MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 1-NAPHTHALENEACETIC ACID, SODIUM SALT; TECHNICAL NAPHTHALENEACETIC ACID, SODIUM SALT

GENERAL USE: Reformulation into Products Intended as Plant Growth Regulators

PRODUCT DESCRIPTION: White to tan powder with a mild organic odor

EPA Registration Number: 5481-218; 5481-432

MSDS No.: 151_11

Current Revision Date: 30 August, 2006

MANUFACTURER: AMVAC CHEMICAL CORPORATION
4100 E. Washington Blvd.
Los Angeles, CA 90023-4406
Ph: 323-264-3910
FAX: 323-268-1028

EMERGENCY TELEPHONE NUMBERS:
MANUFACTURER: 323-264-3910
TRANSPORTATION (24 HOURS) CHEMTREC: 800-424-9300
OTHER (24 HOURS) AMVAC: 323-264-3910

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>WT %</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Naphthaleneacetic acid, Sodium salt (1-NAA.Na)</td>
<td>95.0%</td>
<td>61-31-4</td>
</tr>
<tr>
<td>Other Ingredients</td>
<td>5.0%</td>
<td></td>
</tr>
</tbody>
</table>

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>HAZARD</th>
<th>OSHA PEL*</th>
<th>ACGIH TLV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuisance particulates</td>
<td>Respiratory irritation</td>
<td>5 mg/m³ (respirable)</td>
<td>3 mg/m³ (respirable)</td>
</tr>
</tbody>
</table>

* Exposure Limits 8 hrs. TWA
3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! CORROSIVE to the eye. Harmful if inhaled, swallowed or absorbed through the skin. Avoid contact with skin, eyes, and clothing. Wear safety goggles when handling. Wash thoroughly after handling and before eating or smoking.

Do not contaminate water when disposing of equipment washwaters.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Inhalation, skin and eye contact, and ingestion.

SIGNS OF ACUTE OVEREXPOSURE: Eye irritation and possibly burning sensation. Skin and mucous membrane irritation. May cause central nervous system depression. Symptoms include giddiness, headache, dizziness and nausea; in extreme cases unconsciousness and death may occur.

SIGNS OF CHRONIC OVEREXPOSURE: Same as for acute overexposure.

CARCINOGENICITY: Sodium salt of Naphthaleneacetic acid (NAANa) and Naphthaleneacetamide (NAD), a structurally related compound, have shown no evidence of carcinogenicity when tested in laboratory animals.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Preexisting skin or respiratory disorders may be aggravated by exposure to this product.

4. FIRST AID MEASURES

EYES: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. Contact a physician immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

INHALATION: Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Contact a physician immediately.

INGESTION: Immediately dilute the swallowed product by giving large quantities of water. Induce vomiting by giving Syrup of Ipecac according to the directions on the bottle, or, if necessary, by touching the back of the throat with a finger. Never give anything by mouth to an unconscious or convulsing person. Contact a physician immediately.
4. **FIRST AID MEASURES, cont'd**

**SKIN:** Immediately flush all affected areas with large amounts of clear water for at least 15 minutes. Wash contaminated skin with mild soap and clean water. Remove contaminated clothing. Wash clothing before reuse. If skin irritation develops, contact a physician immediately.

**NOTE TO PHYSICIANS:** Treat symptomatically. This product can cause Central Nervous System (CNS) depression. Contact your local or State Poison Control Center for further information.

5. **FIRE FIGHTING MEASURES**

**FLAMMABLE PROPERTIES**
- Flash Point: Not applicable
- Autoignition Temperature: Not applicable
- Flammable Limits:
  - Lower flammable limit: Not applicable
  - Upper flammable limit: Not applicable

**EXPLOSIVITY:**
- Mechanical Impact: Not determined, but not expected to be explosive due to mechanical impact.
- Static Discharge: Not determined, but not expected to be explosive due to static discharge.

