Section 1 - Product and Company Information

Product Name: Ammonia Assay Kit
Product Number: AA0100
Brand: Sigma Chemical
Company: Sigma-Aldrich
Address: 3005 Sonece Street
City, State, Zip, Country: SANT LOUIS, MO 63103 US
Technical Phone: 800-325-5632
Emergency Phone: 314-779-6555
Fax: 800-325-5002

Section 2 - Composition/Information on ingredient

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>SARA 313</th>
<th>EC no</th>
<th>Annex #</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>L-GLUTAMATE DEHYDROGENASE</td>
<td>None</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS #</th>
<th>Percent</th>
<th>SARA 313</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-GLUTAMIC DEHYDROGENASE</td>
<td>9029-12-3</td>
<td>1.000%</td>
<td></td>
</tr>
<tr>
<td>GLYCEROL</td>
<td>56-81-5</td>
<td>1.000%</td>
<td>No</td>
</tr>
</tbody>
</table>

Formula: Synonyms:

Section 3 - Hazards Identification

Emergency Overview: Caution: Avoid contact and inhalation. Target organ(s): Kidneys.

HIMS Rating
Health: 1 Flammability: 0 Reactivity: 0

NFPA Rating
Health: 1 Flammability: 0 Reactivity: 0

*Additional chronic hazards present.

Section 4 - First Aid Measures

Oral Exposure: If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Dermal Exposure: In case of contact, immediately wash skin with soap and copious amounts of water.

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Extinguishing Media:
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting Protective Equipment:
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s):
Emit toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Protection(s):
Wear respiratory, chemical safety goggles, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up:
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling:
User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage:
Suitable: Keep tightly closed. Store at 2-8°C.

Section 8 - Exposure Controls / PPE

Engineering Controls:
Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment:
Respiratory:
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows gas 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.

Sigma Chemical - AA0100
Sigma-Aldrich Corporation
Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Physical State</th>
<th>Liquid</th>
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</thead>
<tbody>
<tr>
<td>pH</td>
<td>N/A</td>
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<tr>
<td>B/O/BP Range</td>
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<tr>
<td>M/F/MF Range</td>
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<tr>
<td>Freezing Point</td>
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</tr>
<tr>
<td>Vapor Pressure</td>
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</tr>
<tr>
<td>Vapor Density</td>
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<tr>
<td>Saturated Vapor Conc.</td>
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</tr>
<tr>
<td>Sto/Density</td>
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<td></td>
</tr>
<tr>
<td>Bulk Density</td>
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</tr>
<tr>
<td>Odor Threshold</td>
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<tr>
<td>Volatility</td>
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<td></td>
</tr>
<tr>
<td>VOC Content</td>
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<td></td>
</tr>
<tr>
<td>Water Content</td>
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</tr>
<tr>
<td>Solvent Content</td>
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<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Partition Coefficient</td>
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<tr>
<td>Decomposition Temp.</td>
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</tr>
<tr>
<td>Flash Point &quot;F&quot;</td>
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<td></td>
</tr>
<tr>
<td>Flash Point &quot;C&quot;</td>
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</tr>
<tr>
<td>Explosion Limits</td>
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</tr>
<tr>
<td>Flammability</td>
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<td></td>
</tr>
<tr>
<td>Autoignition Temp</td>
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<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>N/A = not available</td>
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</tr>
</tbody>
</table>

Section 10 - Stability and Reactivity

Stability
- Stable
- Materials to Avoid: Strong oxidizing agents

Hazardous Decomposition Products:
- Nature of decomposition products not known

Hazardous Polymerization
- Will not occur.

Section 11 - Toxicological Information

Route of Exposure
- Skin Contact: May cause skin irritation.
- Skin Absorption: May be harmful if absorbed through the skin.
- Eye Contact: May cause eye irritation.
- Inhalation: May be harmful if inhaled. Material may irritate mucous membranes and upper respiratory tract.
- Ingestion: May be harmful if swallowed.

Sensitization
- Sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Target Organ(s) or System(s)
- Kidneys

Signs and Symptoms of Exposure
- Prolonged exposure can cause: Nausea, headache, and vomiting.
- RTECS Number: N/A

Section 12 - Ecological Information
- No data available.

Section 13 - Disposal Considerations
- Appropriate Method of Disposal of Substance or Preparation
- Contact a licensed professional waste disposal service to dispose of this material.
- Do not mix the material with a combustible solvent and burn in a chemical incinerator equipped with an air scrubber and scrubber.
- Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
- Proper Shipping Name: None
- Non-Hazardous for Transport: This substance is considered to be nonhazardous for transport.

IATA
- Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU Additional Classification

Safety Statements
- S: 23 24/25: Do not breathe vapor. Avoid contact with skin and eyes.

US Classification and Label Text
- US Statements: Caution: Avoid contact and inhalation. Target organ(s): Kidneys.
United States Regulatory Information
SARA Listed: No

Canada Regulatory Information
WHMIS Classification
This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR
DSS: No
NDSL: No

Section 16 - Other Information

Disclaimer
For R&D use only. Not for drug, household or other uses.

Warranty
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 Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright © 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.