Not available 

12. ECOLOGICAL INFORMATION
Toxicity
no data available
Persistence and degradability
no data available
Bioaccumulative potential
no data available
Mobility in soil
no data available
PBT and vPvB assessment
no data available
Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION
DOT (US)
UN number: 3264  Class:  8  Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3264  Class:  8  Packing group: III  EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Nitric acid)
Marine pollutant: No

IATA
UN number: 3264  Class: 8  Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)

15. REGULATORY INFORMATION

OSHA Hazards
Carcinogen, Target Organ Effect, Corrosive

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>7697-37-2</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>10325-94-7</td>
<td>1987-01-01</td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>7697-37-2</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>10325-94-7</td>
<td>1987-01-01</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10325-94-7</td>
<td>1987-10-01</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10325-94-7</td>
<td>1987-10-01</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox.</td>
<td>Acute toxicity</td>
</tr>
<tr>
<td>Aquatic Acute</td>
<td>Acute aquatic toxicity</td>
</tr>
<tr>
<td>Aquatic Chronic</td>
<td>Chronic aquatic toxicity</td>
</tr>
<tr>
<td>Carc.</td>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>H272</td>
<td>May intensify fire; oxidiser.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
</tbody>
</table>
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.
Ox. Liq. Oxidizing liquids
Ox. Sol. Oxidizing solids
Skin Corr. Skin corrosion

Further information
Copyright 2012 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.