MATERIAL SAFETY DATA SHEET

AZADIRACHTIN 5% WSC (NEEM BASED INSECTICIDE)

SECTION I

MANUFACTURER INFORMATION

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Bio Products Division
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Chennai - 600 001

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Date Prepared: June 2001

SECTION II

HAZARDOUS INGREDIENTS/IDENTIFY 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>
</tr>
</thead>
<tbody>
<tr>
<td>Azadirachtin A</td>
<td>5.0</td>
<td>11141-17-6</td>
<td>None known</td>
<td>None known</td>
<td>None known</td>
</tr>
<tr>
<td>Azadirachtin B</td>
<td></td>
<td>95507-03-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other neem compounds</td>
<td>15.0</td>
<td>118855-02-0</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Azadirachtin F</td>
<td></td>
<td>134788-15-1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Azadirachtin H</td>
<td></td>
<td>134788-16-2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Azadirachtin I</td>
<td></td>
<td>992-20-1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Salannin, Nimbin and fatty acids</td>
<td></td>
<td>5945-86-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other proprietary mixture and formulation compounds</td>
<td>80.0</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
</tbody>
</table>

SECTION III

PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance : Brown viscous liquid
Odour : Characteristic neem odour
Solubility in water : Fully Soluble
Specific Gravity : 1.06
Active Ingredients : Azadirachtin A
                    : Azadirachtin B
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:            :  6.5 ± 0.02
Corrosion Characteristics:  Non corrosive to HDPE containers
Storage Conditions:  Ambient conditions

SECTION IV

FIRE AND EXPLOSION DATA

Flash Point:  > 100 deg 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}:  >765.8 mg//kg
Acute Oral-mice LD_{50}:  >1570.4 mg/kg
Primary skin Irritation-Rabbit:  Non irritant
Irritation to Mucous Membrane:  Rabbit-Mild Irritant
Acute Dermal-Rabbit LD_{50}:  >5g/kg
**Chronic Toxicity**
- Mutation Assay: Non Mutagenic
- Neurotoxicity: No Neuroxicity
- Reproductive Toxicity: NOAEL 5000 mg/kg
- Carcinogenicity: Non Carcinogenic
- Effect on spray operators: No adverse effects

**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 irritation
- Chronic Exposure: Continuous exposure may cause 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**
Azadiractinsl-F has shown good safety to various beneficials including Honey bees, Earthworm, Predators and parasites.

**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 a cool and dry place. Avoid direct sunlight. 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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