

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: LifeGard® WG
Product Type: Wettable Granule
EPA Registration No. 70051-119
Active Ingredient: *Bacillus mycooides* isolate J
CAS No.: Not applicable

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

Identified uses: For use on vegetables, fruits, nuts, vine crops, and field crops to reduce occurrence and severity of plant diseases on listed crops.
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 Irritation 2B
Signal Word: Warning
Hazard Statements: Causes eye irritation
Pictogram: None
Precautionary Statements: P264+P265: Wash hands thoroughly after handling. Do not touch eyes.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P337+P317: If eye irritation persists: Get medical help.

2.2. OTHER HAZARDS

Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient		CAS #	% w/w
<i>Bacillus mycooides</i> isolate J		Not applicable	40%
Hazardous Ingredient(s)	Classification	CAS #	% w/w
LifeGard® WG formulated product	Eye Irritation 2B	N/A	100%

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses if present after the first five minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If inhaled: Move person 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 poison control center or doctor for further treatment advice.

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

None noted.

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

None noted.

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable Extinguishing Media: Dry chemical, foam, carbon dioxide, water.

Unsuitable Extinguishing Media: None known.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Hazardous combustion products: None known.

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

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 cleaning equipment or 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. Sweep up loose material keeping dust to a minimum. 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

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original container only. Keep container closed when not in use. Store at temperatures below 77°F (25°C).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. CONTROL PARAMETERS****Substance***Bacillus mycooides* isolate J**Occupational Exposure Limits**OSHA PELs: not establishedACGIH TLVs: not established

No occupational limit assigned.

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:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR §170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

8.2.2. PERSONAL PROTECTIVE EQUIPMENT:

Applicators and other handlers must wear:

RESPIRATORY PROTECTION

- NIOSH-approved particulate respirator with any N, R, or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. (Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.)

EYE/FACE PROTECTION

- Protective eyewear.

SKIN PROTECTION

- Long-sleeved shirt
- Long pants
- Socks and shoes

8.2.3. ENVIRONMENTAL EXPOSURE CONTROLS

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 cleaning equipment or disposing of equipment washwater or rinsate.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

<i>Physical Property</i>	<i>Result</i>
Appearance:	Brown granules
Odor:	Yeast-like
Odor Threshold:	Not applicable
pH:	5.5 – 7.5 (1% dilution)
Melting Point / Freezing Point:	Not applicable
Initial Boiling Point:	Not applicable
Boiling Range:	Not applicable
Flash Point:	Not applicable
Evaporation Rate:	Not applicable
Flammability (solid, gas):	Not applicable
Lower & Upper Flammability Limits:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density (Air = 1):	Not determined
Density:	0.65 – 0.75 g/mL (CIPAC MT 186)
Solubility:	Soluble in water
Partition Coefficient (n-octanol/water):	Not applicable
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Not applicable
Viscosity:	Not applicable
Other relevant properties:	Not applicable

9.2. OTHER INFORMATION

<i>Physical Property</i>	<i>Result</i>
Not available.	

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

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

10.2. CHEMICAL STABILITY

Stable for up to two years when handled and stored according to stated provisions.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

None known or expected.

10.4. CONDITIONS TO AVOID

None known or expected.

10.5. INCOMPATIBLE MATERIALS

None known or expected.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

None known or expected.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. LIKELY ROUTES OF EXPOSURE

Skin and eye contact; inhalation (diluted spray mist).

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

None noted.

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

None noted. See section 4.

11.4 ACUTE TOXICITY

Test	Results	US EPA Toxicity Category
Acute oral LD₅₀	>5000 mg/kg bw (rat)	IV
Acute dermal LD₅₀	>5050 mg/kg bw (rat)	IV
Acute inhalation LC₅₀	No toxicity expected	N/A
Eye irritation:	Severely irritating (MMTS = 52.0) but reversible within 48 hours	III
Skin irritation:	Nonirritant (PII = 0.00)	IV
Respiratory or skin sensitization:	Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.	Not applicable

11.5 OTHER INFORMATION ON ADVERSE HEALTH EFFECTS

Test	Results
Repeated-Dose Toxicity	No information available
Genetic Toxicity	No information available

Test	Results
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
Northern bobwhite quail (<i>Colinus virginianus</i>)	Avian oral	14-day	Single dose	BmJ TGAI	LD ₅₀ >2250 mg/kg
Rainbow trout (<i>Oncorhynchus mykiss</i>)	Freshwater fish	96-hour	Static	BmJ TGAI	LC ₅₀ >6.22 x 10 ⁶ CFU/mL
Cladoceran (<i>Daphnia magna</i>)	Freshwater invertebrate	48-hour	Static	BmJ TGAI	LC ₅₀ >6.22 x 10 ⁶ CFU/mL
Honey bee (<i>Apis mellifera</i>)	Honeybee tox/path	11-day	Dietary	BmJ TGAI	LD ₅₀ =0.24 g/L
Green lacewing (<i>Chrysoperla rufilabris</i>)	Nontarget insect	21-day	Oral	BmJ TGAI	LD ₅₀ >4.5 x 10 ⁸ CFU/mL

12.2. PERSISTENCE AND DEGRADABILITY

Bacillus mycoides isolate J is a naturally-occurring microorganism commonly found in agricultural settings (i.e., water, soils and plant roots) and is present on fresh produce with no known adverse effects; this is consistent with the lack of adverse effects seen in the submitted toxicological studies. *B. mycoides* isolate J is not known to produce mammalian toxins of foodborne concern, and no foodborne disease outbreaks associated with *B. mycoides* or toxin production from *B. mycoides* in food or feed have been reported..

12.3. BIOACCUMULATIVE POTENTIAL

Bacillus mycoides isolate J populations are expected to decline significantly (over 1,000x reduction) on foliar surfaces between 7 and 13 days after application. Data also indicated that, on a per acre basis, exposures to *Bacillus mycoides* isolate J are minimal in comparison to naturally occurring or resident *Bacillus mycoides* populations.

12.4. MOBILITY IN SOIL

Not applicable.

12.5. OTHER ADVERSE EFFECTS

None noted. See 12.2 above.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Disposal: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

SECTION 14: TRANSPORTATION INFORMATION

UN NUMBER	UN PROPER SHIPPING NAME	TRANSPORT HAZARD CLASS(ES)
None. Not applicable.	None. Not applicable.	Not applicable.
PACKING GROUP	ENVIRONMENTAL HAZARDS	SPECIAL PRECAUTIONS FOR USER
Not applicable.	None.	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		
<p>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.</p> <ul style="list-style-type: none"> EPA Signal Word: Caution 		
OSHA	TSCA STATUS	CERCLA REPORTABLE QUANTITY
N/A	Exempt	N/A
SARA TITLE III	RCRA STATUS	OTHER
Section 302: N/A Section 311/312: N/A Section 313: N/A	N/A	N/A

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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