MATERIAL SAFETY DATA SHEET

AZADIRACHTIN
(NEEM BASED NATURAL PRODUCT)

SECTION I

MANUFACTURER INFORMATION

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Fax: 0091-44-5340858;5342381
Date Prepared: June 2001

SECTION II

HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>%</th>
<th>CAS No.</th>
<th>OSHA/PEL</th>
<th>ACGIH/TLV</th>
<th>OTHER LIMITS RECOMMENDED</th>
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<td>Azadirachtin A</td>
<td>1.0</td>
<td>11141-17-6</td>
<td>None known</td>
<td>None known</td>
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<td>Azadirachtin B</td>
<td>95507-03-2</td>
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<tr>
<td>Other neem compounds</td>
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<td>118855-02-0</td>
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<td>Azadirachtin F</td>
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<td>Azadirachtin H</td>
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<tr>
<td>Azadirachtin I</td>
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<td>Salannin, Nimbin and</td>
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<td>fatty acids</td>
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</table>

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Brown viscous liquid
Odour: Characteristic neem fragrant odour
Solubility in water: Emulsifies with water
Specific Gravity: 0.98
Evaporation Rate: Not known
Vapour Density : Not known
Molecular Weight :
  : 720 (Azadirachtin A)
  : 662 (Azadirachtin B)
Empirical Formula :
  : C_{35}H_{44}O_{16} (Azadirachtin A)
  : C_{33}H_{42}O_{14} (Azadirachtin B)
Acidity : < 0.24
pH : 7 ± 0.02
Corrosion Characteristics : Non corrosive to HDPE containers

SECTION IV

FIRE AND EXPLOSION DATA

Flash Point : > 171°C - No Fire Hazard
Flammable Limits : Not known
Extinguishing Media : Polymer foam or carbon dioxide
Special Fire Fighting Procedures : Wear protective clothing and face shields
Unusual fire and explosion hazards : No hazard

SECTION V

REACTIVITY DATA

Stability : Stable at ordinary conditions of use and storage
Conditions to avoid : High temperature or sunlight or light quickly degrade the material
Materials to Avoid : Acids, alkali or oxidizing agents.
Hazardous Decomposition : No hazardous materials are produced
Hazardous polymerization : Not occur

SECTION VI

HEALTH HAZARD DATA

Mode of Entry : Inhalation - yes
  : Skin - yes
  : Ingestion- yes

Health Hazards:

Acute Toxicity :
  : Acute oral - Rat LD 50 >5000 mg/kg
  : Acute Dermal-Rat LD 50>2000 mg/kg
  : Inhalation-Rat LC 50>5.4 mg/L
  : Primary Eye Irritation-Rabbit>No Irritation
  : Primary skin Irritation-Rabbit>Mild
  : Skin Sensitization-Guinea Pig> No
sensitization

Chronic Toxicity *: Mutation Assay-Non Mutagenic
   *: Neurotoxicity-No Neurotoxicity
   : Reproductive Toxicity-NOAEL 5000 mg/kg
   : Carcinogenicity-Non Carcinogenic
   : Effect on spray operators-No adverse effects
   *: Based on TGAC data

SIGN AND SYMPTOMS OF EXPOSURE

Inhalation  : May be irritating to mucous membrane and excessive exposure may result in drowsiness
Ingestion  : May cause drowsiness
Skin Contact : May cause mild irritation
Eye Contact    : May cause mild irritation
Chronic Exposure : Chronic exposure may cause various implications

EMERGENCY AND FIRST AID PROCEDURE

Inhalation: Remove to fresh air
Ingestion: Induce vomiting by gastric lavage, call physician immediately
Skin Contact: Wash skin with soap
Eye Contact: Wash eyes with excessive water. Get medical attention if required

SECTION VII

ECOLOGICAL SAFETY

1. Effect on Honey Bees - Harmless
2. Effect on Earthworm (LC50) - > 1000 mg/kg - safe
3. Effect on predators - Harmless
4. Hazard to soil Microflora - Non Hazardous
5. Acute Daphnia Immobilisation Test (EC50)- > 1000 mg/ltr - safe
   NOEL- 197.5 mg/ltr
6. Acute toxicity to fish-Rainbow Trout (LC50)
   - 440 mg/ltr (24 hrs)
   - 150 mg/ltr (96 hrs)
   - 50 mg/ltr
   NOEC
7. Algal Inhibition Test - Non inhibitory/Non stimulant
   NOEC-22 mg/ltr
8. Metabolism in soil - Rapid Decomposition in soil
9. Degradability in water - Readily Biodegradable in water

SECTION VIII

PRECAUTIONS FOR SAFE HANDLING AND USE
**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Flush the area with water. Do not allow water to contaminate surrounding area. Personnel in operation may wear protective clothing.

**WASTE DISPOSAL METHOD**

Do not contaminate water, food, or feed by storage or disposal. Disposal of containers in an approved disposal facility. Ensure compliance with local, state and federal regulations.

**PRECAUTIONS FOR HANDLING AND STORAGE**

Keep in tightly closed container. Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Dispose containers in an approved waste facility.

**OTHER PRECAUTIONS**

- **Shipping Name**: Neem Based Insecticide
- **Shipping Containers Markings**: Neem Based Insecticide
- **Shipping Container Labels**: Neem Based Insecticide
- **Special Instructions**: No special instruction on handling required
- **Flammability**: Non flammable
- **Transport by Air**: Safe for Air Transport

**SECTION IX**

**CONTROL MEASURES**

- **Respiratory Protection**: Use spraying clothings to avoid spray mist direct contact
- **Protective Gloves**: Wear protective gloves
- **Eye protection**: Wear safety goggles
- **Ventilation**: Thorough ventilation is recommended in case of accidental spillage
- **Work Practices**: Observe good personnel hygiene. Wash hands after usage of the product

**SECTION X**

**Regulatory Information**

Designation: Eco-friendly Neem Based Pesticide of Plant Origin
- Non Hazardous Material

**SECTION XI**

**Information Origin**

E.I.D Parry (India) Limited.
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