



THEIA[®] Fungicide

SAFETY DATA SHEET

OSHA HCS (29 CFR 1910.1200)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Chemical Name	<i>Bacillus subtilis</i> strain AFS032321
Trade Names	THEIA [®] Fungicide
CAS No.	None assigned
Product code	BF200-01
EPA Identification Number	EPA Reg. No. 94713-2

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Fungicide.
Uses Advised Against	It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Details of the supplier of the safety data sheet

Company Identification	Certis Biologicals 9145 Guilford Rd Suite 175 Columbia, MD 21046 United States of America
Telephone	(800) 250-5024

Emergency telephone number

Emergency Phone No.	CHEMTREC 24 hr. 1-800-424-9300 / 1 (703) 527-3887 (Collect calls accepted). Chemtrec Account No.: CCN803914
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SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

OSHA HCS (29 CFR 1910.1200)	Not classified as dangerous for supply/use.
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Label elements

This is a pesticide product registered with the United States 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 (SDS) and for workplace labels of non pesticide chemicals. The labeling information below applies to non-pesticide workplace labels. For pesticide label information, refer to Section 15.

Hazard Symbol(s)	None
Signal Word(s)	None
Hazard Statement(s)	None
Precautionary Statement(s)	Avoid breathing dust. Wash hands and exposed skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. IF ON SKIN: Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention. Treat symptomatically. Contaminated clothing should be laundered before reuse. Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice. Observe directions on label and instructions for use. See Also Section 15.



THEIA[®] Fungicide

Other hazards	Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.
Additional Information	None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition/information on ingredients	%W/W	CAS No.
<i>Bacillus subtilis</i> strain AFS032321	100	None assigned

Additional Information – None

SECTION 4: FIRST AID MEASURES



Description of first aid measures

Inhalation	Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing is laboured, administer oxygen. Treat symptomatically.
Skin Contact	Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention. Treat symptomatically. Contaminated clothing should be laundered before reuse.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention.
Ingestion	Do not give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell. Rinse mouth.
Most important symptoms and effects, both acute and delayed	Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.
Indication of any immediate medical attention and special treatment needed	Call a POISON CENTER or doctor/physician if you feel unwell.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

-Suitable Extinguishing Media	Extinguish with carbon dioxide, dry chemical, foam or water spray.
-Unsuitable Extinguishing Media	None known.

Special hazards arising from the substance or mixture None known.

Advice for fire-fighters Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures Avoid breathing dust. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Wear protective gloves/protective clothing/eye protection/face protection.

THEIA[®] Fungicide

Environmental precautions	Observe directions on label and instructions for use. See Also Section 15. Avoid run off to waterways and sewers.
Methods and material for containment and cleaning up	Sweep or shovel-up spillage and remove to a safe place. Transfer to a container for disposal or recovery. Avoid generation of dust.
Reference to other sections	None
Additional Information	None

SECTION 7: HANDLING AND STORAGE




Precautions for safe handling	Avoid breathing dust. Wear protective gloves/protective clothing/eye protection/face protection. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Wash hands and exposed skin thoroughly after handling. Observe directions on label and instructions for use. See Also Section 15.
Conditions for safe storage, including any incompatibilities	
-Storage temperature	Store at room temperature. Do not allow material to freeze.
-Incompatible materials	Strong oxidising agents.
Specific end use(s)	Fungicide

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Occupational Exposure Limits

SUBSTANCE.	CAS No.	(8hr TWA)		(STEL)		Note:
		PEL (OSHA)	TLV (ACGIH)	PEL (OSHA)	TLV (ACGIH)	
None known.	-----	-----	-----	-----	-----	-----

Exposure controls

Appropriate engineering controls	Observe directions on label and instructions for use. See Also Section 15.
Personal protection equipment	
Eye/face protection 	Wear protective eyewear (goggles, face shield, or safety glasses). Observe directions on label and instructions for use. See Also Section 15.
Skin protection (Hand protection/ Other) 	Impervious gloves. Observe directions on label and instructions for use. See Also Section 15.
Respiratory protection 	Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Observe directions on label and instructions for use. See Also Section 15.



