Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Acrylamide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>SPECTRUM LABORATORY PRODUCTS INC.</td>
</tr>
<tr>
<td>14422 S. SAN PEDRO STREET</td>
<td></td>
</tr>
<tr>
<td>GARDENA, CA 90248</td>
<td></td>
</tr>
<tr>
<td>Catalog Number(s.)</td>
<td>AC210, A1036, A1029</td>
</tr>
<tr>
<td>CAS#</td>
<td>79-06-1</td>
</tr>
<tr>
<td>RTECS</td>
<td>AS3325000</td>
</tr>
<tr>
<td>TSCA</td>
<td>TSCA 8(b) inventory: Acrylamide</td>
</tr>
<tr>
<td>CI#</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Section 2. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Acrylamide</td>
<td>79-06-1</td>
<td>0.03</td>
<td>STEL</td>
<td>CEIL (mg/m³)</td>
<td>100</td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients

Acrylamide:
- ORAL (LD50): Acute: 124 mg/kg [Rat.], 107 mg/kg [Mouse], 150 mg/kg [Rabbit].
- DERMAL (LD50): Acute: 400 mg/kg [Rat.], 1680 mg/kg [Rabbit].

Section 3. Hazards Identification

Potential Acute Health Effects
Hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects
CARCINOGENIC EFFECTS: Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to kidneys, peripheral nervous system, central nervous system (CNS).
Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Continued on Next Page
### Section 4. First Aid Measures

| **Eye Contact** | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention. |
| **Skin Contact** | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately. |
| **Serious Skin Contact** | Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention. |
| **Inhalation** | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. |
| **Serious Inhalation** | Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention. |
| **Ingestion** | If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. |
| **Serious Ingestion** | Not available. |

### Section 5. Fire and Explosion Data

| **Flammability of the Product** | May be combustible at high temperature. |
| **Auto-Ignition Temperature** | 424°C (795.2°F) |
| **Flash Points** | CLOSED CUP: 138°C (280.4°F). |
| **Flammable Limits** | Not available. |
| **Products of Combustion** | These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...). |
| **Fire Hazards in Presence of Various Substances** | Slightly flammable to flammable in presence of heat. |
| **Fire Fighting Media and Instructions** | SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet. |
| **Special Remarks on Fire Hazards** | When heated to decomposition it emits acrid smoke and fumes. |
| **Special Remarks on Explosion Hazards** | Material in powder form, capable of creating a dust explosion. |

### Section 6. Accidental Release Measures

| **Small Spill** | Use appropriate tools to put the spilled solid in a convenient waste disposal container. |
| **Large Spill** | Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. |

*Continued on Next Page*
Section 7. Handling and Storage

Precautions
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 8°C (46.4°F). Refrigerate.

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits
TWA: 0.03 (mg/m³) [Australia] Inhalation
TWA: 0.3 (mg/m³) from OSHA (PEL) [United States] Inhalation
TWA: 0.03 (mg/m³) from NIOSH Inhalation
TWA: 0.03 (mg/m³) from NIOSH SKIN
TWA: 0.3 (mg/m³) [United Kingdom (UK)] Inhalation
TWA: 0.03 (mg/m³) from ACGIH (TLV) [United States] [1999] Inhalation

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance
Solid. (Crystalline solid.)

Molecular Weight
71.08 g/mole

pH (1% soln/water)
Not available.

Boiling Point
125°C (257°F)

Melting Point
84.5°C (184.1°F)

Critical Temperature
Not available.

Specific Gravity
1.122 (Water = 1)

Vapor Pressure
Not applicable.

Vapor Density
2.45 (Air = 1)

Volatility
Not available.

Odor Threshold
Not available.

Water/Oil Dist. Coeff.
The product is more soluble in water; log(oil/water) = -0.7

Ionicity (in Water)
Not available.

Dispersion Properties
See solubility in water, methanol, acetone.

Solubility
Soluble in cold water, hot water, methanol. Partially soluble in acetone.

