SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name BAYER ADVANCED COMPLETE BRAND INSECT KILLER FOR SOIL & TURF CONCENTRATE
Product code (UVP) 05964457
SDS Number 102000015132
EPA Registration No. 72155-29

Relevant identified uses of the substance or mixture and uses advised against
Use Insecticide
Restrictions on use See product label for restrictions.

Information on manufacturer
Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.
All Emergencies, 24hr/7 days 1-800-334-7577 (24 hours/day)

Product Information
Telephone No.

SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards
No particular hazards known.

SECTION 3: 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>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>8.00</td>
</tr>
</tbody>
</table>
SECTION 4: FIRST AID MEASURES

Description of first aid measures

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

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.

Skin contact
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.

Eye contact
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.

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.

Most important symptoms and effects, both acute and delayed

Symptoms
No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

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

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable
Water, Foam, Dry chemical

Unsuitable
None known.

Special hazards arising from the substance or mixture
Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters
Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information
Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off
 SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

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

**Methods and materials for containment and cleaning up**

**Methods for cleaning up**
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

**Additional advice**
Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

 SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on protection against fire and explosion**
No special precautions required.

**Hygiene measures**
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

**Conditions for safe storage, including any incompatibilities**

**Requirements for storage areas and containers**
Keep containers 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. Protect from freezing.

**Advice on common storage**
Keep away from food, drink and animal feedingstuffs.
**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>0.7 mg/m³ (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>Imidacloprid</td>
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<td>5 ug/m³ (AN ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>50 ug/m³ (ST ESL)</td>
<td>07 2011</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Beta-Cyfluthrin</td>
<td>68359-37-5</td>
<td>50 ug/m³ (ST ESL)</td>
<td>10 2003</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Beta-Cyfluthrin (Particulate.)</td>
<td>68359-37-5</td>
<td>5 ug/m³ (AN ESL)</td>
<td>10 2003</td>
<td>TX ESL</td>
</tr>
<tr>
<td>Beta-Cyfluthrin (Particulate.)</td>
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<td>5 ug/m³ (AN ESL)</td>
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<td>TX ESL</td>
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<tr>
<td>Beta-Cyfluthrin</td>
<td>68359-37-5</td>
<td>0.01 mg/m³ (TWA)</td>
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<tr>
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<td>56-81-5</td>
<td>10 mg/m³ (TWA)</td>
<td>02 2012</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Glycerine (Total dust.)</td>
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<td>15 mg/m³ (PEL)</td>
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<td>OSHA Z1</td>
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<td>Glycerine (Respirable fraction.)</td>
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<td>5 mg/m³ (PEL)</td>
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<td>OSHA Z1</td>
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<tr>
<td>Glycerine (Total dust.)</td>
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<td>1989</td>
<td>OSHA Z1A</td>
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<tr>
<td>Glycerine (Respirable fraction.)</td>
<td>56-81-5</td>
<td>5 mg/m³ (TWA)</td>
<td>1989</td>
<td>OSHA Z1A</td>
</tr>
<tr>
<td>Glycerine (Total dust and mist.)</td>
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<td>10 mg/m³ (TWA)</td>
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<tr>
<td>Glycerine (Respirable fraction and dust or fume.)</td>
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<td>5 mg/m³ (TWA)</td>
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<td>TN OEL</td>
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<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>5 ug/m³ (AN ESL)</td>
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<td>TX ESL</td>
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<tr>
<td>Glycerine</td>
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<td>Glycerine</td>
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<td>50 ug/m³ (ST ESL)</td>
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<td>TX ESL</td>
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<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>1000 ug/m³ (ST ESL)</td>
<td>03 2012</td>
<td>TX ESL</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Exposure controls
Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

General protective measures
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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
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</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>pH</td>
<td>4.5 - 6.2 (100 %)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>ca. 1.03 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting / Freezing Point</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>dispersible</td>
</tr>
<tr>
<td>Minimum Ignition Energy</td>
<td>not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>not applicable</td>
</tr>
</tbody>
</table>
Partition coefficient: n-octanol/water  
no data available

Viscosity  
300 - 800 mPa.s

Flash point  
93.3 °C

Autoignition temperature  
no data available

Lower explosion limit  
no data available

Upper explosion limit  
no data available

Explosivity  
not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition  not applicable

Chemical stability  Stable under normal conditions.

