Phyllom BioProducts
Protecting Forests, Farms and Landscapes®

SAFETY DATA SHEET
grubGONE!® G

1. Identification of the Substance / Mixture and of the Company

1.1 Product identifier

Product Name: grubGONE!® G
Product type: Biological Insecticide Granule
EPA Registration No.: 88347-2
Active ingredient: Bacillus thuringiensis serovar galleriae strain SDS-502
CAS No.: 68038-71-1

1.2 Recommended use and restrictions on use:
Controls a range of Beetle Grubs in Turf and Ornamentals

1.3 Details of the supplier of the Safety Data Sheet:
Phyllom BioProducts Corp., 484 Lake Park Ave. #23, Oakland, California, 94610 **U.S.A. Phone:** 1-650-332-5000
Website: http://www.phyllombioproducts.com

1.4 Emergency telephone number: 1-800-222-1222

2. Hazards Identification

2.1 Classification of the substance or mixture
Not classified

2.2 Labeling elements
Hazard symbol or pictogram: None
Signal Word: CAUTION

2.3 Precautionary Statements:
May cause sensitization. May irritate the skin. Avoid contact with skin or clothing. Avoid inhaling/breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not re-enter or allow re-entry into treated areas for 4 hours or until dusts have settled.

2.4 Other hazards:
None identified

3. Composition Information on Ingredients

Ingredient	CAS No.	9.0% w/w
Bacillus thuringiensis serovar galleriae strain SDS-502	68038-71-1	Concentration 1×10^{9} CFU/g

4. First Aid Measures

4.1 Description of first aid measures

If in eyes:
- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

If on skin or clothing:
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

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

4.2 **Most important symptoms and effects, both acute and delayed**
None specified

4.3 **Indication of any immediate medical attention and special treatment needed**
Treat symptomatically

5. Fire Fighting Measures

5.1 **Extinguishing media**
Dry chemical, foam or carbon dioxide

5.2 **Specific hazards arising from the substance**
None known

5.3 **Thermal decomposition products** may include, but are not limited to, CO2, H2O, and particulate fillers.

6. Accidental Release Measures

6.1 **Personal precautions, protective equipment and emergency procedures**
Spill or Leak Procedures: Recover product and place in an appropriate container for disposal. Avoid breathing dust. Ventilate and wash the spill area.

6.2 **Environmental precautions**
Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State/Provincial Water Board or Regional Office of the Environmental Protection Agency

6.3 **Methods and material for containment and clean up**
In the case of leak or spill, wear chemical-resistant gloves and clean up leak or spill with a paper towel or other appropriate leak/spill equipment. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

6.4 **References to other sections:** see section 7 for handling procedures. See section 8 for personal protective equipment. Seed section 13 for disposal considerations.

7. Handling and Storage

7.1 **Precautions for safe handling**
Causes moderate eye irritation. Harmful if absorbed through the skin or swallowed. 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 toilet. Remove and wash contaminated clothing before reuse.

Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

7.2 **Conditions for safe storage, including incompatibilities**
Do not contaminate water, food or feed by storage or disposal. Store product sealed, in a cool, dry place, and out of direct sunlight.

Storage Temperature (Min/Max): 32º / 90º F equivalent to 0º / 32º C

Stable for at least 2 years at Room Temperature and dry conditions

8. Exposure Controls / Personal Protection

8.1 **Control parameters-exposure limits**
OSHA permissible exposure limit (PEL): Not established
TWA: Not established
STEL: Not established

8.2 **Exposure controls**
Oral Protection: Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for

exposure to the material. Always wash thoroughly after handling.
Eye Protection: To avoid eye contact, wear safety glasses with side shields or safety goggles.
Skin Protection: To avoid skin contact, wear rubber or latex gloves, long-sleeved shirts and long pants. Remove and wash contaminated clothing before reuse.
Respiratory protection: Avoid inhaling/breathing dust.
Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