Continued on Next Page
### Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Excess heat, dust generation, ultraviolet light, incompatible materials.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents, acids, alkalis, moisture.</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Non-corrosive in presence of glass.</td>
</tr>
</tbody>
</table>

**Special Remarks on Reactivity**
- Light Sensitive. May polymerize on exposure to ultraviolet light. The solid is stable at room temperature but may polymerize violently on melting or when heated above 50 C.
- Reacts spontaneously with hydroxyl-, amino-, and sulfhydryl- containing compounds.
- Reacts vigorously with acids, bases producing ammonia salts and acrylic acid.
- Spontaneous polymerization does not readily occur, but requires the presence of dimethylaminopropionitrile (DMAPN) catalyst and ammonium persulfate. Also, Acrylamide may polymerize upon contact with oxidizing materials e.g. peroxides.

**Special Remarks on Corrosivity**
- Not available.

**Polymerization**
- Yes. Upon exposure to ultraviolet light. The solid is stable at room temperature but may polymerize violently on melting or when heated above 50 C.

### Section 11. Toxicological Information

**Routes of Entry**
- Absorbed through skin. Dermal contact. Inhalation. Ingestion.

**Toxicity to Animals**
- Acute oral toxicity (LD50): 107 mg/kg [Mouse].
- Acute dermal toxicity (LD50): 400 mg/kg [Rat].

**Chronic Effects on Humans**
- **CARCINOGENIC EFFECTS:** Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP.
- **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, peripheral nervous system, central nervous system (CNS).

**Other Toxic Effects on Humans**
- Hazardous in case of skin contact (permeator), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

**Special Remarks on Toxicity to Animals**
- Not available.

**Special Remarks on Chronic Effects on Humans**
- Crosses placental barrier, occurs in breast milk. Accumulates temporarily, but most is broken down within a day. May affect genetic material. May also have tumorigenic effects based on animal studies. May cause adverse reproductive effects (fetotoxicity and male fertility) and birth defects (teratogenic).

**Special Remarks on other Toxic Effects on Humans**
- Acute Potential Health Effects:
  - Skin: Causes skin irritation and dermatitis. May be harmful if absorbed through the skin. May be absorbed through unbroken skin and affect blood, behavior/central nervous system, and peripheral nervous system (variable polyneuropathy with motor and sensory impairment). Symptoms may include numbness, paresthesias, ataxia, tremor, dysarthria and other symptoms similar to ingestion. Absorption of acrylamide through skin may also affect the gastrointestinal tract and cause nausea and vomiting.
  - Eyes: Causes eye irritation. Inhalation: May cause irritation of the respiratory tract and mucous membranes. Ingestion: Harmful if swallowed. May cause irritation of the digestive (gastrointestinal) tract including nausea and vomiting. May affect the spinal cord, behavior/central and peripheral nervous systems. Symptoms may include change in motor activity, weakness, flaccid paralysis, ataxia, irritability, drowsiness, somnolence, disturbances of balance, tremors, convulsions, spasticity, disorientation, confusion, memory loss, and hallucinations. May also affect metabolism (anorexia), blood (thrombocytopenia), liver (mild hepatotoxicity), kidneys (urinary retention, renal toxicity), and cardiovascular system.
  - Chronic Potential Health Effects:
    - Prolonged or repeated exposure through skin absorption and ingestion may produce symptoms similar to acute exposure as well as affecting the brain (degenerative changes in nerve fibers) and spinal cord (degenerative changes in nerve fibers and demyelination).
Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation Not available.

Section 13. Disposal Considerations

Waste Disposal

Section 14. Transport Information

DOT Classification CLASS 6.1: Poisonous material.

