SAFETY DATA SHEET

DiPel DF Biological Insecticide Dry Flowable

SDS# VBC-0031 Revision 0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

1.1 Product Identifier
MATERIAL NAME: DiPel DF Biological Insecticide Dry Flowable

Synonyms: Dipel WG, DiPel WDG, Bactospeine WG, DiPel Pro DF. DiPel 6.4 WG, Bactospeine DF, BioMax DF, BioBit DF

EPA Reg No.: 73049-39
Code Number: 80250
List Number: 12046
Chemical Family: Microbial, B.t.k. strain ABTS-351

Substance Registration Number(s)[REACH]: N/A

1.2 Relevant Identified Uses and Uses Advised Against
Identified Uses: Agricultural Insecticide
Uses Advised Against: It is a violation of Federal law to use this product in a manner inconsistent with its FIFRA pesticide labeling.

1.3 Details of the supplier of the Safety Data Sheet
Supplied By: Valent BioSciences Corporation
870 Technology Way
Libertyville, Illinois 60048

1.4 EMERGENCY TELEPHONE NUMBERS
Emergency Health or Spill:
Outside the United States: 651-632-6184
Within the United States: 877-315-9819

2. HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture
Not Classified

2.2 Labeling Elements
Symbol(s)
Symbols not required

Signal Word
WARNING

Hazard Statement(s)
Precautionary Statement:

Prevention
 Avoid breathing dust/mistspray
 Wash thoroughly after handling
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective clothing/eye protection/face protection
 Avoid release to the environment

Response
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If eye irritation persists: Get medical advice/attention.
 IF ON SKIN: Wash with soap and water.
 Take off contaminated clothing and wash it before reuse.

Disposal
 Dispose of contents/container in accordance with local/regional/national regulations.

Safety
 Avoid contact with skin and eyes
 In case of contact with skin or eyes, rinse immediately w/plenty of water and seek medical advice.
 Wear suitable protective clothing and eye/face protection

2.3 Other Hazards
 None identified.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component Name</th>
<th>EC No.</th>
<th>(Classification)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>68038-71-1</td>
<td>Btk Fermentation solids</td>
<td>Not classified</td>
<td>54.0</td>
<td></td>
</tr>
<tr>
<td>Trade Secret</td>
<td>Other ingredients</td>
<td>Not classified</td>
<td>46.0</td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of First Aid Measures
 GENERAL: In all cases of doubt, seek medical attention.

EYES: Remove from source of exposure. Flush with copious amounts of water. Remove contact
lenses, if present and easy to do, after the first 5 minutes, then continue rinsing. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**SKIN:** Remove from source of exposure. Take off contaminated clothing. Flush with copious amounts of water. Cover irritated skin with an emollient. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**INGESTION:** Remove from source of exposure. Move person to fresh air. Do NOT induce vomiting. Give large quantities of water. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

**INHALATION:** Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary. If person is not breathing, call 911, then give artificial respiration.

4.2 Most important Symptoms and Effects, both Acute and Delayed

**Acute**
- Eye irritation, skin sensitization

**Delayed**
- No information on significant adverse effects

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed
- Treat symptomatically and supportively

### 5. FIRE FIGHTING PROCEDURES

5.1 Extinguisher Media

**Suitable Extinguisher Media**
- Dry chemical, water spray, foam or carbon dioxide. Use appropriate medium for the underlying cause of the fire.

**Unsuitable Extinguisher Media**
- None known

5.2 Specific Hazards Arising from the Chemical
- None known

**Thermal decomposition products**
- Carbon oxides, nitrogen oxides

5.3 Advice to Firefighters
- Fire Fighting Measures
Areas containing this material should have fire-safe practices and electrical equipment in accordance with applicable governmental regulations for products with the flashpoint as shown in Section 9 (Physical and Chemical Properties).

**Protective Equipment and precautions for firefighters**

Fire fighter should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling combustion products. See Section 8 (Exposure Controls / Personal Protection)

**Fire & Explosive hazard**

Not expected to be flammable.

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### 6. ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use in a well-ventilated area. Respiratory protection is not needed during normal product use. Wear eye protection appropriate to handling activities. Wear impervious gloves. Wear appropriate body coverings if contact may occur. Where exposure level is not known, wear respirator protection suitable for expected level of exposure, in addition to the personal protection as recommended in Section 8.