Possibility of hazardous reactions  No dangerous reaction known under conditions of normal use.

Conditions to avoid  freezing

Incompatible materials  no data available

Hazardous decomposition products  no data available

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes  Eye contact, Ingestion, Inhalation, Skin contact

Immediate Effects
Eye  Moderate eye irritation.

Ingestion  Harmful if swallowed.
Inhalation

Harmful if inhaled.

Information on toxicological effects

Acute oral toxicity
LD50 (male/female combined rat) > 2,000 mg/kg

Acute inhalation toxicity
LC50 (male/female combined rat) > 1.2 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
Highest attainable concentration.
No deaths

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

Acute dermal toxicity
LD50 (male/female combined rat) > 4,000 mg/kg

Skin irritation
No skin irritation (rabbit)

Eye irritation
No eye irritation (rabbit)

Sensitisation
Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity
Imidacloprid did not cause specific target organ toxicity in experimental animal studies. The toxic effects of beta-Cyfluthrin are related to transient hyperactivity typical for pyrethroid neurotoxicity.

Assessment Mutagenicity
Imidacloprid was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
beta-Cyfluthrin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity
Imidacloprid was not carcinogenic in lifetime feeding studies in rats and mice.
beta-Cyfluthrin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH
None.

NTP
None.

IARC
None.

OSHA
None.
Assessment toxicity to reproduction
Imidacloprid caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Imidacloprid is related to parental toxicity.

beta-Cyfluthrin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with beta-Cyfluthrin is related to parental toxicity.

Assessment developmental toxicity
Imidacloprid caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Imidacloprid are related to maternal toxicity.

beta-Cyfluthrin caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with beta-Cyfluthrin are related to maternal toxicity.

Further information
Acute toxicity studies have been bridged from a similar formulation(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
LC50 (Rainbow trout (Oncorhynchus mykiss))  0.000068 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient beta-cyfluthrin.

LC50 (Rainbow trout (Oncorhynchus mykiss))  211 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient imidacloprid.

Toxicity to aquatic invertebrates
EC50 (Water flea (Daphnia magna))  0.00029 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient beta-cyfluthrin.

EC50 (Water flea (Daphnia magna))  85 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient imidacloprid.

LC50 (Chironomus riparius (non-biting midge))  0.0552 mg/l
Exposure time: 24 h
The value mentioned relates to the active ingredient imidacloprid.

Toxicity to aquatic plants
IC50 (Desmodesmus subspicatus) > 0.01 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient beta-cyfluthrin.

No acute toxicity was observed at its limit of water solubility.

EC50 (Desmodesmus subspicatus) > 10 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient imidacloprid.
Biodegradability

Imidacloprid: not rapidly biodegradable

beta-Cyfluthrin: not rapidly biodegradable

Koc

Imidacloprid: Koc:225

beta-Cyfluthrin: Koc:508 - 3179

Bioaccumulation

Imidacloprid: Does not bioaccumulate.

beta-Cyfluthrin: Bioconcentration factor (BCF) 506

Does not bioaccumulate.

Mobility in soil

Imidacloprid: Moderately mobile in soils

beta-Cyfluthrin: Immobile in soil

Environmental precautions

Do not allow to get into surface water, drains and ground 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

Waste treatment methods

Product

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.

Contaminated packaging

Triple rinse containers.

Do not re-use empty containers.

Place empty container in trash.

RCRA Information

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR

Not dangerous goods / not hazardous material
IMDG
UN number 3082
Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BETA-CYFLUTHRIN, IMIDACLOPRID SOLUTION)

IATA
UN number 3082
Class 9
Packaging group III
Environn. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BETA-CYFLUTHRIN, IMIDACLOPRID SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 72155-29

US Federal Regulations
TSCA list
Glycerine 56-81-5
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
Glycerine 56-81-5 MN, RI

Canadian Regulations
Canadian Domestic Substance List
Glycerine 56-81-5
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)
Glycerine 56-81-5

EPA/FIFRA Information:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements:
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.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 2  Flammability - 1  Instability - 0  Others - none

Health - 2  Flammability - 1  Physical Hazard - 0  PPE -

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

Reason for Revision: The following sections have been revised: Section 5: Fire Fighting Measures.
Section 9: Physical and Chemical Properties.

Revision Date: 09/12/2013

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.