

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

1/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

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

1.1 Product identifier

Trade name SERENADE OPTIMUM
Product code (UVP) 80921837

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

Use Fungicide, Bactericide
EPA-Nr. HSR000656

Restrictions on use See product label for restrictions.

1.3 Details of the supplier of the safety data sheet

Supplier Bayer New Zealand Limited
CropScience Division
B:HIVE Building
74 Taharoto Rd
Smales Farm
Takapuna
Auckland, 0622
New Zealand
Telephone 0800 428 246
Telefax (09) 441 8645

1.4 Emergency telephone no.

Emergency Number 0800 734 607 (24hr)
Global Incident Response Hotline (24h) +1 (760) 476-3964 (Company 3E for Bayer AG, Crop Science Division)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classified as hazardous according to the criteria in the Hazardous Substances (Minimum Degrees of Hazard) Notice 2020 as amended

6.4 A
H320 Causes eye irritation.

6.5 B
H317 May cause an allergic skin reaction.

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

2/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

9.4 C
H443 Harmful to terrestrial invertebrates.

2.2 Label elements

Labelling in accordance with the Hazardous Substances (Safety Data Sheets) Notice 2020 as amended

Hazard label for supply/use required.



Signal word: Warning

Hazard statements

H320 Causes eye irritation.
H317 May cause an allergic skin reaction.
H443 Harmful to terrestrial invertebrates.

Precautionary statements

P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.
P321 Specific treatment (see supplemental first aid instructions on this label).
P501 Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical nature

Wettable powder (WP)
BACILLUS SUBTILIS QST713 $\geq 1.3E+10$ CFU/g

Hazardous components

Chemical name	CAS-No.	Conc. [%]
Bacillus subtilis strain QST 713		26.2

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.

Inhalation Move to fresh air. Keep patient warm and at rest. Call a physician or poison control center immediately.

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

3/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

Skin contact	Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, 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.
Ingestion	Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment Treat symptomatically. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. There is no specific antidote.

Contact the National Poisons and Hazardous Chemicals Information center in Dunedin, PO Box 913, Dunedin. Phone 0800 POISON (0800 764 766).

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable 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

Special protective equipment for firefighters 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

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

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

4/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

- 6.2 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. Apply this product as specified on the label.
- 6.3 Methods and materials for containment and cleaning up**
- Methods for cleaning up** Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. 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. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.
- 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.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

- Advice on safe handling** Ensure adequate ventilation. Handle and open container in a manner as to prevent spillage.
- 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.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers** Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.
Keep away from direct sunlight. Protect from freezing.
- Suitable materials** LDPE (low density polyethylene)

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 ³		OES BCS*

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

8.2 Exposure controls

Personal protective equipment

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

5/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

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.

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 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

9.1 Information on basic physical and chemical properties

Form	powder
Colour	light brown
Odour	sweet, earthy
Odour Threshold	No data available
pH	4.8 - 8.0 (1 %)
Melting point/range	No data available
Boiling Point	

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

6/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

	Not applicable
Flash point	Not applicable
Flammability	No data available
Auto-ignition temperature	No data available
Minimum ignition energy	No data available
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	Not applicable
Lower explosion limit	Not applicable
Vapour pressure	No data available
Evaporation rate	Not applicable
Relative vapour density	No data available
Relative density	No data available
Density	No data available
Bulk density	≥ 0.40 g/ml (loose)
Water solubility	dispersible
Partition coefficient: n-octanol/water	Not applicable
Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

7/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

- 10.4 Conditions to avoid** Extremes of temperature and direct sunlight. freezing
- 10.5 Incompatible materials** No data available
- 10.6 Hazardous decomposition products** No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- Acute oral toxicity** LD50 (Rat) > 5,000 mg/kg
- Acute inhalation toxicity** LC50 (Rat) 2.15 mg/l
Determined in the form of liquid aerosol.
highest concentration tested
- Acute dermal toxicity** LD50 (Rabbit) > 5,050 mg/kg
- Skin corrosion/irritation** slight irritation (Rabbit)
- Serious eye damage/eye irritation** Moderate eye irritation. (Rabbit)
- Respiratory or skin sensitisation** Sensitising (Guinea pig)
OECD Test Guideline 406, Buehler test

Assessment STOT Specific target organ toxicity – single exposure

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

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.

Further information

Micro-organisms may have the potential to provoke skin and respiratory sensitisation.

11.2 Information on other hazards



SERENADE OPTIMUM

Version 1 / NZ
102000028243

8/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

Endocrine disrupting properties

Assessment The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 162 mg/l
Exposure time: 30 d
The value mentioned relates to the active ingredient.

Toxicity to aquatic invertebrates LC50 (Daphnia magna (Water flea)) 108 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient.

Toxicity to aquatic plants NOEC (Desmodesmus subspicatus (green algae)) \geq 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.

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 Endocrine disrupting properties

Assessment The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Additional ecological information No other effects to be mentioned.

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

9/10
Revision Date: 09.08.2022
Print Date: 09.08.2022

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.
Contaminated packaging	Triple rinse containers. Recycle if possible. If allowed under local authority, burn if circumstances, especially wind direction permit, otherwise crush and bury in an approved local authority facility. Do not use container for any other purpose.

SECTION 14: TRANSPORT INFORMATION

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

According to ADN/ADR/RID/IMDG/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

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.

SECTION 15: REGULATORY INFORMATION

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

Further information

HSNO approval-Nr.	HSR000656
HSNO Controls	See www.epa.govt.nz
ACVM Reg.	P9409
ACVM Condition	See www.foodsafety.govt.nz

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

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

SAFETY DATA SHEET



SERENADE OPTIMUM

Version 1 / NZ
102000028243

10/10
Revision Date: 09.08.2022
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ECx	Effective concentration to x %
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
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe products in terms of their safety requirements. The above details do not imply any guarantee concerning composition, properties or performance of the product.

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