Identification Acrylamide, solid UNNA: 2074 PG: III

Special Provisions for Transport Not available.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations

- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Acrylamide
- California prop. 65 (no significant risk level): Acrylamide: 0.0002 mg/day (value)
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Acrylamide
- Connecticut hazardous material survey.: Acrylamide
- Illinois toxic substances disclosure to employee act: Acrylamide
- Illinois chemical safety act: Acrylamide
- New York release reporting list: Acrylamide
- Rhode Island RTK hazardous substances: Acrylamide
- Pennsylvania RTK: Acrylamide
- Florida: Acrylamide
- Minnesota: Acrylamide
- Massachusetts RTK: Acrylamide
- Massachusetts spill list: Acrylamide
- New Jersey: Acrylamide
- New Jersey spill list: Acrylamide
- Louisiana RTK reporting list: Acrylamide
- Louisiana spill reporting: Acrylamide
- California Director's List of Hazardous Substances (8CCR 339): Acrylamide
- Tennessee: Acrylamide
- TSCA 8(b) inventory: Acrylamide
- TSCA 8(d) H and S data reporting: Acrylamide: 10/4/82; Sunset Date: 10/4/92
- TSCA 12(b) annual export notification: Acrylamide
- SARA 302/304/311/312 extremely hazardous substances: Acrylamide
- SARA 313 toxic chemical notification and release reporting: Acrylamide
- CERCLA: Hazardous substances.: Acrylamide: 5000 lbs. (2268 kg)

Continued on Next Page
**California Proposition 65 Warnings**

- EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 201-173-7).
- Canada: Listed on Canadian Domestic Substance List (DSL).
- China: Listed on National Inventory.
- Japan: Listed on National Inventory (ENCS).
- Korea: Listed on National Inventory (KECI).
- Philippines: Listed on National Inventory (PICCS).
- Australia: Listed on AICS.

**Other Regulations**

- CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
- CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
- CLASS D-2B: Material causing other toxic effects (TOXIC).
- R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
- R36/38- Irritating to eyes and skin.
- R43- May cause sensitization by skin contact.
- R45- May cause cancer.
- R46- May cause heritable genetic damage.
- R62- Possible risk of impaired fertility.
- R20/21- Harmful by inhalation and in contact with skin.
- R48/23/24/25- Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
- R25- Toxic if swallowed.

**Other Classifications**

- WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).
- CLASS D-2A: Material causing other toxic effects (VERY TOXIC).
- CLASS D-2B: Material causing other toxic effects (TOXIC).
- DSCL (EEC): R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
- R36/38- Irritating to eyes and skin.
- R43- May cause sensitization by skin contact.
- R45- May cause cancer.
- R46- May cause heritable genetic damage.
- R62- Possible risk of impaired fertility.
- R20/21- Harmful by inhalation and in contact with skin.
- R48/23/24/25- Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
- R25- Toxic if swallowed.

**California Prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Acrylamide**

**California Prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.**

**HMIS (U.S.A.)**

- Health Hazard: 2
- Fire Hazard: 1
- Reactivity: 2
- Personal Protection: E

**National Fire Protection Association (U.S.A.)**

- Health: 2
- Flammability: 2
- Reactivity: 2
- Specific hazard: 

**WHMIS (Canada) (Pictograms)**

- S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S53- Avoid exposure - obtain special instructions before use.

**DSCL (Europe) (Pictograms)**

**TDG (Canada) (Pictograms)**

**ADR (Europe) (Pictograms)**

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*Continued on Next Page*
**Protective Equipment**  
- Gloves.  
- Lab coat.  
- Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.  
- Splash goggles.

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**Section 16. Other Information**

<table>
<thead>
<tr>
<th>MSDS Code</th>
<th>A3230</th>
</tr>
</thead>
</table>

**References**
- The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

**Other Special Considerations**
Use: Reactive monomer and intermediate in production of organic chemicals such as polyacrylamides; polymer or copolymer in such applications as adhesives, fibers, paper sizing; molded parts; water coagulant aids; in textiles; molecular biology; genetic engineering; in synthesis of dyes; copolymers for contact lenses; in construction of dam foundations tunnels, sewers; enhanced oil recovery; flocculants; thickeners; solid conditioning aids; sewage adn waste treatment; ore processing; premanent-press fabrics

**Validated by Sonia Owen on 5/29/2007.**

**Verified by Sonia Owen.**

**Printed 6/15/2007.**

**CALL (310) 516-8000**

**Notice to Reader**

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.