Material Safety Data Sheet

BAYER ADVANCED COMPLETE BRAND INSECT KILLER FOR SOIL & TURF CONCENTRATE

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: BAYER ADVANCED COMPLETE BRAND INSECT KILLER FOR SOIL & TURF CONCENTRATE
MSDS Number: 102000015132
EPA Registration No.: 72155-29

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-800-331-2867

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>0.72</td>
</tr>
<tr>
<td>beta-Cyfluthrin</td>
<td>68359-37-5</td>
<td>0.36</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview:
Caution! Harmful by inhalation and if swallowed. Moderate eye irritation. Avoid contact with skin, eyes, and clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.

Highly toxic to aquatic invertebrates. Highly toxic to fish. Highly toxic to bees.

Physical State: liquid
Appearance: white to off-white
Routes of Exposure: Ingestion, Inhalation, Skin contact

Immediate Effects:

**Eye**
Moderate eye irritation. Avoid contact with eyes.

**Skin**
No skin irritation.

**Ingestion**
Harmful if swallowed. Do not take internally.

**Inhalation**
Harmful if inhaled. Avoid breathing spray mist.
SECTION 4. FIRST AID MEASURES

General
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Skin
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Notes to Physician Treatment
There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

Flash point
93.3 °C / 199.9 °F

Suitable Extinguishing Media
water, foam, dry chemical

Fire Fighting Instructions
Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Dike area to prevent runoff and contamination of water sources. Equipment or materials involved in pesticide fires may become contaminated.

Wear self-contained breathing apparatus and protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES
Bayer Environmental Science

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Personal Precautions
Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods for Cleaning Up
Take up with absorbent material (e.g. sand, diatomaceous earth or a proprietary absorbent material). Pick up and transfer to properly labelled containers. Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional Advice
Use personal protective equipment. Do not allow product to enter streams, sewers or other waterways.

SECTION 7. HANDLING AND STORAGE

Handling Procedures
When using in animal quarters, do not apply directly to food, water or food supplements.

Storing Procedures
Keep tightly closed in a dry, cool and well-ventilated place. Store in original container and out of the reach of children, preferably in a locked storage area.

Do not freeze.

Work/Hygienic Procedures
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection
There are no known hazards associated with this product when used according to the label directions. The following guidelines should be followed.

Avoid inhalation of vapour or mist.

Avoid contact with skin and eyes.

Do not allow children or pets to enter the treated area until it has dried.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical</th>
<th>ACGIH (56-81-5)</th>
<th>TWA</th>
<th>Exposure Type</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerine</td>
<td></td>
<td></td>
<td>Form of Exposure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA Z1 (PEL)</td>
<td></td>
<td>Respirable fraction.</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1 (PEL)</td>
<td></td>
<td>Total dust.</td>
<td>15 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1A (TWA)</td>
<td></td>
<td>Respirable fraction.</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA Z1A (TWA)</td>
<td></td>
<td>Total dust.</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>white to off-white</td>
</tr>
<tr>
<td>Physical State</td>
<td>liquid</td>
</tr>
<tr>
<td>pH</td>
<td>4.5 - 5.5 (undiluted)</td>
</tr>
<tr>
<td>Density</td>
<td>ca. 1.03 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>300 - 800 mPa.s</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity studies for this product have been bridged from another product containing a higher percentage of the active ingredients beta-cyfluthrin, an enriched isomer mixture of cyfluthrin, and imidacloprid. The non-acute information pertains to the technical-grade active ingredients, beta-cyfluthrin and imidacloprid. Toxicology information on technical-grade cyfluthrin can be obtained by calling the Product Information Number on Page 1.

**Acute Oral Toxicity** male/female rat: LD50: > 2,000 mg/kg

**Acute Dermal Toxicity** male/female rat: LD50: > 4,000 mg/kg

**Acute Inhalation Toxicity**

- male/female rat: LC50: > 1.2 mg/l
- Exposure time: 4 h
- Determined in the form of liquid aerosol.
- Highest attainable concentration.
- No deaths

- male/female rat: LC50: > 4.8 mg/l
- Exposure time: 1 h
- Determined in the form of liquid aerosol.
- Extrapolated from the 4 hr LC50.

