

SDS per US OSHA Hazard Communication Standard (HazCom) 2012, 29 CFR §1910.1200

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

1.1. PRODUCT IDENTIFIER

Product name: BotaniGard[®] Maxx
Product Type: Biological insecticide
EPA Registration No. 82074-5
Active Ingredient: *Beauveria bassiana* Strain GHA
CAS No.: N/A

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Identified uses: For use as an insecticide on listed crops and pests.
Uses advised against: Any use not listed on the label

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name: Certis USA LLC
Address: 9145 Guilford Road, Suite 175, Columbia, Maryland 21046, USA
Phone Number: +1 (800) 847-5620 (in the US); +1 (301) 604-7340 (outside the US)
Website: www.CertisBio.com

1.4. EMERGENCY TELEPHONE NUMBER

Emergency number: +1 (800) 255-3924 (in the US); +1 (813) 248-0585 (outside the US)
 [service provided by ChemTel under Contract Number MIS0001530]

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

OSHA Hazard Classification: Eye Damage, Category 2A
 Skin Sensitization, Category 1B
Signal Word: Warning
Hazard Statements: H318: Causes serious eye irritation
 H317: May cause an allergic skin reaction

Pictogram: 

Precautionary Statements: P264: Wash outside of gloves and hands thoroughly after handling.
 P272: Contaminated work clothing should not be allowed out of the workplace.

P280: Wear protective gloves and eye protection/face protection.
 P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310: Immediately call a POISON CENTER or doctor/physician.
 P333+P313: If skin irritation or rash occurs, Get medical advice/attention.
 P501: Dispose of contents/container in accordance with local/State/Federal regulations.

2.2. OTHER HAZARDS

Micro-organisms may have the potential to provoke sensitizing reactions.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient		CAS #	% w/w
Pyrethrins (contains 0.055 lb pyrethrins/gallon)		8003-34-7	0.75
<i>Beauveria bassiana</i> strain GHA (contains a minimum of 1 x 10 ⁸ viable spores/mL of product)		N/A	0.06
Hazardous Ingredient(s)	Classification	CAS #	% w/w
Pyrethrins	Category 4: Flammable liquids Category 3: Acute oral toxicity Category 3: Acute inhalation toxicity Category 4: Acute dermal toxicity Category 1: Short-term (acute) aquatic hazard Category 1: Long-term (chronic) aquatic hazard	8003-34-7	0.75
Petroleum distillates	Category 1: Aspiration hazard	Trade secret	50 – 90
Ethoxylated alcohols	Category 2: Skin irritation Category 1: Eye damage	Trade secret	1 - 20

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

General advice: In the event of any complaints or symptoms, avoid further exposure. Treat symptomatically. When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye contact: Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician.

Ingestion: Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

Skin contact: Wash off with soap and water. Get medical attention if irritation develops and persists.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Skin sensitization and/or moderate eye irritation.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Contains petroleum distillates. Vomiting may cause aspiration pneumonia.

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂)

Unsuitable Extinguishing Media: Water spray.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Hazardous combustion products: None noted. Normal products of combustion or thermal decomposition may generate toxic vapors: nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), and other hydrocarbons.

5.3. ADVICE FOR FIREFIGHTERS;

Protection of Firefighters: Keep upwind of fire. Wear protective clothing and self-contained breathing apparatus. Fight fire from a safe distance.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

For non-emergency personnel: Avoid substance contact. Ensure adequate ventilation. Evacuate the area and observe emergency procedures.

For emergency responders: Use appropriate personal protective equipment. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. ENVIRONMENTAL PRECAUTIONS

This product is potentially pathogenic to honey bees. Avoid applying to areas where honey bees are actively foraging or around bee hives. This product may be toxic to fish. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Methods for Containment and Clean-Up: Caution: spillages may be slippery. For small spills, contain the spill and stop the flow. Contain spillages with sand, earth, or any suitable inert absorbent material. Do not absorb in sawdust or other combustible absorbents. Transfer to a suitable container for disposal or recovery. Seal the container and handle in an approved manner. Reclaim material if possible.

Other Information: Dispose of in accordance with all Federal, State and local procedures.

6.4. REFERENCE TO OTHER SECTIONS

Refer to Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

GENERAL RECOMMENDATIONS:

- Keep containers hermetically sealed in a cool, dry place until ready for use.
- When mixing spray formulations, avoid splashing/aerosol generation. When spraying diluted formulation, observe all specified restrictions and wear appropriate protective equipment, as necessary.

HYGIENE MEASURES:

- Wash your hands immediately after handling this product, and once again before leaving the workplace.
- Contaminated work clothing should not be allowed out of the workplace.
- Do not eat, drink, or smoke when using this product.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in a cool, dry place between 40°F and 85°F. Product stability decreases with time at elevated temperatures above 85°F. Tightly reclose the container of unused product. Do not contaminate unused product with water. Keep locked up and out of the reach of children. Keep container tightly closed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

No occupational exposure limits have been established for the product. See section 3 "Information on ingredients."

8.2. EXPOSURE CONTROLS

Wear protective equipment to comply with good occupational hygiene practice. Do not eat, drink or smoke at the workplace.

