1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: AICAR
Product Number: 9944
Identified Uses: For Research Use Only (RUO). Not intended for use in humans or animals. Not intended for therapeutic or diagnostic procedures.

Manufacturer/Supplier: Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923 USA
Phone #: 978-867-2300

2. HAZARDS IDENTIFICATION

Emergency Overview

Warning

OSHA Hazards
Target organ effect. Highly toxic by ingestion, Irritant, Teratogen, Mutagen

GHS Classification
Skin Irritation (Category 2)
Eye Irritation (Category 2)
Specific target organ toxicity – single exposure (Category 3)

Physical State
Solid powder

Potential Health Effects

Acute Toxicity

<table>
<thead>
<tr>
<th>Potential Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>Skin</td>
<td>May be harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. Causes respiratory tract irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>May be fatal if swallowed.</td>
</tr>
</tbody>
</table>

Target organ effects
Nerves, Adrenal cortex, Kidneys, Cardiovascular System, Reproductive system, liver, gastrointestinal tract, cardiovascular system, stomach.

Chronic Effects

<table>
<thead>
<tr>
<th>Chronic Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinogenic effects</td>
<td>No data available.</td>
</tr>
<tr>
<td>Mutagenic effects</td>
<td>No data available.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>No data available.</td>
</tr>
</tbody>
</table>
Hazardous Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>AICAR</td>
<td>2627-69-2</td>
<td>220-097-5</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>Synonym: 5-Amino-1β-D-ribofuranosyl-1H-imidazole-4-carboxamide</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye Contact: Rinse immediately with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact: Rinse immediately with soap and plenty of water. Get medical attention immediately.
Inhalation: Move to fresh air. Get medical attention.
Ingestion: Call Poison Control immediately. Never give anything by mouth to an unconscious person. Rinse mouth with water.
Notes to physician: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point: Not flammable or combustible.
Suitable Extinguishing Media: Use dry chemical, water spray, alcohol resistant foam or carbon dioxide.
Special exposure hazards: Hazardous decomposition products formed under fire conditions – toxic gases can be evolved.
Special protection for fire fighters: Wear self-contained breathing apparatus and protective unit.
Other information: No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with skin, eyes, clothing. Avoid creating dusts during clean up.
Environmental precautions: Prevent product form entering drains. Prevent further spillage if safe to do so.

7. HANDLING AND STORAGE

Safe handling advice: Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice.
Storage conditions: Keep container tightly closed in cool dry place.
Incompatibilities: No data available
Specific end uses: No data available

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits: This product contains no substances with established exposure limit values.


Hygiene Measures
Do not eat, drink or smoke when handling product. Wear suitable gloves and eye/face protection. Wash hands thoroughly after handling product. Regular cleaning of equipment, work area and clothing is recommended. Wash contaminated clothing before reuse.

**Personal Protective Equipment**

**Respiratory Protection**
In case of insufficient ventilation wear suitable respiratory protective equipment tested and approved under appropriate government standards such as NIOSH, CEN.

**Eye Protection:**
Safety glasses tested and approved under appropriate government standards such as NIOSH,

**Skin and body protection:**
Wear suitable protective clothing, protective shoes or boots.

**Hand protection:**
Wear compatible chemical resistant gloves. Dispose of gloves in accordance with applicable laws and good laboratory practices.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>solid powder</td>
</tr>
<tr>
<td>Appearance</td>
<td>white to yellowish</td>
</tr>
<tr>
<td>Odor</td>
<td>no data available</td>
</tr>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability limits in air</td>
<td>no data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>no data available</td>
</tr>
<tr>
<td>VOC content</td>
<td>no data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>no data available</td>
</tr>
</tbody>
</table>

10. **STABILITY AND REACTIVITY**

**Stability**
Stable under normal conditions.

**Conditions/Materials to avoid**
no data available

**Hazardous decomposition products**
no data available

11. **TOXICOLOGICAL INFORMATION**

**Acute Toxicity**
To the best of our knowledge, the chemical, physical and toxicological properties have not been fully investigated.

**Acute Oral Toxicity:**
No data available.
Routes of Exposure

Potential Health Effects

Acute Toxicity
- Eyes: May cause eye irritation with susceptible persons.
- Skin: May cause skin irritation and/or dermatitis.
- Inhalation: No information available.
- Ingestion: Harmful if swallowed.

Target organ effects: No information available

Chronic Effects
- Carcinogenic effects: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH, NTP, or OSHA.
- Mutagenic effects: No information available
- Reproductive toxicity: No information available
- Sensitization: No information available

Additional Information: RTECS: Not available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No data available
Persistence and degradability: No data available
Bioaccumulation: No data available
Mobility: No data available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Dispose of in accordance with all applicable environmental laws and regulations.

14. TRANSPORT INFORMATION

IATA: Not regulated
DOT: Not regulated
IMDG: Not regulated

15. REGULATORY INFORMATION

OSHA Hazards
- Irritant

GHS Classification
- Skin Irritation (Category 2)
- Eye Irritation (Category 2)
Specific target organ toxicity – single exposure (Category 3)

Signal Word: Warning

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Pictogram:
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Hazard Statements
H315    Causes skin irritation.
H319    Causes serious eye irritation.
H335    May cause respiratory irritation.

Precautionary Statements
P261    Avoid breathing dust/fume/mist/vapors/spray
P264    Wash hands thoroughly after handling.
P271    Use only outdoors or in a well-ventilated area.
P280    Wear protective gloves/eye protection/face protection.
P302 + P352  IF ON SKIN: Wash with plenty of soap and water.
P304 + P340  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 +P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312    Call a Poison Center or doctor/physician if you feel unwell.
P332 + P313  If skin irritation occurs: Get medical advice/attention
P337 + P313  If eye irritation persists: Get medical advice/attention
P362    Take off contaminated clothing and wash before reuse.
P403 + P233  Store in a well-ventilated place. Keep container tightly closed.
P405    Store locked up.
P501    Dispose of contents/container to an approved waste disposal plant.

U.S. Federal Regulations

**SARA 302**
No chemicals in this material are subject to reporting requirements established by SARA Title III, Section 302:

**SARA 311/312**
Acute Health Hazard

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals that exceed the reporting levels of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**Clean Water Act**
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**
This product does not contain any substances regulated as hazardous air pollutants (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.
U.S. State Regulations
Massachusetts Right-to-Know Components:
None

New Jersey Right-to-Know Components:
5-Amino-1β-D-ribofuranosyl-1H-imidazole-4-carboxamide CAS# 2627-69-2

Pennsylvania Right-to-Know Components:
5-Amino-1β-D-ribofuranosyl-1H-imidazole-4-carboxamide CAS# 2627-69-2

California Proposition 65
This product does not contain any chemicals known to the State of California to cause birth defects or other reproductive harm:

WHMIS Hazard Class
D2B Toxic Material causing other toxic effects
Moderate skin Irritant
Moderate respiratory irritant
Moderate eye irritant

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

16. OTHER INFORMATION

Revision date 2012-07-27
Revision Note ***Indicates updated section

Disclaimer
The information provided on this material safety data sheet is to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Material Safety Data Sheet