**Skin Irritation** rabbit: No skin irritation.
Eye Irritation

rabbit: No eye irritation.

Sensitization

guinea pig: Non-sensitizing.

Subchronic Toxicity

BETA-CYFLUTHRIN TECHNICAL
Beta-cyfluthrin produced general signs of toxicity (e.g., decreased body weights) and/or neurobehavioral effects (e.g., uncoordinated gait) in subchronic dietary studies (rats, dogs) and in a 4-week inhalation study (rats).

Chronic Toxicity

IMIDACLOPRID TECHNICAL
In chronic dietary studies in rats and dogs exposed to imidacloprid, the target organs were the thyroids and/or liver.

Assessment Carcinogenicity

IMIDACLOPRID TECHNICAL
In oncogenicity studies in rats and mice, imidacloprid was not considered carcinogenic in either species.

ACGIH None.
NTP None.
IARC None.
OSHA None.

Reproductive & Developmental Toxicity

BETA-CYFLUTHRIN TECHNICAL
DEVELOPMENTAL TOXICITY: Beta-cyfluthrin was not a primary developmental toxicant in a developmental toxicity study in rats. Developmental effects (e.g., delayed ossifications) were observed at the high-dose but were considered secondary to maternal toxicity.

IMIDACLOPRID TECHNICAL
REPRODUCTION: In a two-generation reproduction study in rats, imidacloprid was not a primary reproductive toxicant. Offspring exhibited reduced body weights at the high dose and in conjunction with maternal toxicity.

DEVELOPMENTAL TOXICITY: In developmental toxicity studies in rats and rabbits, there was no evidence of an embryotoxic or teratogenic potential for imidacloprid. In both species, developmental effects were observed only at high doses and in conjunction with maternal toxicity.

Neurotoxicity

BETA-CYFLUTHRIN TECHNICAL
Beta-cyfluthrin produced slight transient neurobehavioral effects at the highest dose tested in acute and subchronic neurotoxicity screening studies in rats. There were no correlating compound-related morphological changes in the neural tissues in either study.

In a one-generation developmental neurotoxicity screening study in rats,
offspring exposed to beta-cyfluthrin exhibited a reduction in startle response amplitude at the highest dose tested in conjunction with maternal toxicity. There were no compound-related morphological changes observed in the neural tissues.

IMIDACLOPRID TECHNICAL
Neurotoxicity studies in rats showed slight behavioral and activity changes only at the highest dose tested. There were no correlating morphological changes observed in the neural tissues.

Mutagenicity
BETA-CYFLUTHRIN TECHNICAL
Beta-cyfluthrin was not mutagenic or genotoxic in a battery of in vitro and in vivo mutagenicity studies.

IMIDACLOPRID TECHNICAL
The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Precautions
Do not apply directly to water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Apply this product as specified on the label.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance
It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Never place unused product down any indoor or outdoor drain.

Container Disposal
Do not re-use empty containers. Place empty container in trash.

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:
Not regulated for transportation

FREIGHT CLASSIFICATION:
Insecticide or Fungicides, N.O.I., other than poison

SECTION 15. REGULATORY INFORMATION
EPA Registration No. 72155-29

US Federal Regulations
- TSCA list
  - None.
- US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
  - None.
- SARA Title III - Section 302 - Notification and Information
  - None.
- SARA Title III - Section 313 - Toxic Chemical Release Reporting
  - beta-Cyfluthrin 68359-37-5 1.0%

US States Regulatory Reporting
CA Prop65
- This product does not contain any substances known to the State of California to cause cancer.
- This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
- beta-Cyfluthrin 68359-37-5 NJ

Canadian Regulations
- Canadian Domestic Substance List
  - None.

Environmental
- CERCLA
  - None.
- Clean Water Section 307 Priority Pollutants
  - None.
- Safe Drinking Water Act Maximum Contaminant Levels
  - None.

International Regulations
- European Inventory of Existing Commercial Substances (EINECS)
  - beta-Cyfluthrin 68359-37-5

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
- Health - 2
- Flammability - 1
- Reactivity - 1
- Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: New Material Safety Data Sheet.
Bayer Environmental Science

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Revision Date: 10/05/2006

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