**HAZARDOUS COMBUSTION PRODUCTS:** This product will emit hazardous fumes and smoke when heated excessively or burned.

**EXISTING MEDIA:** Water spray, dry chemical, foam, or carbon dioxide.

**FIRE FIGHTING INSTRUCTIONS:** Do not breathe fumes. Wear complete firefighting gear, including protective gloves, eye protection, and self-contained breathing apparatus. Wash clothing before reusing.

6. **ACCIDENTAL RELEASE MEASURES**

**GENERAL:** Use adequate ventilation and all appropriate personal protective equipment (See Section 8). Keep bystanders upwind and away from the spill.

**SMALL SPILL:** Sweep up spill while minimizing dust generation. Place sweepings into a closed container for reuse according to label directions or for disposal as a hazardous waste.

**LARGE SPILL:** Prevent the spill from spreading by diking or other means. Sweep or vacuum up the solids into a closed container for reuse or disposal as a hazardous waste.
7. **HANDLING AND STORAGE**

**HANDLING:** Wear full protective equipment when handling this product to avoid contact. Keep away from other pesticides. Keep away from children and pets. Wash thoroughly after handling this product.

**STORAGE:** Store the product in its original container in a cool, dry, locked place out of direct sunlight. This product is highly hygroscopic and may pick up 33% by weight at humidities above 20%. Do not store or transport near feed or food. Do not contaminate water bodies.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**ENGINEERING CONTROLS:** Ventilation should be sufficient to control dust concentrations to below the TLV.

**RESPIRATORY PROTECTION:** A properly FIT-TESTED NIOSH/MSHA approved respirator fitted with organic vapor cartridges and dust caps (or equivalent dust protection device) is required if exposures will be at or above the TLV for this product.

**SKIN PROTECTION:** Protective clothing required for working with this product includes long-sleeved shirt and pants, socks and shoes or boots, chemical impervious gloves, and head protection.

**EYE PROTECTION:** Safety goggles are required to protect the eyes from contact with this product.

**OTHER PROTECTION:** An eyewash station and a safety shower should be located in the work area.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHYSICAL STATE:</strong></td>
<td>Solid</td>
</tr>
<tr>
<td><strong>APPEARANCE:</strong></td>
<td>White to light tan powder</td>
</tr>
<tr>
<td><strong>ODOR:</strong></td>
<td>Mild organic odor</td>
</tr>
<tr>
<td><strong>ODOR THRESHOLD:</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>BOILING POINT:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>FREEZING/MELTING POINT:</strong></td>
<td>300°C (572°F)</td>
</tr>
<tr>
<td><strong>SPECIFIC GRAVITY:</strong></td>
<td>0.46 g/cc</td>
</tr>
<tr>
<td><strong>BULK DENSITY:</strong></td>
<td>28.7 lb/ft³</td>
</tr>
<tr>
<td><strong>EVAPORATION RATE:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>VAPOR PRESSURE (mm/Hg):</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>VAPOR DENSITY:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>PERCENT VOLATILE BY VOL:</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>SOLUBILITY IN WATER:</strong></td>
<td>Approx 35 g/100 mL solution</td>
</tr>
<tr>
<td><strong>SOLUBILITY (Other):</strong></td>
<td>As a salt product is only slightly soluble in solvents</td>
</tr>
<tr>
<td><strong>pH (5% Slurry):</strong></td>
<td>9-10</td>
</tr>
<tr>
<td><strong>PARTITION COEFFICIENT (O/W):</strong></td>
<td>Not available</td>
</tr>
<tr>
<td><strong>HYGROSCOPICITY:</strong></td>
<td>This product is highly hygroscopic and may pick up 33% by weight at a humidity above 20%.</td>
</tr>
</tbody>
</table>
10. **STABILITY AND REACTIVITY**

**CHEMICAL STABILITY (Conditions to avoid):** Stable under normal storage and use conditions.

**INCOMPATIBILITY:** Will react with acid to precipitate water-insoluble Naphthaleneacetic acid.

**HAZARDOUS DECOMPOSITION PRODUCTS:** When product is heated to decomposition it emits acrid smoke and fumes of unknown composition.

