MATERIAL SAFETY DATA SHEET

Butachlor 60% w/v EC

Sinon Corporation MSDS Data Bank No. AHF04-60EC03

Issue Date: Aug. 03, 2010

1. IDENTIFICATION OF PRODUCT AND MANUFACTURER

1.1. Identification:
Product name: Butachlor 60% w/v EC
Common name: Butachlor (BSI, ISO, ANSI)
Chemical name: N-Butoxyacetanilid-2-chloro-6'-diethyl acetanilide
Empirical formula: C_{10}H_{19}CINO
Molecular weight: 269.2
Structural formula:

Uses: Herbicide

1.2. Uses:
Herbicide

1.3. Manufacturer:
Sinon Corporation
23, Sec. 1, Mei Chuan W. Road, Taichung, Taiwan, R.O.C.
Tel: +886-4-23726181 Fax: +886-4-23750574
Location of plant:
111, Chung Shan Road, Ta-Tu District, Taichung, Taiwan, R.O.C.
Tel: +886-4-26933841 Fax: +886-4-26933713
Emergency Telephone:
+886-4-26934261

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
This product is an herbicide with low oral and dermal toxicity. Symptoms of poisoning would probably include nausea, vomiting, dizziness. Dermal irritation and allergic dermatitis may be seen in susceptible individuals following exposure to mist. Inhalation may lead to irritation of respiratory tract.

2.1. Potential Health Effects:

Inhalation:
SHORT TERM EFFECTS: May cause respiratory irritation. Prolonged exposure may result in dizziness and coma.
LONG TERM EFFECTS: No information is available.

Skin contact:
SHORT TERM EFFECTS: May cause irritation characterized by redness and dryness. May cause allergic reactions.
LONG TERM EFFECTS: No information available on significant adverse effects.

Eye contact:
SHORT TERM EFFECTS: May cause irritation.
LONG TERM EFFECTS: Same effects as short term exposure.

Ingestion:
SHORT TERM EFFECTS: May cause twitching, nausea and vomiting.
LONG TERM EFFECTS: No information available on significant adverse effects.

Carcinogen status:
OSHA: N

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS No.</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butachlor</td>
<td>23184-66-9</td>
<td>60%</td>
</tr>
<tr>
<td>Other ingredients</td>
<td>--</td>
<td>balance to 100%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURE

4.1. First Aid:
If in Eyes: Flush immediately with plenty of water for at least 15 minutes. Get medical attention if irritation persists.
If in Skin: Wash thoroughly with soap and water. Remove contaminated clothing and shoes and launder.
If Inhaled: Remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. Get medical attention.
If Swallowed: Offer a glass of water or milk to drink. Call a physician or poison control center. Do not induce vomiting unless directed.

4.2. Antidote:
There is no specific antidote. Treat symptomatically.

5. FIRE FIGHTING MEASURE

5.1. Extinguishing Media:
Water spray, foam, dry chemical carbon dioxide or Class B extinguish agent.

5.2. Special Fire Fighting:
Firefighter or other exposed to vapors or products of combustion should wear full protective clothing and self-contained breathing apparatus.

Fire-fighting equipment should be thoroughly cleaned after use.

5.3. Unusual Fire & Explosion Hazards:
Do not cut, drill, grind or weld on or near this container.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions:
Protective clothing: Rubber gloves, respirator, boots, long-sleeved shirt or jacket, long pants.

Eye shields should be worn.

6.2. Methods for Cleaning Up:
Empty any product remaining in damaged or leaking containers into a clean empty container which should be suitably labeled.
Absorb spillage of liquid products with sawdust or sand, sweep up and place in separate container.
These should be burnt in incinerator designed for pesticide disposal. When no incinerator is available, bury in an approved dump or in an area where there is no risk of contamination of ground or surface water.
Comply with any local legislation applying to waste disposal.

