



## SERENADE ASO

Version 6 / GB  
102000027846

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Revision Date: 16.04.2019  
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### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifier

Trade name SERENADE ASO  
Product code (UVP) 80924771

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

Use Fungicide

#### 1.3 Details of the supplier of the safety data sheet

Supplier Bayer CropScience Limited  
230 Cambridge Science Park  
Milton Road  
Cambridge  
Cambridgeshire CB4 0WB  
United Kingdom

Telephone +44(0)1223 226500  
Telefax +44(0)1223 426240  
Responsible Department Email: ukcropsupport@bayer.com

#### 1.4 Emergency telephone no.

Emergency telephone no. 00800 1020 3333 (24 hr)

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### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Not classified, the classification criteria are not met.

#### 2.2 Label elements

Labelling in accordance with Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, as amended.

Hazard label for supply/use required.

#### Hazard statements

EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

#### Precautionary statements

P501 Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site, except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

#### 2.3 Other hazards

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

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS****3.2 Mixtures****Chemical nature**

Suspension concentrate (=flowable concentrate)(SC)  
Bacillus subtilis strain QST 713:  $\geq 1.0E+09$  CFU/g

**Hazardous components**

Hazard statements according to Regulation (EC) No. 1272/2008

Name	CAS-No. / EC-No. / REACH Reg. No.	Classification	Conc. [%]
		REGULATION (EC) No 1272/2008	
Bacillus subtilis strain QST 713		Not classified	1.34

**Further information**

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: FIRST AID MEASURES****4.1 Description of first aid measures**

<b>General advice</b>	Move out of dangerous area. Victim to lie down in the recovery position, cover and keep him warm.
<b>Inhalation</b>	Move to fresh air. Keep patient warm and at rest. If symptoms persist, call a physician.
<b>Skin contact</b>	Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. If symptoms persist, call a physician.
<b>Eye contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately. Rinse mouth.

**4.2 Most important symptoms and effects, both acute and delayed**

**Symptoms** No symptoms known or expected.

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

**Treatment** Treat symptomatically. There is no specific antidote.



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### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unsuitable</b>	High volume water jet

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

#### 5.3 Advice for firefighters

<b>Special protective equipment for firefighters</b>	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
<b>Further information</b>	Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

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### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures

**Precautions** Avoid contact with spilled product or contaminated surfaces. Ensure adequate ventilation. Use personal protective equipment.

**6.2 Environmental precautions** Do not allow to get into surface water, drains and ground water. If spillage enters drains leading to sewage works inform local water company immediately. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

#### 6.3 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. Clean with disinfectants.

**Additional advice** Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.  
Check also for any local site procedures.

**6.4 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.

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### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling



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- Advice on safe handling** No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice.  
No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice. Ensure adequate ventilation.
- Advice on protection against fire and explosion** No special precautions required.
- Hygiene measures** Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands before breaks and immediately after handling the product. Wash thoroughly with soap and water after handling. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).
- 7.2 Conditions for safe storage, including any incompatibilities**
- Requirements for storage areas and containers** Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Protect from frost.
- Advice on common storage** Keep away from food, drink and animal feedingstuffs.
- Storage stability**  
Storage temperature > 0 °C
- Suitable materials** HDPE (high density polyethylene)
- 7.3 Specific end use(s)** Refer to the label and/or leaflet.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

Components	CAS-No.	Control parameters	Update	Basis
Bacillus subtilis strain QST 713		20,000,000 CFU/m <sup>3</sup>		OES BCS*

\*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

**8.2 Exposure controls**

Refer to **COSHH assessment (Control of Substances Hazardous to Health (Amendment) Regulations 2004)**. Engineering controls should be used in preference to personal protective equipment wherever practicable. Refer also to **COSHH Essentials**.

**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 should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.  
Wear respirator with a particle filter mask (protection factor 20) conforming to European Norm EN149FFP3 or EN140P3 or equivalent.



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**Hand protection**

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.  
Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet.  
Material Nitrile rubber  
Rate of permeability > 480 min  
Glove thickness > 0.4 mm  
Directive Protective gloves complying with EN 374.

