

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® LC
Product Type: Liquid Concentrate
EPA Registration No. 70051-126
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: Not classified
Signal Word: None
Hazard Statements: None
Pictogram: None
Precautionary Statements: None

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	99.5%
Hazardous Ingredient(s)	Classification	CAS #	% w/w
None	N/A	N/A	N/A

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

No specific measures required. Treat symptomatically.

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. Contain spillages with sand, earth, or any suitable absorbent material. 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 established

ACGIH 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

- None required. Take care to avoid splashing.

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:	Tan liquid
Odor:	Fishy
Odor Threshold:	Not applicable
pH:	4.3-5.0
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:	0.99 – 1.1 g/cm ³
Solubility:	Soluble in water
Partition Coefficient (n-octanol/water):	Not applicable
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Not applicable
Viscosity:	22-35 cps
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

<i>Test</i>	<i>Results</i>	<i>US EPA Toxicity Category</i>
Acute oral LD₅₀	>5000 mg/kg bw (rat)	IV
Acute dermal LD₅₀	>5050 mg/kg bw (rat)	IV
Acute inhalation LC₅₀	>2.33 mg/L (rat)	IV
Eye irritation:	Practically nonirritating to the eye (MMTS 2.0)	IV
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

<i>Test</i>	<i>Results</i>
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.

{For containers less than or equal to 5 gallons}

Completely empty bottle into application equipment. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or dispose of empty bottle in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

{For containers greater than 5 gallons}

Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or dispose of empty container 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
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: None

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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