SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name

SERENADE® GARDEN DISEASE CONTROL CONCENTRATE

Product code (UVP)

80924771

SDS Number

102000027846

EPA Registration No.

264-1152

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

Use

Fungicide

Restrictions on use

See product label for restrictions.

Information on manufacturer

Bayer Environmental Science

2 T.W. Alexander Drive

Research Triangle PK, NC 27709

United States

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days)

1-800-334-7577 (24 hours/day)

Product Information Telephone Number

1-800-331-2867

SDS Information or Request

SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards

Micro-organisms may have the potential to provoke sensitising reactions.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Concentration % by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacillus subtilis, strain QST 713</td>
<td></td>
<td>1.34</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice  When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation  Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact  Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact  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 physician or poison control center immediately.

Ingestion  Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms  No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment  Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable  Water spray, Foam, Dry chemical, Carbon dioxide (CO2)

Unsuitable  High volume water jet

Special hazards arising from the substance or mixture  Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters  Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information  Use appropriate extinguishing media for material that is supplying fuel. Keep out of smoke. Fight fire from upwind position. Cool closed
containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

<table>
<thead>
<tr>
<th>Property</th>
<th>Data Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Explosivity</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Precautions**
Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

**Methods and materials for containment and cleaning up**

**Methods for cleaning up**
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

**Additional advice**
Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

**Reference to other sections**
Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

**SECTION 7: HANDLING AND STORAGE**

**Precautions for safe handling**
No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.

**Advice on safe handling**
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

**Hygiene measures**
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

**Conditions for safe storage, including any incompatibilities**
Requirements for storage areas and containers

Store in original container and out of the reach of children, preferably in a locked storage area. Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
No control parameters known.

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection
Respiratory protection is not required under anticipated circumstances of exposure. When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection
Chemical-resistant gloves made of waterproof material such as neoprene, butyl rubber, barrier laminate or nitrile rubber.

Eye protection
Safety glasses with side-shields

Skin and body protection
Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance  brown
Physical State  suspension
Odor  sweet earthy
Odour Threshold  no data available
pH  5.2 - 5.4
Vapor Pressure  no data available
Vapor Density (Air = 1)  no data available
Density  ca. 1.050 g/cm³ at 20 °C
Evapouration rate  no data available
Boiling Point  
Melting / Freezing Point  
Water solubility  
Minimum Ignition Energy  
Decomposition temperature  
Partition coefficient: n-octanol/water  
Viscosity  
Flash point  
Autoignition temperature  
Lower explosion limit  
Upper explosion limit  
Explosivity  
Other information

## SECTION 10: STABILITY AND REACTIVITY

Reactivity  
Thermal decomposition  
Chemical stability  
Possibility of hazardous reactions  
Conditions to avoid  
Incompatible materials  
Hazardous decomposition products

## SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes  
Immediate Effects  
Eye

### Immediate Effects
- Eye: May cause mild irritation to eyes.
May cause mild irritation to the skin.

Harmful if inhaled. Mists may cause respiratory tract irritation.

LD50 (rat) > 5,000 mg/kg
Test conducted with a similar formulation.

LC50 (rat) > 1.45 mg/l
Determined in the form of liquid aerosol.
Highest attainable concentration.
No deaths
Test conducted with a similar formulation.

LD50 (rabbit) > 2,000 mg/kg

No skin irritation (rabbit)

No eye irritation (rabbit)

Non-sensitizing. (guinea pig)
Test conducted with a similar formulation.

Bacillus subtilis did not cause specific target organ toxicity in experimental animal studies.

Bacillus subtilis: Test not required for microorganisms.

Bacillus subtilis: Test not required for microorganisms.

None.

None.

None.

None.

None.

None.

Bacillus subtilis: Test not required for microorganisms.
**SECTION 12: ECOLOGICAL INFORMATION**

**Toxicity to fish**

LC50 (Oncorhynchus mykiss (rainbow trout)) 162 mg/l 3.24 x 10^9 CFU/L  
Exposure time: 30 d  
The value mentioned relates to the active ingredient.  
NOEC (Oncorhynchus mykiss (rainbow trout)) 86 mg/l 1.72 x 10^9 CFU/L  
Exposure time: 30 d  
The value mentioned relates to the active ingredient.

**Toxicity to aquatic invertebrates**

EC50 (Daphnia magna (Water flea)) 108 mg/l 2.16 x 10^9 CFU/L  
Exposure time: 48 h  
The value mentioned relates to the active ingredient.  
NOEC (Daphnia magna (Water flea)) 13 mg/l 2.6 x 10^8 CFU/L  
Exposure time: 48 h  
The value mentioned relates to the active ingredient.  
EC50 (Daphnia magna (Water flea)) 1.6 x 10^6 CFU/mL  
Exposure time: 21 d  
The value mentioned relates to the active ingredient.  
NOEC (Daphnia magna (Water flea)) 7.9 x 10^5 CFU/mL  
Exposure time: 21 d  
The value mentioned relates to the active ingredient.

**Toxicity to aquatic plants**

NOEC (Scenedesmus subspicatus) >= 100 mg/l  
The value mentioned relates to the active ingredient.  
LOEC (Scenedesmus subspicatus) > 100 mg/l  
The value mentioned relates to the active ingredient.

**Biodegradability**

Bacillus subtilis: ; Evaluation of biodegradability is not relevant for micro-organisms.

**Bioaccumulation**

Bacillus subtilis: ; Evaluation of bioaccumulation is not relevant for micro-organisms.

**Mobility in soil**

Bacillus subtilis: Evaluation of mobility in soil is not relevant for micro-organisms.

**Environmental precautions**

Do not allow to get into surface water, drains and ground water.  
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.  
Do not apply when weather conditions favor runoff or drift.  
Apply this product as specified on the label.
SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product
It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Never place unused product down any indoor or outdoor drain.

Contaminated packaging
Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

RCRA Information
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-1152
US Federal Regulations
TSCA list
None.
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D) None.
SARA Title III - Section 302 - Notification and Information None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting None.
US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients None.
Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
This chemical is a pesticide product registered by the 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, and for workplace labels of non-pesticide
chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if inhaled.
Avoid breathing spray mist.
Remove and wash contaminated clothing before re-use.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 1 Flammability - 1 Instability - 0 Others - none

Health - 0 Flammability - 1 Physical Hazard - 0 PPE -
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Revision Date: 03/26/2015

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all responsibility for safety and use not in accordance with label instructions. The product names are
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