**Eye protection**

Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).

**Skin and body protection**

Wear standard coveralls and Category 3 Type 5 suit.  
Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.  
If there is a risk of significant exposure, consider a higher protective type suit.

**General protective measures**

There are no known hazards associated with this product when used according to the label directions. The following guidelines should be followed.  
Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.  
Do not allow children or pets to enter the treated area until it has dried.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties**

<b>Form</b>	suspension
<b>Colour</b>	light brown
<b>Odour</b>	sweet, earthy
<b>Odour Threshold</b>	No data available
<b>pH</b>	5.2 - 5.4 (100 %) (23 °C)
<b>Boiling point/boiling range</b>	91 °C
<b>Flash point</b>	> 91 °C No flash point - Determination conducted up to the boiling point.
<b>Ignition temperature</b>	475 °C
<b>Evaporation rate</b>	No data available
<b>Density</b>	ca. 1.05 g/cm <sup>3</sup> ( 20 °C)
<b>Water solubility</b>	dispersible

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<b>Viscosity, dynamic</b>	10 - 100 mPa.s ( 21 °C) Please, note QC information ! 10 - 100 mPa.s ( 21 °C)
<b>Surface tension</b>	34 mN/m ( 25 °C) Determined in the undiluted form.
<b>Impact sensitivity</b>	Not impact sensitive.
<b>Oxidizing properties</b>	No oxidizing properties
<b>Explosivity</b>	Not explosive 92/69/EEC, A.14 / OECD 113
<b>9.2 Other information</b>	Further safety related physical-chemical data are not known.

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**SECTION 10: STABILITY AND REACTIVITY****10.1 Reactivity**

<b>Thermal decomposition</b>	Stable under normal conditions.
<b>10.2 Chemical stability</b>	Stable under recommended storage conditions.
<b>10.3 Possibility of hazardous reactions</b>	No hazardous reactions when stored and handled according to prescribed instructions.
<b>10.4 Conditions to avoid</b>	freezing Extremes of temperature and direct sunlight.
<b>10.5 Incompatible materials</b>	Store only in the original container.
<b>10.6 Hazardous decomposition products</b>	No decomposition products expected under normal conditions of use.

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**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects**

<b>Acute oral toxicity</b>	LD50 (Rat) > 5,000 mg/kg
<b>Acute inhalation toxicity</b>	LC50 (Rat) > 5.19 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
<b>Acute dermal toxicity</b>	LD50 (Rabbit) > 2,000 mg/kg
<b>Skin corrosion/irritation</b>	No skin irritation (Rabbit)
<b>Serious eye damage/eye irritation</b>	No eye irritation (Rabbit)
<b>Respiratory or skin sensitisation</b>	Skin: Non-sensitizing. (Guinea pig) Test conducted with a similar formulation.

**Assessment STOT Specific target organ toxicity – single exposure**

Bacillus subtilis: Based on available data, the classification criteria are not met.



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**Assessment STOT Specific target organ toxicity – repeated exposure**

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

**Assessment mutagenicity**

Bacillus subtilis: Test not required for microorganisms.

**Assessment carcinogenicity**

Bacillus subtilis: Test not required for microorganisms.

**Assessment toxicity to reproduction**

Bacillus subtilis: Test not required for microorganisms.

**Assessment developmental toxicity**

Bacillus subtilis: Test not required for microorganisms.

**Aspiration hazard**

Based on available data, the classification criteria are not met.

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

**Toxicity to fish**

LC50 (Oncorhynchus mykiss (rainbow trout)) 162 mg/l 3.24 x 10<sup>9</sup> 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<sup>9</sup> 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<sup>9</sup> 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<sup>8</sup> CFU/L

Exposure time: 48 h

The value mentioned relates to the active ingredient.

EC50 (Daphnia magna (Water flea)) 1.6 x 10<sup>6</sup> CFU/mL

Exposure time: 21 d

The value mentioned relates to the active ingredient.

NOEC (Daphnia magna (Water flea)) 7.9 x 10<sup>5</sup> CFU/mL

Exposure time: 21 d

The value mentioned relates to the active ingredient.