THEIA[®] Fungicide

Thermal hazards	Not normally required.
Additional Information	Observe directions on label and instructions for use. See Also Section 15.
Environmental Exposure Controls	Avoid run off to waterways and sewers.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid / Powder
Colour.	tan
Odour	Not available.
Odour Threshold (ppm)	Not available.
pH (Value)	Not applicable.
Melting Point (°C) / Freezing Point (°C)	Not available.
Boiling point/boiling range (°C):	Not available.
Flash Point (°C)	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	Combustible solid.
Explosive Limit Ranges	Not applicable.
Vapour pressure (Pascal)	Not applicable.
Vapour Density (Air=1)	Not applicable.
Density (g/ml)	0.43 – 0.52
Solubility (Water)	Not available.
Solubility (Other)	Not available.
Partition Coefficient (n-Octanol/water)	Not available.
Auto Ignition Point (°C)	Not available.
Decomposition Temperature (°C)	Not available.
Kinematic Viscosity (cSt)	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
Other information	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	No hazardous reactions known if used for its intended purpose.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None anticipated.
Conditions to avoid	Incompatible materials
Incompatible materials	Strong oxidising agents.
Hazardous decomposition product(s)	None known.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Inhalation, Skin Contact, Eye Contact

Information on toxicological effects

Substances

Acute toxicity	Oral: LD50 >5.4 x 10 ⁸ viable CFU (rat) Inhalation: LC50 >5.89 x 10 ⁸ viable CFU, intra-tracheal dose (rat)
Skin corrosion/irritation	Causes mild skin irritation.
Serious eye damage/irritation	May cause eye irritation.



THEIA[®] Fungicide

Respiratory or skin sensitization Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Skin sensitization: Not to be expected.

Germ cell mutagenicity Not to be expected.

Carcinogenicity Not available.

NTP	IARC	ACGIH	OSHA
No.	No.	No.	No.

Reproductive toxicity Not to be expected.
STOT - single exposure Not to be expected.
STOT - repeated exposure Not to be expected.
Aspiration hazard Not available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Short term EC50 (96 hour): $>3.0 \times 10^6$ CFU/mL (*Oncorhynchus mykiss*)
EC50 (48 hour): $>6.05 \times 10^6$ CFU/mL (*Daphnia magna*)

Long Term NOEC (21 days): $>6.05 \times 10^6$ CFU/mL (*Daphnia magna*)

Persistence and degradability

Not persistent.

Bioaccumulative potential

The product has no potential for bioaccumulation.

Mobility in soil

The product is predicted to have low mobility in soil.

Results of PBT and vPvB assessment

Not classified as PBT.

Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal should be in accordance with local, state or national legislation. Consult an accredited waste disposal contractor or the local authority for advice. Observe directions on label and instructions for use. See Also

Section 15.

Additional Information

None known.

SECTION 14: TRANSPORT INFORMATION

	Land transport (U.S. DOT) *	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN number			
Proper Shipping Name			
Transport hazard class(es)			
Packing group			
Hazard label(s)			
Environmental hazards			
Special precautions for user			

Not classified as dangerous for transport.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

TSCA (Toxic Substance Control Act) - Inventory Status: All components listed and active, or exempt. This is a registered pesticide product regulated under Federal Insecticide, Fungicide, and Rodenticide Act.



THEIA[®] Fungicide

EPA FIFRA Information for SDS Section 15 (Regulatory Information):

This is a pesticide product registered with the United States 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 sheet (SDS), and for workplace labels of non pesticide chemicals.

The hazard information required on the pesticide label is reproduced below:

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if absorbed through skin, swallowed, or inhaled. Avoid contact with skin, eyes or clothing. Causes moderate eye irritation. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Shoes plus socks
- Long pants and long-sleeved shirt
- Waterproof gloves

Mixer/loaders and applicators must wear a NIOSH-approved particulate respirator with an N, R, or P filter with NIOSH approval number per 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.

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [(40 CFR 170.607 (d) and (e))], the handler PPE requirements may be reduced or modified as specified in 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 break-down.

USER SAFETY RECOMMENDATIONS

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

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.

This product may be harmful to bees and other pollinating insects exposed to direct treatment. Do not apply this product while bees or other pollinating insects are actively visiting the treatment area.

The pesticide label also includes other important information, including directions for use.

Designated Hazardous Substances and Reportable Quantities (40 CFR 302.4):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)
None	----	-----	-----

SARA 311/312 - Hazard Categories: See SECTION 2 - HAZARDS IDENTIFICATION



THEIA[®] Fungicide

SARA 313 - Toxic Chemicals (40 CFR 372):

Chemical Name	CAS No.	Typical %wt.
None	----	-----

SARA 302 - Extremely Hazardous Substances(40 CFR 355):

Chemical Name	CAS No.	Typical %wt.	RQ (Pounds)	TPQ (Pounds)
None	----	-----	-----	-----

Proposition 65 (California):

Chemical Name	CAS No.	Typical %wt.	Hazards
None	----	-----	-----

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16

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