9. Physical and Chemical Properties

Physical state:	Granule	**Lower Explosive Limits (LEL)**	Not Determined
Color:	Tan	**pH:**	6-8
Odor:	Slightly Sweet	**Solubility in Water:**	Relatively insoluble
Boiling Point Range:	N/A	**Specific Gravity/ Density:**	45 lbs / cu.ft.
Melt Point / Freeze Point:	N/A	**Bulk Density:**	0.91 g/cc
Flash Point:	N/A	**% Volatile by Weight:**	Not Determined
Auto Ignition:	N/A	**Vapor Pressure at 20 C:**	Not Determined
Upper Explosive Limits (UEL):	Not Determined	**Vapor Density:**	Not Determined

10. Chemical Stability and Reactivity

10.1 **Reactivity:** Not reactive
10.2 **Chemical Stability:** Stable
10.3 **Posibility of hazardous reactions:** None known
10.4 **Conditions to avoid:** None known
10.5 **Incompatible materials:** None known
10.6 **Hazardous decomposition products:** None known

11. Toxicological Information

Acute toxicity effects for Phyllom SDS-502 MP:

Oral LD_{50}:	No adverse effects at 2.4 X 10^8 CFU/gr (rodent study)
Dermal LD_{50}:	>2020 mg/kg body weight (rabbit study) Toxicity Category III
Inhalation LD_{50}:	> 4.30 mg/L (rodent study) Toxicity Category IV
Skin corrosion/irritation:	see dermal above
Eye irritation:	mildly irritating, Toxicity Category III
Dermal sensitization:	See dermal above

Mutagenic Potential: components of this product are not listed as mutagens
Reproductive toxicity: this material is not teratogenic
Carcinogenicity:
NTP····· N/A
LARC····· N/A OSHA····· N/A

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12. Ecological Information

12.1 Toxicity

Test species	Test method	Test substance	Test result
Avian, mallard duck	Oral toxicity/pathogenicity	Btg strain SDS-502	MDD 3 X 10^{11} cfu/gr
Mammals, wild	Waived based on rodent acutes	Btg strain SDS-502	No risk anticipated
Fish	Waived based on Bt studies	N/A	No risk anticipated
Daphnia magna	21 day static renewal	Btg strain SDS-502	EC_{50} >100 mg/L
Hippodamia convergens	Dietary toxicity/pathogenicity	Btg strain SDS-502	LC_{50} >1700ppm
Apis mellifera L. larva	Dietary toxicity/pathogenicity	Cry8Da protein	NOEC 500 ng/cell

Summary of toxicity regulatory reviews
Phyllom SDS-502 MP (Manufacturing use product): No adverse effects to aquatic invertebrates, fish, birds, mammals or non-target insects are anticipated by the normal use and handling and transportation of this product.

12.2 Persistence and degradability: degrades when exposed to UV light and microbial activity

12.3 Bioaccumulative potential: Bacillus thuringiensis subsp. galleriae strain SDS-502: is not pathogenic and has not been shown to reproduce in living organisms other than target Coleoptera spp. (certain beetles).

12.4 Mobility in soil: N/A

13. Disposal Considerations

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

DO NOT reuse the empty containers. Dispose in household garbage. Unused or partially used products should be disposed at provincially or municipally designated hazardous waste disposal sites.

14. Transportation Information

D.O.T. status: Not Regulated as hazardous by DOT
D.O.T. Hazard Class: Not Regulated
U.N. Number: Not Regulated
Freight classification: Insecticide, N.O.S.
IATA/ICAO status: Not Regulated
IMO status: Not Regulated

15. Regulatory Information

TSCAStatus: Exempt
OSHA hazard communication standard: Not defined by the OSHA Hazard communication standard, 29 CFR
CERCLA Reportable Quantity: None
SARATitle III
Section 302: N/A
Section 311/312/313: N/A
RCRA Status: N/A
EPA Registration No.: 88347-2

16. Other Information

The information and recommendations contained herein are based upon tests believed to be reliable. However, neither Phyllom BioProducts nor any of its affiliates assume any liability whatsoever for the accuracy and or completeness of the information contained herein. Final determination of the suitability of any material is the sole responsibility of the user. To the extent consistent with applicable law, Phyllom BioProducts Corp. makes no express or implied warranty of merchantability or fitness for a particular purpose or any other express or implied warranty.