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7. HANDLING AND STORAGE
7.1. Handling:
Avoid breathing vapors or mist.
Avoid contact with mouth, eyes, skin, or clothing. Wash all parts with plenty of soap and water after handling.
Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
Remove personal protective equipment immediately after handling this product.
Wash the outside of gloves before removing.
As soon as possible, wash thoroughly and change into clean clothing.
7.2. Storage:
Keep away from children.
Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.
Store in a well ventilated place. Keep container tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1. Exposure Limits:
Xylene: NIOSH REL 100 ppm
8.2. Occupational Exposure Controls:
Ventilation:
Provide local exhaust ventilation system.
Eye protection:
Employee must wear splash-proof or dust-resistant safety goggles to prevent eye contact with this substance.
Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use.
Clothing:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.
Gloves:
Employee must wear appropriate protective gloves to prevent contact with this substance.
Respirator:
The following respirators are recommended based on information found in the physical data, toxicity and health effects sections. They are ranked in order from minimum to maximum respiratory protection.
The specific respirator selected must be based on contamination levels found in the work place, must be based on the specific operation, must not exceed the working limits of the respirator and must be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).
Any chemical cartridge respirator with full facepiece and pesticide cartridge.
Any type 'C' supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode or with a full facepiece, helmet or hood operated in continuous-flow mode.
Any self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
8.3. Environmental Exposure Controls:
Do not flush to drain since this product is toxic to aquatic organisms. Prevent material from entering public sewer system or any waterways.

9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance : Brown liquid
Odor : Slightly sweet aromatic odor
Density : 1.02 g/ml at 25°C
Solubility : Emulsifies in water.
pH : Approx. 5.07 (10% solution)
Log P\text{ow} : 4.42 (Butachlor Tech.)
Flammability : Flash point 28.9°C (close cup test)
Explosivity : Non-explosive

10. STABILITY AND REACTIVITY
10.1. Stability:
Stable under normal temperatures and pressures.
10.2. Conditions to Avoid:
Corrosive to steel.
May burn but does not ignite readily. Avoid contact with strong oxidizers, excessive heat, sparks, or open flame.
10.3. Hazardous Decomposition Products:
Thermal decomposition may release corrosive fumes of hydrogen chloride and toxic oxides of nitrogen and carbon.
10.4. Hazardous reactions:
Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

11. TOXICOLOGICAL INFORMATION
11.1. Acute Toxicity: (Based on similar product)
Acute oral LD\textsubscript{50} : 2500 mg/kg for rats
Acute dermal LD\textsubscript{50} : > 2000 mg/kg for rats
Acute inhalation LC\textsubscript{50} : > 5.540 mg/l for rats
Eye irritation : Mildly Irritating to Eyes
Skin irritation : Non-irritating
Skin sensitization : Sensitizer
11.2. Carcinogenicity: (Butachlor Tech.)
In 2-yr feeding trials rats and dogs receiving 1000 mg/kg diet exhibited no ill-effects.
11.3. Teratology / Reproduction: (Butachlor Tech.)
Rabbits and mice reveal no teratogenic and reproductive effects.
12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity:

- **Bird toxicity**: Acute oral LD$_{50}$ for mallard ducks >7000 mg/kg (estimated data based on the toxicity of active ingredient).
- **Fish toxicity**: LC$_{50}$ (96 h) for rainbow trout 1.25 mg/l (estimated data based on the toxicity of active ingredient).
- **Daphnia toxicity**: LC$_{50}$ (48 h) 3.66 mg/l (estimated data based on the toxicity of active ingredient).
- **Alga toxicity**: Not available.
- **Bee toxicity**: LD$_{50}$ (contact) >100 μg/bee (estimated data based on the toxicity of active ingredient).

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 165. Dispose in accordance with all applicable regulations.

Empty any product remaining in damaged or leaking containers into a clean empty container which should be suitably labeled.

Absorb spillage of liquid products with sawdust or sand, sweep up and place in separate container.

These should be burnt in incinerator designed for pesticide disposal.

When no incinerator is available, bury in an approved dump or in an area where there is no risk of contamination of ground or surface water. Comply with any local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

**Maritime Transport IMDG:**

- **Proper shipping name**: Environmentally Hazardous Substance, Liquid, N.O.S.
- **UN number**: 3082
- **Class**: 9
- **Packing group**: III
- **Marine pollutant**: Yes

15. REGULATORY INFORMATION

**EC Number (EINECS)**: 245-477-8.

16. OTHER INFORMATION

**EEC symbol**: None

**Risk phrase**: R10 Flammable.

**Safety phrase**:

- **S2**: Keep out of the reach of children.
- **S20**: When using, do not eat or drink
- **S25**: Avoid contact with eyes.
- **S26**: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- **S60**: This material and its container must be disposed of as hazardous waste.
- **S61**: Avoid release to the environment. Refer to special instructions/safety data sheets.

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