

SAFETY DATA SHEET**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME: **STARGUS[™]**

USEPA REGISTRATION NO: 84059-28

MANUFACTURER: Marrone Bio Innovations

ADDRESS: 1540 Drew Avenue, Davis CA, 95618

EMERGENCY PHONE: INFOTRAC Chemical Response System

US and Canada 1-800-535-5053 (24 hours)
International 1-352-323-3500 (24 hours)

OTHER CALLS: Marrone Bio Innovations 530-750-2800 (9am to 5 pm PST)

FAX PHONE: Marrone Bio Innovations 530-750-2808

PRODUCT USE: Bio-based Fungicide

SECTION 2: HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW:**

May be harmful if swallowed
May be harmful in contact with skin
Causes eye irritation.
May be harmful if inhaled

HAZARD SYMBOLS:

Pictogram	No symbol
Signal Word	Warning

HAZARD STATEMENT(S):

H303	May be harmful if swallowed
H313	May be harmful in contact with skin
H320	Causes eye irritation.
H333	May be harmful if inhaled

PRECAUTIONARY STATEMENTS

P264	Wash exposed areas thoroughly after handling
P304 + 312	IF INHALED: Call a doctor if you feel unwell
P305 + P351 + P338	IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing
P312	Call a doctor if you feel unwell
P337 + P313	If eye irritation persists: get medical attention.
P501	Dispose of in accordance with all applicable local, regional, national, and international regulations.

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POTENTIAL ROUTES OF ENTRY: Oral, eye, and inhalation.

CARCINOGENICITY:

OSHA: Not listed ACGIH: Not listed NTP: Not listed. IARC: Not listed

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

SYNONYM: MBI-110-AF5, MBI-110 EP AF5

ACTIVE INGREDIENT:

Bacillus amyloliquifaciens strain F727 in spent fermentation media, minimum 1 x 10⁸ CFU/mL

CAS NO.: None

% WT:
96 %

EXPOSURE LIMITS: None Established

OTHER INGREDIENTS:

4 % inert, non-reactive

SECTION 4: FIRST AID MEASURES

EYES: Hold eye open and rinse slowly and gently with water for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Do not use an eye ointment. Call poison control center or doctor for treatment advice.

SKIN: Remove contaminated clothing. Rinse skin immediately with plenty of water for at least 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or physician. Do not give anything by mouth to an unconscious person.

INHALATION: Remove person to fresh air. If the 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 treatment.

SECTION 5: FIRE-FIGHTING MEASURES**FLAMMABLE LIMITS IN AIR, (% BY VOLUME)**

UPPER: Not applicable.

LOWER: Not applicable.

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

NFPA HAZARD CLASSIFICATION

HEALTH: 1

FLAMMABILITY: 0

REACTIVITY: 0

HMIS HAZARD CLASSIFICATION

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HEALTH: 1

FLAMMABILITY: 0

REACTIVITY: 0

EXTINGUISHING MEDIA: Use extinguishing media appropriate for the surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: None

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Wear suitable clothing such as eye protection, long-sleeved shirt, pants and shoes with socks. If spilled, contain - prevent run off into drains and waterways. Absorb liquid with an inert absorbent material. Seal absorbent material in a closed labeled container and dispose of in accordance with local ordinances.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Store in the closed, original container in a well-ventilated area out of direct sunlight. Keep containers closed when not in use. Empty container completely and dispose of in accordance with all applicable federal, state and local environmental regulations.

OTHER PRECAUTIONS: No special precautions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Spill controls should be provided for working with large quantities.

VENTILATION: No TLV assigned. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and aerosols below the exposure levels. Ensure that eyewash stations and safety showers are proximal to the work-station location.

RESPIRATORY PROTECTION: Use a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95 or P-95.

EYE PROTECTION: Safety goggles or glasses with side shields advisable when handling this product.

SKIN PROTECTION: Wear gloves made of Latex or other impervious material.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Clothing to prevent prolonged skin contact as needed such as long-sleeved shirt, long pants and shoes with socks.