#### 6.2 Environmental Precautions

Keep out of drains, sewers, ditches and waterways. Avoid runoff to waterways and sewers.

#### 6.3 Methods and Materials for Containment and Cleaning Up

Ventilate area. Wear appropriate personal protective equipment. Recover product with inert material (earth, sand, vermiculite), place into appropriate container for disposal. Do not flush to sewer.

#### 6.4 Reference to Other Sections

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations. See Section 13 for Disposal Considerations.

US Regulations may require reporting spills of hazardous materials: See Section 15: REGULATORY INFORMATION for details on reportable quantities, if any.

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### 7. HANDLING AND STORAGE

#### 7.1 Precautions for Safe handling

Ventilate. Avoid breathing dust or vapor. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. Do not eat drink or smoke while working with product, obey reasonable safety precautions and practice good housekeeping. For filling operations respiratory
protection may be recommended particularly in enclosed areas.

7.2 Conditions for Safe Storage, Including Incompatibilities
   Protect against physical damage. Close containers of unused material. Store in a dry, cool, ventilated place, away from direct sunlight.

   Incompatibilities
   None Known

7.3 Specific End Use(s)
   Agricultural insecticide.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters
   Component Exposure Limits
   None

   Derived No Effect Levels (DNELs)
   No DNELs available

   Predicted No Effect Concentrations (PNECs)
   No PNECs available

8.2 Exposure Controls
   Appropriate Engineering Controls
   Provide general ventilation. Where adequate general ventilation is unavailable use process enclosure, local exhaust ventilation, or other engineering controls

   SKIN PROTECTION:
   Wear protective clothing, including boots and gloves. Wear gloves made of Latex or other impervious materials. Wash thoroughly with soap and water after handling.

   EYE PROTECTION:
   Wear goggles, safety glasses with side shields or full-face shield when splashing or spraying of materials is likely.

   RESPIRATORY PROTECTION:
   For filling operations if dust/mist is produced respiratory protection is recommended or where respiratory protection is warranted, use dust/mist filtering respirator (MSHA/NIOSH approved number prefix TC-21C or a NIOSH approved respirator with any N, P, R or HE filter). Wash thoroughly with soap and water after handling.
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Granule, yellow to brown</td>
</tr>
<tr>
<td>pH</td>
<td>≈4.1 (10% dilution)</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Solubility (H₂O)</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Octanol/H₂O Coeff</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>0.473 ± 0.1 g/ml</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Auto Ignition</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Decomposition Temp.</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Determined</td>
</tr>
<tr>
<td>LFL</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not Determined</td>
</tr>
<tr>
<td>UFL</td>
<td>Not Determined</td>
</tr>
<tr>
<td>VOC</td>
<td>Solid</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability Class</td>
<td>Not flammable</td>
</tr>
</tbody>
</table>

10. CHEMICAL STABILITY AND REACTIVITY

10.1 Reactivity
Material does not pose a significant reactivity hazard.

10.2 Chemical Stability
Stable under ordinary conditions of use and storage. Spontaneous reaction not possible.

10.3 Possibility of Hazardous Reactions
Does not undergo hazardous polymerization

10.4 Conditions to Avoid
None known

10.5 Incompatible Materials
None known

10.6 Hazardous Decomposition Products
Carbon oxides and unidentified organic compounds.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects
Likely Routes of Exposure
- Inhalation: Yes
Eye Contact: Yes
Skin Contact: Yes
Ingestion: Not likely

**Product (or TGAI where noted) Toxicology**

**Acute Effects**
- **Oral Toxicity:** \( \text{LD}_{50} > 5,050 \text{ mg/kg (rat)} \) [EPA Toxicity Category IV]
- **Dermal Toxicity:** \( \text{LD}_{50} > 2,020 \text{ mg/kg (rabbit)} \)
- **Inhalation Toxicity:** Not able to generate sufficient product into the air
- **Corrosiveness:** Not corrosive.
- **Dermal Irritation:** Mild to slightly-irritating, [EPA Toxicity Category IV]
- **Ocular Irritation:** mildly-irritating, (MMTS 14.5, cleared by day-7)
- **Dermal Sensitization:** not a sensitizer (guinea pig)

Mutagenicity Information: Components of this product are not listed as mutagens.
Carcinogenicity Information: Components of this product are not listed as carcinogenic by NTP, IARC or OSHA.

