PRODUCT SAFETY DATA SHEET

BANDU

1. Identification of the Product and the Company
Trade Name: BANDU
An insecticide for use in agriculture and horticulture

Company Identification:
In all cases of emergency and for further advice, contact
Headland Agrochemicals Ltd
Norfolk House
Great Chesterford Court
Great Chesterford
Essex CB10 1PF

Tel: +44(0)1799 530146
Fax: +44(0)1799 530229
E-Mail: enquiry@headlandgroup.com

2. Composition:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Conc’n</th>
<th>Class’n</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deltamethrin</td>
<td>52918-63-5</td>
<td>2.8 g/kg</td>
<td>T,N</td>
<td>R23/25,R50/53</td>
</tr>
<tr>
<td>Solvent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naphtha</td>
<td>64742-95-6</td>
<td>891 g/kg</td>
<td>Xn,Xi,N</td>
<td>R10,R37, R65, 66, 67, R51/53</td>
</tr>
<tr>
<td>Calcium Dodecylbenzene Sulfonate</td>
<td>11117-11-6</td>
<td>39 g/kg</td>
<td>Xn, C</td>
<td>R21,34, 52/53</td>
</tr>
<tr>
<td>Isobutanol</td>
<td>78-83-1</td>
<td>10 g/kg</td>
<td>Xi</td>
<td>R10, R37,38-41, R67</td>
</tr>
<tr>
<td>Propyl &amp; isopropyl Benzene</td>
<td></td>
<td>30 g/kg</td>
<td>Xn,Xi,N</td>
<td>R10, R37,R65 R51/53</td>
</tr>
<tr>
<td>Mesitylene 1,2,4 trimethyl benzene</td>
<td></td>
<td>69 g/kg</td>
<td>Xi, N</td>
<td>R10,R37,R51/53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>270 g/kg</td>
<td>Xn,Xi,N</td>
<td>R10,R20,R36/37/ 38, R51/53</td>
</tr>
</tbody>
</table>

3. Hazards:
Harmful in contact with skin and if swallowed. Irritating to skin and eyes.
Flammable. EU Classification Harmful Xn, Dangerous for the Environment N

4. First Aid Measures:
Eyes: Irrigate gently with clean water for at least 15 minutes. Send to hospital without delay.
Skin: Remove contaminated clothing. In the first instance wipe off the skin with a dry towel or by using talcum powder. Then wash thoroughly with soap and water and apply a vitamin E, skin-care oil or cream.
Seek medical attention if any irritation, discomfort or redness
Ingestion: If conscious, rinse out mouth, then give plenty of water to drink. Do not give milk, cream or other material containing fats. Do not induce vomiting. Keep patient at rest and obtain medical attention/send to hospital immediately.

Inhalation: Remove from exposure and provide maximum ventilation. If unconscious, secure airway and place in recovery position. If there is coughing or difficulty breathing, keep at rest in a position of maximum comfort.

Guide to Doctors: This product contains a synthetic pyrethroid insecticide. Small doses ingested may produce non-specific symptoms (nausea, vomiting, diarrhoea). Very large amounts may cause disturbance of the central nervous system (tremors, convulsions or coma).

The product also contains petroleum distillates which may pose an aspiration hazard.

Skin penetration may cause an irritation similar to sunburn. The substance will be drawn into a non-polar environment such as a fat-based oil or cream. Water may prolong the irritation. Hot water may increase the discomfort.

Feelings of numbness in exposed areas (paraesthesia) may occur but are transient, seldom lasting more than 24 hours. Such discomfort is indicative that overexposure has occurred. Treatment should be symptomatic and supportive.

5. † Fire Fighting Measures
Bandu will burn – flashpoint 48°C. If involved in a fire, decomposition fumes and vapours will be toxic and include oxides of carbon and nitrogen, hydrogen bromide, hydrogen cyanide and brominated organic compounds. Fire fighters should wear breathing apparatus.

Use dry chemical, foam, water spray, carbon dioxide, sand or earth. Avoid high-pressure water-jets. Use water-spray to cool fire-exposed containers.

Prevent entry of the product or contaminated water into watercourses ditches or drains by bunding the area with sand or earth if possible. Inform the Environment Agency if contamination of water is threatened or occurs.

6. † Accidental Release (Spillage)
Wear suitable protective clothing (see Section 8). Remove contaminated clothing immediately. Do not eat drink or smoke. Remove all sources of ignition. Keep bystanders away.

Recover gross spillage by pumping using an explosion-proof pump or absorb small quantities onto a suitable absorbent (sand, earth or absorbent clay). Do not absorb onto flammable materials such as sawdust. Large spills which soak into the ground should be dug up. Transfer to a labelled container for later removal to a safe place for disposal. When all the spill has been removed, wash the area with plenty of water and detergent, absorb the wash liquid and place in a labelled container for later removal to a safe place for disposal.
Prevent the spillage and washing water from entering watercourses sewers or drains. Inform the Environment Agency if contamination of waterways, sewers or drains is threatened or occurs.

7. **Storage and Handling**
   Keep in original container, tightly closed.
   Keep cool and dry in a suitable chemical store under lock and key. Protect from frost.
   Keep away from food, drink and animal feedingstuffs and out of reach of children. Do not store in direct sunlight or near direct sources of heat.

