

Safety Data Sheet



**Section 1: Identification**

**Product identifier**

- Product Name** • FourStar® MBG Multi-Brood Granule
- Product Code** • 100514310; EPA Reg. No.: 85685-3
- Chemical Category** • *Bacillus thuringiensis* subsp. *israelensis* Serotype H14
- Product Description** • Tan to gray granule.

**Relevant identified uses of the substance or mixture and uses advised against**

- Recommended use** • Multi-brood microbial insecticide granule
- Restrictions on use** • Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

**Details of the supplier of the safety data sheet**

- Manufacturer** • FourStar® Microbial Products, LLC  
1501 E. Woodfield Road, Suite 200W  
Schaumburg, IL 60173  
United States  
[www.centralmosquitocontrol.com](http://www.centralmosquitocontrol.com)

**Emergency telephone number**

- Manufacturer (Transportation)** • 1-800-424-9300 - CHEMTREC
- Manufacturer** • 1-888-914-2082
- Manufacturer (Transportation)** • 1-703-527-3887 - CHEMTREC - Outside US Collect Calls Accepted

**Section 2: Hazard Identification**

**United States (US)**

According to OSHA 29 CFR 1910.1200 HCS

**Classification of the substance or mixture**

- OSHA HCS 2012** • Carcinogenicity 2 - H351  
Skin Sensitization 1 - H317  
Specific Target Organ Toxicity Repeated Exposure 1 - H372

**Label elements**

OSHA HCS 2012

Preparation Date: 3/31/14  
Revision Date: New

**WARNING**



- Hazard statements**
- May cause damage to organs through prolonged or repeated exposure if inhaled - H373
  - Suspected of causing cancer. - H351
  - Harmful if inhaled - H332
  - May cause an allergic skin reaction - H317

**Precautionary statements**

- Prevention**
- Do not breathe dust. - P260
  - Do not handle until all safety precautions have been read and understood. - P202
  - Obtain special instructions before use. - P201
  - Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response**
- Get medical advice/attention if you feel unwell. - P314
  - IF exposed or concerned: Get medical advice/attention. - P308+P313
- Storage/Disposal**
- Store locked up. - P405
  - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501
  - Do not contaminate water, food or feed by storage
  - Refer to Section 13 - Disposal Considerations

**Other hazards**

- OSHA HCS 2012
- No data available

**Section 3 - Composition/Information on Ingredients**

**Substances**

- Material does not meet the criteria of a substance according to United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Mixtures**

Composition			
Chemical Name	Identifiers	%	Classifications According to Regulation/Directive
<i>Bacillus sphaericus</i>	CAS:143447-72-7	3%	OSHA HCS 2012: Acute Tox. Inhal. 4; Skin Sens. 1
<i>Bacillus thuringiensis ssp. israelensis</i>	CAS:68038-71-1	3%	OSHA HCS 2012: Acute Tox. Inhal. 4; Skin Sens. 1
Proprietary	Proprietary	1% TO 10%	OSHA HCS 2012: Not Classified- Criteria not met
Proprietary	Proprietary	< 0.05%	OSHA HCS 2012: Skin Irrit. 2; Eye Cat. 1
Proprietary	Proprietary	< 0.01%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	1% TO 10%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	1% TO 10%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	1% TO 10%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	70% TO 90%	OSHA HCS 2012: Carcinogen Cat. 2; STOT RE 1 - Resp.
Proprietary	Proprietary	1% TO 10%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	< 0.001%	OSHA HCS 2012: Not classified - criteria not met
Proprietary	Proprietary	< 1%	OSHA HCS 2012: Not Classified- Criteria not met

## Section 4: First-Aid Measures

### Description of first aid measures

- Inhalation** • Move victim to fresh air. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.
- Skin** • Remove contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15-20 minutes. Call a physician or poison control center.
- Eye** • Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Call a physician or poison control center.
- Ingestion** • Get medical attention immediately if symptoms occur.

### Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

### Indication of any immediate medical attention and special treatment needed

- No data available

## Section 5: Fire-Fighting Measures

### Extinguishing media

- Suitable Extinguishing Media** • In case of fire use media as appropriate for surrounding fire.

- Unsuitable Extinguishing Media** • None known.

### Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards** • Material is non-combustible and is not expected to pose a fire or explosion hazard.

- Hazardous Combustion Products** • No data available

### Advice for firefighters

- Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

## Section 6 - Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures

- Personal Precautions** • Avoid contact with skin, eyes, and clothing. Wear appropriate personal protective equipment, avoid direct contact. Remove clothing and wash thoroughly before use.

- Emergency Procedures** • Use normal clean up procedures.

### Environmental precautions

- Avoid run off to waterways and sewers.

### Methods and material for containment and cleaning up

- Containment/Clean-up Measures** • Use appropriate Personal Protective Equipment (PPE)  
Carefully shovel or sweep up spilled material and place in suitable container.  
Avoid generating dust.