**HAZARDOUS POLYMERIZATION:** This product will not polymerize.

11. **TOXICOLOGICAL INFORMATION**

The toxicity data were generated from either the free acid, 1-NAA, or the sodium salt, 1-NAANa.

**INGESTION:** Oral LD$_{50}$ (rat): 1098 mg/kg, 1-NAANa (Tox Cat III)

**INHALATION:** Inhalation LC$_{50}$ (rat, 4 Hr): $> 5$ mg/L, 1-NAANa (Tox Cat IV)

**DERMAL:** Skin LD$_{50}$ (rabbit): $> 2000$ mg/kg, 1-NAANa (Tox Cat III)

**IRRITATION:**
- Eye irritation: Corrosive, 1-NAANa (Tox Cat I)
- Skin irritation: No skin irritation, 1-NAANa (Tox Cat IV)

**SENSITIZATION:**
- Skin sensitization: Not a sensitizer, 1-NAA (guinea pig)

**TERATOGENICITY:** In developmental studies in the rat and rabbit, there was evidence of both maternal and developmental toxicity. The NOELs for these effects were 15 and 100 mg/kg in the rat and rabbit, respectively.

**MUTAGENICITY:** No evidence of mutagenicity from a range of laboratory testing in vitro.

**CARCINOGENICITY:** No evidence of carcinogenicity when tested in laboratory animals.

**REPRODUCTIVE TOXICITY:** No evidence of reproductive. At the highest dose tested there was some evidence of parental toxicity with accompanying associated effects on offspring survival and growth.

**TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** No data available.

12. **ECOLOGICAL INFORMATION**

**GENERAL:** This product is a plant growth regulator. Do not contaminate bodies of water with product.

13. **DISPOSAL CONSIDERATIONS**

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA regional office for guidance.
13. **DISPOSAL CONSIDERATIONS, cont’d**

**CONTAINER DISPOSAL:** Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into formulation equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose in the same manner. Contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA regional office for guidance.

14. **TRANSPORTATION INFORMATION**

- **DOT CLASS:** Not regulated
- **UN NUMBER:** Not regulated
- **IMDG CLASS (sea):** Not regulated
- **IATA CLASS (air):** Not regulated
- **MARINE POLLUTANT:** No
- **PACKING GROUP:** Not regulated
- **HAZARD LABEL(S):** None
- **ADR CLASS (road):** Not regulated
- **PROPER SHIPPING NAME(S):** Not regulated
- **REPORTABLE QUANTITY:** None

**PACKAGING**

**GENERAL DESCRIPTION:** 55 gallon plastic lined drums

15. **REGULATORY INFORMATION**

**U.S. FEDERAL REGULATIONS:** This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. This product is listed for non-pesticide uses. Read and follow all label directions. This product is also listed under EPA/TSCA.

**SARA TITLE III DATA**

- **Section 311 & 312 Hazard Categories:**
  - Immediate Health Hazard: Yes
  - Delayed Health Hazard: No
  - Fire Hazard: No
  - Reactive Hazard: No
  - Sudden Pressure Release Hazard: No
- **Section 302 Extremely Hazardous Substances:** None
- **Section 313 Toxic Chemicals:** None

**CERCLA Reportable Quantities (RQ):** None

**STATE REGULATIONS:**

- **CALIFORNIA (Proposition 65):** None
16. OTHER INFORMATION

MSDS Status:
Date This Revision: 30 August, 2006
Date Previous Revision: 10 October 2003
Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Annual Review. Information was updated in sections 3 and 11 to reflect current knowledge.

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ABBREVIATIONS:

ACGIH - American Conference of Governmental Industrial Hygienists
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
EPA - Environmental Protection Agency
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
IARC - International Agency for Research on Cancer
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
SARA - Superfund Amendments and Reauthorization Act
TSCA - Toxic Substances Control Act

This is the last page of this MSDS. There should be 7 pages.