WORK HYGIENIC PRACTICES: Wash any contamination from skin or eyes immediately. Wash hands and exposed skin before eating, drinking, smoking, after work, or using the toilet.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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PHYSICAL STATE:	Liquid
COLOR:	Creamy tan to brown
ODOR:	Musty
pH:	6 to 7
DENSITY:	1 g/ mL
SOLUBILITY IN WATER:	Miscible in water
BOILING POINT/RANGE:	Not determined
FREEZING/MELTING POINT:	Not determined
FLASH POINT:	Not determined
EVAPORATION RATE:	Not determined
FLAMMABILITY (SOLID. GAS):	Not determined
UPPER FLAMMABILITY LIMITS:	Not determined
LOWER FLAMMABILITY LIMITS:	Not determined
VAPOR PRESSURE:	Not determined
VAPOR DENSITY:	Not determined
RELATIVE DENSITY:	Not determined
SOLUBILITY IN OTHER SOLVENTS:	Not determined
PARTITION COEFFICIENT:	Not determined
AUTOIGNITION TEMPERATURE:	Not determined
DECOMPOSITION TEMPERATURE:	Not determined
KINEMATIC VISCOSITY:	Not determined
DYNAMIC VISCOSITY:	Not determined
EXPLOSIVE PROPERTIES:	Not determined
OXIDIZING PROPERTIES:	Not determined

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable.

INCOMPATIBILITY (MATERIAL TO AVOID): None known

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None known

HAZARDOUS POLYMERIZATION: Not known to occur

CONDITIONS TO AVOID (POLYMERIZATION): None

SECTION 11: TOXICOLOGICAL INFORMATION

WARNING: This product is a biological pesticide.

ACUTE ORAL TOXICITY LD ₅₀ :	>5000 mg/kg (rat). Category 5
ACUTE DERMAL TOXICITY LD ₅₀ :	>5050 mg/kg (rat). Category 5
ACUTE INHALATION LC ₅₀ :	>5.19 mg/L (rat). Category 5
EYE IRRITATION:	Minimally irritating (rabbit). Category 2B
SKIN IRRITATION:	Non-irritating (rabbit). Not categorized
SKIN SENSITIZATION:	Not known.
IV PATHOGENICITY:	Non-toxic; non-pathogenic (dose of 2.9 x 10 ⁹ CFU/rat) Category 4

SAFETY DATA SHEET**SECTION 12: ECOLOGICAL INFORMATION**

No toxic effects demonstrated on adult honey bees when exposed orally to a limit dose of 1000 µg TGAI/bee after 16 days of post exposure observation (OPPTS 885.4380).

This product has currently not been evaluated for acute and long-term toxicity to avian life, freshwater aquatic life, and beneficial insects.

Prior to treating entire crop where the release of beneficial insects serve as part of an Integrated Pest Management (IPM) program, consult with an extension specialist, a pest control advisor (PCA) or with the product manufacturer.

For terrestrial uses only: 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 wash water or rinsate.

Sensitive areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow residue from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals. As a precaution, do not allow product to drift to blooming crops or weeds if bees are foraging. Minimize spray drift away from the target area to reduce effects to other non-target insects

Bioconcentration potential: This material is not expected to bioconcentrate in organisms.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not reuse containers. Dispose of in accordance with all applicable federal, state, and local environmental regulations.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT: Not regulated
IATA DGR: Not regulated
IMDG: Not regulated

Freight Classification: Fungicide. See NMFTA code.

SECTION 15: REGULATORY INFORMATION**INTERNATIONAL REGULATIONS**

TSCA: Exempt

U.S. FEDERAL REGULATIONS

CERCLA: Not applicable.

SARA TITLE III HAZARD CLASSIFICATION SECTIONS 311 AND 312:

Immediate (acute) Health: None

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Delayed (chronic) Health: None
Fire: None
Sudden Release of Pressure: None
Reactivity: None

SARA 313: Not determined

U.S. STATE REGULATIONS: None

US STATE RIGHT-TO-KNOW REGULATIONS: None

California Proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

SPECIAL HAZARDS: Not Determined

Date Issued: 12 December 2017
Revision Date: 1
Revision Note: Update USEPA registration number

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