**Toxicity to aquatic plants**

NOEC (Desmodesmus subspicatus (green algae)) >= 100 mg/l

The value mentioned relates to the active ingredient.

LOEC (Desmodesmus subspicatus (green algae)) > 100 mg/l

The value mentioned relates to the active ingredient.



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### 12.2 Persistence and degradability

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

### 12.3 Bioaccumulative potential

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

### 12.4 Mobility in soil

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

### 12.5 Results of PBT and vPvB assessment

**PBT and vPvB assessment** Bacillus subtilis: Evaluation of PBT/vPvB properties is not relevant for micro-organisms.

### 12.6 Other adverse effects

**Additional ecological information** No other effects to be mentioned.

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## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

**Product** In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant. Advice may be obtained from the local waste regulation authority (part of the Environment Agency in the UK).

**Contaminated packaging** Small containers (< 10 l or < 10 kg) should be rinsed thoroughly using an integrated pressure rinsing device, or, by manually rinsing three times.  
Add washings to sprayer at time of filling.  
Dispose of empty and cleaned packaging safely.  
Follow advice on product label and/or leaflet.

**Contaminated packaging** Not completely emptied packagings should be disposed of as hazardous waste.

**Waste key for the unused product** **02 01 08\*** agrochemical waste containing hazardous substances

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## SECTION 14: TRANSPORT INFORMATION

According to ADN/ADR/UK 'Carriage' Regulations/RID/MDG/IATA not classified as dangerous goods.

This classification is in principle not valid for carriage by tank vessel on inland waterways. Please refer to the manufacturer for further information.

14.1 – 14.5 Not applicable.

14.6 Special precautions for user





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See sections 6 to 8 of this Safety Data Sheet.

### 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

No transport in bulk according to the IBC Code.

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## SECTION 15: REGULATORY INFORMATION

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

#### UK and Northern Ireland Regulatory References

This material may be subject to some or all of the following regulations (and any subsequent amendments). Users must ensure that any uses and restrictions as indicated on the label and/or leaflet are followed.

#### Transport

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No 1348)  
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997 (SI 1997 No 2367)  
Air Navigation Dangerous Goods Regulations 2002 (SI 2002 No 2786)

#### Supply and Use

Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No 716)  
Chemical (Hazard Information and Packaging for Supply) (Northern Ireland) Regulations 2009  
Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No 2677)  
EH40 Occupational Exposure Limits - Table 1 List of approved workplace exposure limits  
Control of Pesticide Regulations 1986  
Dangerous Substances and Explosive Atmospheres Regulations 2002

#### Waste Treatment

Environmental Protection Act 1990, Part II  
Environmental Protection (Duty of Care) Regulations 1991  
The Waste Management Licensing Regulations 1994 (as amended)  
Hazardous Waste Regulations 2005 (Replacing Special Waste Regulations 1996 as amended)  
Landfill Directive  
Regulation on Substances That Deplete the Ozone Layer 1994 (EEC/3093/94)  
Water Resources Act 1991  
Anti-Pollution Works Regulations 1999

#### Further information

WHO-classification: U (Unlikely to present acute hazard in normal use)

### 15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.

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## SECTION 16: OTHER INFORMATION

### Text of the hazard statements mentioned in Section 3

### Abbreviations and acronyms



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ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
Conc.	Concentration
EC-No.	European community number
ECx	Effective concentration to x %
EH40 WEL	Worker Exposure Limit
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SI	Statutory Instrument
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

**Reason for Revision:** Safety Data Sheet according to Regulation (EU) No. 2015/830. Section 6. Accidental Release Measures. Section 7: Handling and Storage.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The above information is intended to give general health and safety guidance on the storage and transport of the product.

It is not intended to apply to the use of the product for which purposes the product label and any appropriate technical usage literature available should be consulted and any relevant licenses, consents or approvals complied with.

The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given.

The information provided in this safety data sheet is accurate at the date of publication and will be updated as and when appropriate.

No liability will be accepted for any injury, loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.