8. **Personal Protection**
   Wear coveralls, suitable protective gloves (neoprene, nitrile or butyl rubber with a minimum thickness of 0.5mm) and face-shield to BS2092 when handling the concentrated product or contaminated surfaces and dealing with spillages. Discard and replace gloves if any small tears occur. Wear suitable respiratory equipment in cases of insufficient ventilation. Avoid breathing the spray mist when using.
   Decontaminate all personal protective equipment after use.

   Occupational Exposure Limits:
   - TWA total hydrocarbon 100 ppm
   - TWA trimethyl benzene 25ppm

9. **Physical and Chemical Properties**
   **Appearance:** a colourless to light yellow liquid
   **Odour:** characteristic aromatic odour
   **Boiling point/range:** Not available.
   **Vapour pressure:** Deltamethrin – negligible
   Solvesso 100 – 1.5 mm Hg at 20°C
   5.3 mm Hg at 38°C
   **Solubility:** Completely emulsifies in water. Miscible with apolar solvents.
   **Specific Gravity:** 0.89 at 20°C
   **pH:** 6.2 (1% solution in water)
   **Flashpoint:** 48°C
   **Autoignition temp:** >450°C
   **Flammable limits:** 0.7-8.0% volume

10. **Stability and Reactivity**
    **Stability:** Very stable. Stores for at least 2 years in original containers in normal agricultural chemical storage conditions.
    **Reactivity:** Avoid contact with strong acids and oxidising agents.
    ** Decomposition:** will generate harmful and irritant vapours if heated to decomposition (see Section 5 above).

11. **Toxicological Information**
    **Acute Toxicity:**
    - Acute oral LD50: 416 mg/kg bw (rat)
    - Acute dermal LD50: >2000 mg/kg bw (rat)
    - Inhalation LC50: 2.69 mg/l for 4 hours (rat)
    **Irritancy:** Irritating to skin; severely irritating to eyes.
Sensitisation: Not a skin sensitizer (Magnusson-Kligman Test)

**Chronic Toxicity (Deltamethrin)**
- Carcinogenicity: Not carcinogenic.
- Reproductive effects: No adverse effects found.
- Teratogenicity: Not teratogenic.
- Mutagenicity: Not mutagenic.

12. † **Environmental Protection**
Extremely dangerous to fish or other aquatic life. Do not contaminate surface waters or ditches with chemical or used container. The following have been measured on the active ingredient deltamethrin:
- LC50 (96 hour): Rainbow trout 0.91 ug/litre
  Bluegill sunfish 1.4ug/litre
- EC50 (48-hour): *Daphnia magna* 3.5 ug/litre

Dangerous to bees.
- Contact LD50: Honeybee 0.051ug/bee
- Oral LD50: Honeybee 0.079ug/bee

Behaviour in soils: Degraded in soils and waste water treatment plants. Half-life in soil is 2-3 weeks. Strongly adsorbed onto soil and no risk of leaching.
- Bio-accumulation: Bioconcentration factor = 1400. However the risk of bioaccumulation is low because of low solubility in water resulting in rapid removal from the water phase and hence low bioavailability.

13. **Disposal of Unwanted Product and Used Containers**
Consult the local authorities before disposing of unwanted chemical. It is recommended that chemical is burned in a chemical incinerator equipped with an afterburner and scrubber.
- Dispose of containers by triple-rinsing, puncturing and burning land-fill or as otherwise permitted by local authorities. Do not re-use containers for any purpose.

14. † **Transport Information**
- Road Transport: Flammable liquid.
- UN Number: 1993
- Proper Shipping Name: Flammable liquid, n.o.s. (Alkyl (C3-C4) benzenes and deltamethrin).
- UN Class: 3
- CPL Packing Group: III
- IMDG Class: Marine pollutant

15. **Regulatory Information**
- Hazard Symbol: Primary Symbol Harmful Xn
  Secondary symbol Irritant Xi
  Dangerous for the Environment N
  Flammable
- Risk Phrases: R10 Flammable
  R20/22 Harmful by inhalation and if swallowed
R65 May cause lung damage if swallowed
R38 Irritating to skin
R41 Risk of serious damage to eyes
R50 Very toxic to aquatic organisms
R53 May cause long-term adverse effects in the aquatic environment

Safety Phrases:
S2 Keep out of reach of children
S26 After contact with eyes, rinse immediately with plenty of water and seek medical advice
S39 Wear eye/face protection.
S57 Use appropriate containment to avoid environmental contamination
S62 If swallowed do not induce vomiting, seek medical advice immediately and show this container label.

16. Other Information
The above information is intended to give health and safety guidance on the storage and transport of the substance or product to which it relates. It is not intended to apply to the use of the product, for which purpose the product label and any appropriate technical usage literature available should be consulted and any relevant licences, consents or approvals complied with. The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate to the best of the issuer’s available knowledge at the date of publication, and will be updated as and when appropriate. No liability will be accepted for any loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

Bandu is approved by the Pesticides Safety Directorate for use as an insecticide.
Registration No. MAPP 10994. Registration held by Cheminova A/S, Denmark.

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