**Section 7 - Handling and Storage**

**Precautions for safe handling**

**Handling** • Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Use good safety and industrial hygiene practices. Avoid contact with skin and eyes. Use only with adequate ventilation. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Avoid breathing dust.

**Conditions for safe storage, including any incompatibilities**

**Storage** • Keep container/package tightly closed in a cool place. Store in a cool/low-temperature, well-ventilated, dry place. Do not contaminate water, food, or feed by storage or disposal.

**Section 8 - Exposure Controls/Personal Protection**

**Control parameters**

		Exposure Limits/Guidelines	
	Result	ACGIH	NIOSH
Proprietary (Proprietary)	TWAs	0.025 mg/m <sup>3</sup> TWA (respirable fraction)	0.05 mg/m <sup>3</sup> TWA (respirable dust)

**Exposure Control Notations**

ACGIH

•Proprietary (Proprietary): **Carcinogens:** (A2 - Suspected Human Carcinogen)

**Exposure Limits Supplemental**

OSHA

•Proprietary (Proprietary): **Mineral Dusts:** ((30)/(%SiO<sub>2</sub> + 2) mg/m<sup>3</sup> TWA, total dust; (250)/(%SiO<sub>2</sub> + 5) mppcf TWA, respirable fraction; (10)/(%SiO<sub>2</sub> + 2) mg/m<sup>3</sup> TWA, respirable fraction)

ACGIH

•Proprietary (Proprietary): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)

**Exposure controls**

**Engineering**

- Use adequate ventilation to remove vapors (fumes, dust etc)

**Measures/Controls**

**Personal Protective Equipment**

**Pictograms**



**Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment. Not usually required. However, mixers/loaders and applicators not in enclosed cabs or aircraft must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95 or P-95.

**Eye/Face**

- Wear dust goggles.

**Hands**

- Wear appropriate gloves (nitrile rubber)

**Skin/Body**

- Wear protective gloves (nitrile rubber) and clothing to minimize skin contact.

**General Industrial Hygiene Considerations**

- Wash thoroughly with soap and water after handling.

**Environmental Exposure Controls**

- Refer to Section 13 - Disposal Considerations.

## Section 9 - Physical and Chemical Properties

### Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	granules
Color	Tan to gray.	Odor	Mild
Particulate Type	Dust	Odor Threshold	No data available
Physical and Chemical Properties	tan granules .		
General Properties			
Boiling Point	No data available	Melting Point	No data available
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative Density	2.1 Water=1	Bulk Density	No data available
Water Solubility	Slightly soluble	Viscosity	Not relevant
Volatility			
Vapor Pressure	No data available	Vapor Density	2100 kg/m <sup>3</sup>
Evaporation Rate	No data available		
Flammability			
Flash Point	Not relevant	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	Not Flammable.		
Environmental			
Octanol/Water Partition coefficient	No data available		

## Section 10: Stability and Reactivity

### Reactivity

- Non-reactive

### Chemical stability

- Stable

### Possibility of hazardous reactions

- Hazardous polymerization will not occur.

### Conditions to avoid

- None known.

### Incompatible materials

- Store away from oxidizers.

### Hazardous decomposition products

- No data available.

**Section 11 - Toxicological Information**

**Information on toxicological effects**

Component Name	CAS	Data
Proprietary (< 0.05%)	Proprietary	<b>Acute Toxicity:</b> orl-rat LD50:1900 mg/kg
Proprietary (< 0.01%)	Proprietary	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 20 g/kg
Proprietary (1% TO 10%)	Proprietary	<b>Acute Toxicity:</b> orl-rat LD50:4220 mg/kg
Proprietary (70% TO 90%)	Proprietary	<b>Acute Toxicity:</b> orl-rat TDLo:120 gm/kg; <b>Tumorigen/Carcinogen:</b> ihl-rat TCLo:50 mg/m3/6H/71W-I
<i>Bacillus thuringiensis ssp. israelensis</i> (3%)	68038-71-1	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 5000 mg/kg; Inhalation-Rat LC50 • 2.04 mg/L 4 Hour(s); Skin-Rabbit LD50 • 5000 mg/kg; <b>Irritation:</b> Eye-Rabbit • Mild irritation; Skin-Rabbit • Mild irritation
<i>Bacillus sphaericus</i> (3%)	143447-72-7	<b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 5000 mg/kg; Inhalation-Rat LC50 • 2.04 mg/L 4 Hour(s); Skin-Rabbit LD50 • 5000 mg/kg; <b>Irritation:</b> Eye-Rabbit • Mild irritation; Skin-Rabbit • Mild irritation

