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

1.1 Product Identifier

MATERIAL NAME: Foray 48B Biological Insecticide Aqueous Suspension

Synonyms: None

PCP No.: 24977

Code Number: 12280

List Number: 60179

Chemical Family: Microbial, Btk 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: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

1.3 Details of the supplier of the Safety Data Sheet

Supplied By: Valent BioSciences

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

Eye Irritation – Category 2B

2.2 Labeling Elements

Symbol(s)

Not required

Signal Word

WARNING

Hazard Statement(s)

Causes eye irritation
Precautionary Statement:

**Prevention**
Wash hands and face thoroughly after handling

**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.

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

2.3 Other Hazards
None identified.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Bacillus thuringiensis subsp. kurstaki strain ABTS-351</td>
<td>12.65</td>
</tr>
<tr>
<td>None</td>
<td>Other Non-hazardous Components</td>
<td>87.35</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

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
   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.

6.  ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures
   Use in a well-ventilated area. Respiratory protection such as a dust mask should be worn
   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.
   Dispose of excess product and washwaters according to local regulations.

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. Avoid generating dust.

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.

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)
   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. Where respiratory protection is warranted, use dust mask.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid, opaque, light brown</td>
</tr>
<tr>
<td>pH</td>
<td>≈4.4 (1% 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 (H_2O)</td>
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</tr>
<tr>
<td>Octanol/H_2O Coeff</td>
<td>Not Determined</td>
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<tr>
<td>Bulk Density</td>
<td>1.1 ± 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 Determined</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Non-flammable</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>Not Determined</td>
</tr>
<tr>
<td>Vapor Pressure</td>
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</tr>
<tr>
<td>Flammability Class</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>Not Determined</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: LD$_{50}$ > 5,000 mg/kg (rat) [EPA Toxicity Category IV]
- Dermal Toxicity: LD$_{50}$ > 5,000 mg/kg (rabbit)
- Inhalation Toxicity: LC$_{50}$ rat (4 hours): > 2.14 mg/L
- Corrosiveness: Not corrosive.
- Dermal Irritation: Mildly irritating, [EPA Toxicity Category IV]
- Ocular Irritation: Mildly irritating, (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: Not Applicable
- 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: $\text{LC}_{50} > 2857 \text{ mg/kg}$ (5.7 $\times 10^{10}$ cfu/kg) each day for 5 days (Sub-Acute Oral (dietary) - Bobwhite Quail)
Invertebrates: $\text{EC}_{50} > 50 \text{ mg/L}$ (48-Hr) (Daphnia)
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.
SAFETY DATA SHEET
Foray 48B Biological Insecticide Aqueous Suspension

SDS# VBC-0244 Revision 0
ISSUED 04/05/17
(Classification according to OSHA; 29 CFR § 1910.1200, (3/12/2012))

14. TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th>DOT</th>
<th>STATUS: Not regulated for domestic ground transport by US DOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN PROPER SHIPPING NAME:</td>
<td>N/A</td>
</tr>
<tr>
<td>REMARKS:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

| IATA/ICA0             | STATUS: Not Regulated                                           |
| PROPER SHIPPING NAME: | N/A                                                               |
| REMARKS:              | N/A                                                               |

| IMDG                  | STATUS: Not Regulated                                           |
| PROPER SHIPPING NAME: | N/A                                                               |
| REMARKS:              | N/A                                                               |

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
Consult applicable national, state provincial or local laws to determine regulations, laws or ordinances which may be applicable.

15.2 PMRA Pesticide Regulations

PCP Number: 21062
Product must have PMRA Approved Pesticide Label attached to or accompanying all containers.
RESTRICTED
READ THE LABEL BEFORE USING

This chemical is a pesticide product registered by the PMRA 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.

STORAGE
In order to ensure microbial purity and potency, Foray 48B Biological Insecticide Aqueous Suspension should be stored in the original container at 0 - 25°C and used within 12 months of the date of manufacture. After extended storage, vigorously shake or stir contents to assure a uniform suspension.
DISPOSAL
Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site: Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. Make the empty, rinse container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

16. OTHER INFORMATION

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

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

REASON FOR ISSUE: New GHS Format
APPROVAL DATE: 04/05/17
SUPERSEDES DATE: --/--/--

LEGEND: N/A = Not Applicable
        N/D = Not Determined
        N/L = Not Listed
        L = Listed
        C = Ceiling
        S = Short-term
(R) = Registered Trademark of Valent BioSciences
(TM) = Registered Trademark of Valent BioSciences

The information provided in this Safety Data Sheet (SDS) is provided in good faith and believed to be accurate at the time of preparation of the SDS. However, to the extent consistent with applicable law, Valent BioSciences and its subsidiaries or affiliates extend no warranties, make no representations, and assume no responsibility as to the accuracy, suitability, or completeness of such information. Additionally, to the extent consistent with applicable law, neither Valent BioSciences nor any of its subsidiaries or affiliates represents or guarantees that this information or product may be used without infringing the intellectual property rights of others. Except to the extent a particular use and particular information are expressly stated on the product label, it is the users’ own responsibility to determine the suitability of this information for their own particular use of this product. If necessary, contact Valent BioSciences to confirm that you have the most current product label and SDS.

This Safety Data Sheet (SDS) may provide more information than the product label but does not replace or modify the product labeling (attached to and accompanying the product container). The product SDS and the product label both provide consistent and important health, safety, and environmental information as required by the Occupational Health and Safety Act (29 CFR 1910.1200, “Hazcom”). This requirement covers
Foray 48B Biological Insecticide Aqueous Suspension

SDS# VBC-0244 Revision 0  ISSUED 04/05/17

[Classification according to OSHA; 29 CFR § 1910.1200, (3/12/2012)]

employers, employees, emergency responders, users and others handling the product. All necessary hazard classification and appropriate precautionary, use, storage, and disposal information is set forth on the labeling and the SDS.

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