Developmental/Reproductive Toxicity: This material is not teratogenic
- **Special Target Organ:** Eye and mucus membrane Irritation.
- **Aspiration Hazard:** Not Applicable
- **Repeat Dose Studies:** Not Applicable, Acute Toxicity testing was all negative

### 12. ECOLOGICAL INFORMATION

#### 12.1 Ecotoxicity (Data for a Concentrated Technical Powder)
Do not allow into waterways or lakes.

- **Fish:** \( \text{LC}_{50} > 2.87 \times 10^{7} \text{ cfu/L (96-H, Rainbow Trout)} \)
- **Bird:** \( \text{LC}_{50} > \text{____ mg/kg (6.2 x 1011 cfu/kg)} \) (Acute Oral - Bobwhite Quail)
  \( \text{LC}_{50} > 2857 \text{ mg/kg (5.7 x 10^{10} cfu/kg)} \) each day for 5 days (Sub-Acute Oral (dietary) - Bobwhite Quail)
- **Invertebrates:** \( \text{EC}_{50} > 50 \text{ mg/L (48-Hr) (Daphnia)} \)
  \( \text{21-day NOEC} > 5.0 \text{ mg/L (Daphnia)} \)
- **Honeybee:** Essentially Nontoxic to honeybee

#### 12.2 Persistence and Degradability
No data available

#### 12.3 Bioaccumulation potential
No data available

#### 12.4 Mobility in Soil
No data available
12.5 Results of PBT and vPvB assessment
Assessments not performed

12.6 Other adverse effects
None known

13. DISPOSAL CONSIDERATIONS

13.1 Waste Disposal Methods
Dispose of product in accordance with federal, state, provincial, and local regulations. Prevent contamination of environment by wastes.

US EPA WASTE NUMBER & DESCRIPTIONS:
There is no applicable EPA waste number. This product, if discarded, is not expected to be a characteristic or listed hazardous waste.

14. TRANSPORTATION INFORMATION

DOT
STATUS: Not Regulated as Hazardous by DOT
UN PROPER SHIPPING NAME: ()
HAZARD CLASS:
UN NUMBER:
PADDING GROUP:
MARINE POLLUTANT:
FREIGHT CLASSIFICATION: Insecticide, N.O.S.

IATA/ICA0
STATUS: Not Regulated
PROPER SHIPPING NAME: ()
HAZARD CLASS:
UN NUMBER:
PADDING GROUP:
REPORTABLE QUANTITY:

IMO
STATUS: Not Regulated
PROPER SHIPPING NAME: ()
HAZARD CLASS:
UN NUMBER:
PADDING GROUP:
REPORTABLE QUANTITY:
15. REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations / Specific Legislation

- **TSCA STATUS**: Exempt
- **CERCLA STATUS**: Not regulated as hazardous
  - **SARA STATUS**: Acute: No  Chronic: No  Fire: No  CDT: No
- **RCRA STATUS**: Not regulated as hazardous
- **State Right-To-Know**: Not Listed
  - Consult applicable national, state provincial or local laws to determine regulations, laws or ordinances which may be applicable.

**OSHA HAZARD COMMUNICATION STANDARD**: Not defined by the OSHA Hazard Communication Standard, 29 CFR

15.2 EPA Pesticide Regulations

- **EPA Registration Number**: 73049-12
- **EPA Pesticide Label signal word**: CAUTION

Product must have EPA Approved Pesticide Label attached to or accompanying all containers.

This chemical 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 differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions and limitations for its use.
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

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

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

Pesticide Storage: Reclose containers of unused DiPel® DF. Store in a dry place inaccessible to children and out of sunlight.

Pesticide Disposal: Do not contaminate food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. Offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by State and local ordinances.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Hazard</th>
<th>Ratings</th>
<th>HMIS Hazard</th>
<th>Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Instability</td>
<td>0</td>
<td>Instability</td>
<td>0</td>
</tr>
</tbody>
</table>

0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Extreme

REASON FOR ISSUE: New GHS rules
APPROVAL DATE: 04/23/15
SUPERSEDES DATE: -

LEGEND: N/A = Not Applicable  N/D = Not Determined
N/L = Not Listed  L = Listed
C = Ceiling  S = Short-term
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