SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: GRANDEVO®

REGISTRATION NO: 84059-17

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 Insecticide/ bio-protectant

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:
Causes eye irritation

HAZARD SYMBOLS:
Pictogram (NONE)
Signal Word Warning

HAZARD STATEMENT:
H320 Causes eye irritation

PRECAUTIONARY STATEMENTS
P264 Wash exposed areas thoroughly after handling.
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 + P313 If eye irritation persists: Get medical attention.

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

CARCINOGENICITY:
OSHA: Not listed  ACGIH: Not listed  NTP: Not listed.  IARC: Not listed
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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

synonym: MBI-203 DF, GRANDEVO ST

ACTIVE INGREDIENT:
Chromobacterium subtsugae strain PRAA4-1

CAS NO. None % WT 30 EXPOSURE LIMITS None Established

OTHER INGREDIENTS:
70.0 % inert, non-reactive.

SECTION 4: FIRST AID MEASURES

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.

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.

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: 0 FLAMMABILITY: 0 REACTIVITY: 0

HMIS HAZARD CLASSIFICATION
HEALTH: 0 FLAMMABILITY:0 REACTIVITY: 0

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

SPECIAL FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
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UNUSUAL FIRE AND EXPLOSION HAZARDS: None

HAZARDOUS DECOMPOSITION PRODUCTS: None

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES
Use personal protective equipment. Avoid dust formation, Avoid breathing dust, vapor, or mist. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see Section 8.

ENVIRONMENTAL PRECAUTIONS
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING
Further processing of solid materials may result in the formation of combustible dusts. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

CONDITIONS FOR SAFE STORAGE
Keep container tightly closed in a dry and well-ventilated place. Store in original container and out of direct sunlight.

OTHER PRECAUTIONS: No special precautions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Spill controls and dust control apparatus 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 dry powder.
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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL STATE:</td>
<td>Powder</td>
</tr>
<tr>
<td>COLOR:</td>
<td>Dark brown powder</td>
</tr>
<tr>
<td>ODOR:</td>
<td>Fruity</td>
</tr>
<tr>
<td>pH:</td>
<td>7 to 9</td>
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<tr>
<td>DENSITY:</td>
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<tr>
<td>BOILING POINT:</td>
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<tr>
<td>MELTING POINT:</td>
<td>Not applicable</td>
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<tr>
<td>SOLUBILITY IN WATER:</td>
<td>Dispersible in water</td>
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<tr>
<td>FLASH POINT:</td>
<td>Not determined</td>
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<tr>
<td>EVAPORATION RATE:</td>
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</tr>
<tr>
<td>FLAMMABILITY (SOLID. GAS):</td>
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</tr>
<tr>
<td>UPPER FLAMMABILITY LIMITS:</td>
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</tr>
<tr>
<td>LOWER FLAMMABILITY LIMITS:</td>
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<tr>
<td>VAPOR PRESSURE:</td>
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</tr>
<tr>
<td>VAPOR DENSITY:</td>
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<tr>
<td>RELATIVE DENSITY:</td>
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<tr>
<td>SOLUBILITY IN OTHER SOLVENTS:</td>
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<td>PARTITION COEFFICIENT:</td>
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<td>AUTOIGNITION TEMPERATURE:</td>
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<td>DECOMPOSITION TEMPERATURE:</td>
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<td>KINEMATIC VISCOSITY:</td>
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<td>DYNAMIC VISCOSITY:</td>
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<td>EXPLOSIVE PROPERTIES:</td>
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<tr>
<td>OXIDIZING PROPERTIES:</td>
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</table>

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

<table>
<thead>
<tr>
<th>Toxicity Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACUTE ORAL TOXICITY LD\textsubscript{50}:</td>
<td>LD\textsubscript{50}&gt;5000 mg/kg (rat). Not categorized</td>
</tr>
<tr>
<td>ACUTE DERMAL TOXICITY LD\textsubscript{50}:</td>
<td>LD\textsubscript{50}&gt;5050 mg/kg (rat). Not categorized</td>
</tr>
</tbody>
</table>
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ACUTE INHALATION LC₅₀: LC₅₀ > 5.11 mg/L (rat). Not categorized
EYE IRRITATION: Mild irritation; clears within 72 hours (rabbit) Category 2B
SKIN IRRITATION: Does not produce irritation (rabbit) Not categorized
SKIN SENSITIZATION: Non-sensitizing (guinea pigs) Not categorized

SECTIO N 12: ECOLOGICAL INFORMATION

Toxicity to freshwater aquatic life (OECD 203): Rainbow trout (96-hour acute toxicity)
LC₅₀ > 100 mg/L; NOEC > 100 mg/L

Acute Oral Toxicity to Honey Bee (Apis mellifera) (OECD 213): 48-hour LD₅₀ > 100 µg a.i./bee

Acute Contact Toxicity Honey Bee (Apis mellifera) (OECD 214): 48-hour LD₅₀ > 100 µg a.i./bee

Testing all beneficial insects, in all situations, mixtures and combinations, is not feasible. 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 spray to drift 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. 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: Insecticide. See NMFTA code.

SECTION 15: REGULATORY INFORMATION
Allowable Tolerances:
Residues of GRANDEVO® are exempted from the requirement of a tolerance when used in accordance with good agricultural practices and label application instructions to agricultural commodities directed on the product label.

U.S. FEDERAL REGULATIONS
  TSCA: Exempt
  CERCLA: Not applicable.

SARA TITLE III HAZARD CLASSIFICATION SECTIONS 311 AND 312:
  Immediate (acute) Health: None
  Delayed (chronic) Health: None
  Fire: None
  Sudden Release of Pressure: None
  Reactivity: None

US STATE RIGHT TO KNOW REGULATIONS:
  New Jersey Right To Know Components CAS No.
  Kaolin 1332-58-7
  Pennsylvania Right To Know Components CAS No.
  Kaolin 1332-58-7
  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

NFPA HAZARD CLASSIFICATION
  HEALTH: 0  FLAMMABILITY: 0  REACTIVITY: 0

HMIS HAZARD CLASSIFICATION
  HEALTH: 0  FLAMMABILITY: 0  REACTIVITY: 0

SPECIAL HAZARDS: Not Determined

Date Issued: 03 July 2018
Revision: 4
Revision Note: Update synonyms

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