8.2.1. ENGINEERING CONTROLS:

None.

8.2.2. PERSONAL PROTECTIVE EQUIPMENT:

Applicators and other handlers must wear the following:

RESPIRATORY PROTECTION

- Mixers/loaders and applicators must wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air-purifying respirator with an HE filter. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

EYE/FACE PROTECTION

- Protective eyewear

SKIN PROTECTION

- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, or Viton ≥ 14 mils
- Long-sleeved shirt
- Long pants
- Socks and shoes

8.2.3. ENVIRONMENTAL EXPOSURE CONTROLS

Discharge into the environment must be avoided. Do not contaminate surface and groundwater.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

<i>Physical Property</i>	<i>Result</i>
Appearance:	Green opaque liquid
Odor:	Characteristic
Odor Threshold:	Not determined
pH:	5.5 [range 5.0 – 6.0] (1% solution @ 25°C)
Melting Point / Freezing Point:	Not applicable
Initial Boiling Point:	282°C
Boiling Range:	Not determined
Flash Point:	350°F
Evaporation Rate:	Not determined
Flammability (solid, gas):	Not applicable
Lower & Upper Flammability Limits:	Not determined
Vapor Pressure:	0 Pa @ 20°C; 2 Pa (0 kPa) @ 50°C
Vapor Density (Air = 1):	Not determined

<i>Physical Property</i>	<i>Result</i>
Density:	0.88 g/mL @ 20°C
Solubility:	Forms an emulsion in water and hydrocarbon oil
Partition Coefficient (n-octanol/water):	Not determined
Auto-ignition Temperature:	260°C
Decomposition Temperature:	Not determined
Viscosity:	61.0 mPa @ 20°C; 29.0 mPa @ 40°C

9.2. OTHER INFORMATION

<i>Physical Property</i>	<i>Result</i>
Corrosivity:	≤ 0.0078 mm/yr

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

The product is stable at normal handling and storage conditions.

10.2. CHEMICAL STABILITY

Stable under normal ambient conditions and under the anticipated conditions of use.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

No known or expected hazardous reactions when handled and stored according to stated provisions.

10.4. CONDITIONS TO AVOID

None known.

10.5. INCOMPATIBLE MATERIALS

None known.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

None known or expected.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. LIKELY ROUTES OF EXPOSURE

Oral, dermal, inhalation.

11.2 SYMPTOMS RELATED TO PHYSICAL, CHEMICAL, AND/OR TOXICOLOGICAL CHARACTERISTICS

Moderate eye irritation, skin sensitization.

11.3 EFFECTS (DELAYED/IMMEDIATE/CHRONIC) FROM SHORT- AND LONG-TERM EXPOSURE

Minor to moderate eye irritation may occur acutely. Skin sensitization may occur from repeated dermal contact. See section 4.

11.4 ACUTE TOXICITY

Test	Results	US EPA Toxicity Category
Acute oral LD₅₀	Formulation not tested; all ingredients low toxicity (Tox III or IV)	IV
Acute dermal LD₅₀	Formulation not tested; all ingredients low toxicity (Tox III or IV)	IV
Acute inhalation LC₅₀	Formulation not tested; all ingredients low toxicity (Tox IV)	IV
Eye irritation:	Moderate/severe irritation/opacity; MMTS = 8.67 (24 hr)	II
Skin irritation:	Mildly irritating	IV
Respiratory or skin sensitization:	Skin sensitizer (Buehler method) Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.	NA

11.5 OTHER INFORMATION ON ADVERSE HEALTH EFFECTS

Test	Results
Repeated-Dose Toxicity	No information available.
Genetic Toxicity	No information available.
Reproductive Toxicity	No information available.
Carcinogenicity	No carcinogenic effects known. <u>NTP</u> : not listed <u>IARC</u> : not listed <u>OSHA</u> : not listed

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Species	Test	Study Duration	Conditions	Test substance	Results
American kestrel (<i>Falco sparverius</i>)	Avian acute oral			<i>Beauveria bassiana</i> oil flowable formulation	Not pathogenic or toxic at 1 µL/g BW
Avian species (unspecified)	Avian acute oral and dietary			Pyrethrins (unspecified)	Oral LD ₅₀ > 2,000 mg/kg bw Dietary LC ₅₀ > 5,620 mg/kg diet