GHS Properties	Classification
Acute toxicity	OSHA HCS 2012•Acute Toxicity - Dermal - Classification criteria not met; Acute Toxicity - Inhalation - Classification criteria not met; Acute Toxicity - Oral - Classification criteria not met
Aspiration Hazard	OSHA HCS 2012•Classification criteria not met
Carcinogenicity	OSHA HCS 2012•Carcinogenicity 2
Germ Cell Mutagenicity	OSHA HCS 2012•Classification criteria not met
Skin corrosion/Irritation	OSHA HCS 2012•Classification criteria not met
Skin sensitization	OSHA HCS 2012•Skin Sensitizer 1
STOT-RE	OSHA HCS 2012•Specific Target Organ Toxicity Repeated Exposure 1
STOT-SE	OSHA HCS 2012•Classification criteria not met
Toxicity for Reproduction	OSHA HCS 2012•Classification criteria not met
Respiratory sensitization	OSHA HCS 2012•Classification criteria not met
Serious eye damage/Irritation	OSHA HCS 2012•Classification criteria not met

**Route(s) of entry/exposure** • Inhalation, skin or eye contact, and ingestion.

**Potential Health Effects**

**Inhalation**

- Acute (Immediate)** • Under normal conditions of use, no health effects are expected.
- Chronic (Delayed)** • Repeated and prolonged exposure may be harmful. May cause damage to organs through prolonged or repeated exposure. Excessive inhalation of crystalline silica (quartz) may cause lung injury.

**Skin**

- Acute (Immediate)** • May cause mild irritation.
- Chronic (Delayed)** • No data available.

**Eye**

- Acute (Immediate)** • May cause moderate irritation.
- Chronic (Delayed)** • No data available.

**Ingestion**

**Acute (Immediate)** • Under normal conditions of use, no health effects are expected.

**Chronic (Delayed)** • No data available.

**Other**

**Chronic (Delayed)** • Repeated and prolonged exposure may cause sensitization.

**Carcinogenic Effects** • Repeated and prolonged exposure may cause cancer.

Carcinogenic Effects			
	CAS	IARC	NTP
Proprietary	Proprietary	Group 1-Carcinogenic	Known Human Carcinogen

**Section 12 - Ecological Information**

**Toxicity**

Component	CAS	Data	Comments
Proprietary (< 0.05%)	Proprietary	Fish: 5 Day(s) LC50 Fish 560 µg/L	

**Persistence and degradability**

- No data available

**Bioaccumulative potential**

- No data available

**Mobility in Soil**

- No data available

**Other adverse effects**

**Potential Environmental Effects** • Do not contaminate water when disposing or equipment washwaters or rinsate. Do not apply to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

**Section 13 - Disposal Considerations**

**Waste treatment methods**

**Product waste** • Do not contaminate water, food, or feed by storage or disposal. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. Do not contaminate water when disposing of equipment washwaters or rinsate.

**Packaging waste** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. Completely empty bag, then dispose of empty bag in trash. Do not reuse container.

**Section 14 - Transport Information**

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not regulated	NDA	NDA	NDA

Special precautions for user • No data available  
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code • No data available  
Other information  
IMO/IMDG • No data available  
IATA/ICAO • No data available

## Section 15 - Regulatory Information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Chronic

### FIFRA – Pesticide Labeling

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 for use.

#### CAUTION

**Precautionary Statements** • KEEP OUT OF THE REACH OF CHILDREN

#### HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Remove clothing and wash thoroughly before use. Mixers/loaders and applicators not in enclosed cabs or aircraft must wear gloves and a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95.

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

**First Aid** • IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth if possible. Call poison control center or doctor for treatment advice.

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: 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.

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.

PESTICIDE STORAGE: Store in a cool, dry place. PESTICIDE DISPOSAL: To avoid wastes, use all material in this container by application according to label instructions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry). CONTAINER HANDLING: 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. Then 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.

- Environmental Hazards**
- Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply to treated, finish drinking water reservoirs or drinking water receptacles when the water is intended for human consumption.

Component	Inventory	
	CAS	TSCA
Proprietary	Proprietary	Yes
<i>Bacillus sphaericus</i>	143447-72-7	No
<i>Bacillus thuringiensis ssp. israelensis</i>	68038-71-1	Yes
Proprietary	Proprietary	No
Proprietary	Proprietary	Yes
Proprietary	Proprietary	Yes
Proprietary	Proprietary	Yes

**United States - California**

**Environment**

U.S. - California - Proposition 65 - Carcinogens List

•Proprietary	Proprietary	Not Listed
•Proprietary	Proprietary	carcinogen, initial date 10/1/88 (airborne particles of respirable size)
•Proprietary	Proprietary	Not Listed
• <i>Bacillus thuringiensis ssp. israelensis</i>	68038-71-1	Not Listed
• <i>Bacillus sphaericus</i>	143447-72-7	Not Listed

**Section 16 - Other Information**

- Last Revision Date** • New
- Preparation Date** • 3/31/14
- Disclaimer/Statement of Liability** • The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein. NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IF MADE.