Species	Test	Study Duration	Conditions	Test substance	Results
Fathead minnow (<i>Pimephales promelas</i>)	Embryo-larval toxicity/ pathogenicity	31-dy	Static renewal	<i>Beauveria bassiana</i> Technical	Not pathogenic or toxic at 7.5 x 10 ⁸ CFU/L; No adverse effects on percent hatch or survival of embryos
Rainbow trout (<i>Oncorhynchus mykiss</i>)	Acute freshwater fish	96-hr		Pyrethrum extract 57%	LC ₅₀ = 5.1 µg ai/L NOAEC = 3.1 µg ai/L
Coho salmon (<i>Oncorhynchus kisutch</i>)	Acute estuarine/ marine fish	96-hr		Pyrethrins (unspecified)	LC ₅₀ = 0.005 mg/L
Fathead minnow (<i>Pimephales promelas</i>)	Chronic freshwater fish	30-dy		Pyrethrum extract 57%	NOAEC = 1.9 µg ai/L LOAEC = 3.0 µg ai/L
Sheepshead minnow (<i>Cyprinodon variegatus</i>)	Fish early life-cycle			Pyrethrins (unspecified)	NOAEC = 0.7 µg ai/L
Water flea (<i>Daphnia magna</i>)	Acute freshwater invertebrate	21-dy	Static renewal	<i>Beauveria bassiana</i> Technical	EC ₅₀ > 9.3 x 10 ⁸ CFU/L NOEC = 4.7 x 10 ⁸ CFU/L LOEC = 9.3 x 10 ⁸ CFU/L
Crustacean (<i>Hyalella azteca</i>)	Acute freshwater invertebrate	96-hr		Pyrethrum stewardship blend	LC ₅₀ = 0.76 µg ai/L
Water flea (<i>Daphnia magna</i>)	Acute freshwater invertebrate	48-hr		Pyrethrum extract 57%	EC ₅₀ = 11.6 µg ai/L NOAEC = 3.7 µg ai/L
Water flea (<i>Daphnia magna</i>)	Chronic freshwater invertebrate	35-dy		Pyrethrum extract 57%	NOAEC = 0.86 µg ai/L LOAEC = 2.0 µg a.i/L
Mysid	Chronic estuarine/ marine invertebrate			Pyrethrum extract 57%	NOAEC = 0.12 µg total pyrethrins/L
Flea beetle (<i>Aphona flava</i> Guill.)	Acute nontarget insect	10-dy	1.2x rate	<i>Beauveria bassiana</i> Technical	LD ₅₀ = 2.11 x 10 ¹³ conidia/A LD ₉₀ = 9.4 x 10 ¹³ conidia/A
Mealworm (<i>Tenebrio molitor</i>)	Acute nontarget insect	10-dy		<i>Beauveria bassiana</i> Technical	Does not readily infect <i>T. molitor</i> under test conditions
Pirate bug (<i>Xylocoris flavipes</i>)	Acute nontarget insect	10-dy		<i>Beauveria bassiana</i> Technical	LD ₅₀ = 1.55 x 10 ¹⁵ conidia/A LD ₉₀ = 3.3 x 10 ¹⁶ conidia/A
Honey bee (<i>Apis mellifera</i>)	Acute honey bee	7-dy		<i>Beauveria bassiana</i> Technical	LD ₅₀ = 2.2 x 10 ⁵ conidia/bee
Earthworm (<i>Eisenia foetida</i>)	Acute earthworm	14-dy		<i>Beauveria bassiana</i> Technical	LC ₅₀ > 1,000 mg/kg dry soil

12.2. PERSISTENCE AND DEGRADABILITY

This product has low persistence, and its components are easily biodegradable.

12.3. BIOACCUMULATIVE POTENTIAL

Not bioaccumulative.

12.4. MOBILITY IN SOIL

Conidia of *Beauveria bassiana* are not very mobile in soil and generally remain on the surface of soil. The movement of conidia vertically, through the soil profile, is positively correlated with high infiltration rates in soil.

12.5. OTHER ADVERSE EFFECTS

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product must be disposed of on-site or at an approved waste disposal facility in accordance with all Federal and local regulations.

SECTION 14: TRANSPORTATION INFORMATION

UN NUMBER	UN PROPER SHIPPING NAME	TRANSPORT HAZARD CLASS(ES)
None	Not applicable	Not applicable
PACKING GROUP	ENVIRONMENTAL HAZARDS	SPECIAL PRECAUTIONS FOR USER
Not applicable	Not applicable	None
TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL73/78 AND THE IBC CODE		
Not applicable		

SECTION 15: REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

EPA/FIFRA

This product is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements may differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticidal chemicals. The pesticide label also includes other important information, including directions for use.

- EPA Signal Word: Warning.

OSHA	TSCA STATUS	CERCLA REPORTABLE QUANTITY
Not applicable	Exempt	Not applicable
SARA TITLE III	RCRA STATUS	OTHER

Section 302: Not applicable Section 311/312: Not applicable Section 313: Not applicable	Not applicable	None
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SECTION 16: OTHER INFORMATION

ABBREVIATIONS

OSHA	US Occupational Health and Safety Administration
EPA	US Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TSCA	Toxic Substances Control Act
PEL	Permissible exposure limit
STOT	Specific target organ toxicity
TLV	Threshold limit value
TWA	Time-weighted average
LD ₅₀	Median lethal dose: dose resulting in 50% mortality in the test species
LC ₅₀	Median lethal concentration: concentration resulting in 50% mortality in the test species
EC ₅₀	Median effective concentration: concentration resulting in 50% reduction in algae growth or algae growth rate, or <i>Daphnia</i> immobilization
PPE	Personal protective equipment
PBT	Persistent, bioaccumulative, and toxic
vPvB	Very persistent, very bioaccumulative
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (Marine Pollution 1973/1978 ,

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