



BIONEM WP 5

Version 2 / EU
102000024952

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Revision Date: 18.07.2018
Print Date: 19.07.2018

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

1.1 Product identifier

Trade name BIONEM WP 5
Product code (UVP) 80240511, 84893153

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

Use Insecticide, Nematicide

1.3 Details of the supplier of the safety data sheet

Supplier Bayer AG
Kaiser-Wilhelm-Allee 1
51373 Leverkusen
Germany
Telefax +49(0)2173-38-7394
Responsible Department Substance Classification & Registration
+49(0)2173-38-3409 (during business hours only)
Email: BCS-SDS@bayer.com

1.4 Emergency telephone no.

Emergency telephone no. 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

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

Eye irritation: Category 2
H319 Causes serious eye irritation.

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.



|| Signal word: Warning

Hazard statements

|| H319 Causes serious eye irritation.

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EUH401 To avoid risks to human health and the environment, comply with the instructions for use.
Contains Bacillus firmus. May cause sensibilisation.

Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
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 firmus I-1582 5% Biological control with insecticidal/nematicidal properties

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 firmus (Strain I-1582) (contains 7.1×10^{10} UFC per gram)		Not classified	5,0
Ammonium chloride	12125-02-9 235-186-4 01-2119487950-27-xxxx	Acute Tox. 4, H302 Eye Irrit. 2, H319	> 1 – < 25
Silica, amorphe	7631-86-9 231-545-4 01-2119379499-16-XXXX	Not classified	>= 1
Potassium chloride	7447-40-7 231-211-8	Not classified	> 1

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****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. If symptoms persist, call a physician.



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Skin contact	Wash off immediately with soap and plenty of 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. If eye irritation or redness persists, see an ophthalmologist.
Ingestion	Rinse out mouth and give water in small sips to drink. Do NOT induce vomiting. If symptoms persist, call a physician.
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.

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.
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5.3 Advice for firefighters

Special protective equipment for firefighters	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.
Further information	Contain the spread of the fire-fighting media. 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	Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke. Use personal protective equipment.
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6.2 Environmental precautions	Do not allow to get into surface water, drains and ground water.
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6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Use mechanical handling equipment. Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.
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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**

Avoid dust formation. Use only in area provided with appropriate exhaust ventilation.

Hygiene measures

Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands immediately after work, if necessary take a shower. 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 original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only.

Advice on common storage

Keep away from food, drink and animal feedingstuffs.

Suitable materials

Aluminium composite film (min. 0,007 mm Aluminium)

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 firmus (Strain I-1582)		1x10 ⁷ CFU/m ³ (TWA)		OES BCS*
Ammonium chloride	12125-02-9	10 mg/m ³ (TLV)		OES BCS*
Potassium chloride	7447-40-7	10 mg/m ³ (TWA)		OES BCS*

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

8.2 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

If product is handled while not enclosed, and if contact may occur:
Wear respirator with a particle filter mask (protection factor 4) conforming to European norm EN149FFP1 or equivalent.
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

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instructions regarding wearing and maintenance.

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
Protective index	Class 6
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.
If there is a risk of significant exposure, consider a higher protective type 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 chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Form	powder
Colour	light brown
pH	6,0 - 8,0 at 1 % (23 °C) (deionized water)
Bulk density	800 - 960 kg/m ³ (loose)

9.2 Other information Further safety related physical-chemical data are not known.

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

Thermal decomposition Stable under normal conditions.

10.2 Chemical stability Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions No hazardous reactions when stored and handled according to prescribed instructions.



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10.4 Conditions to avoid	Extremes of temperature and direct sunlight.
10.5 Incompatible materials	Store only in the original container.
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) > 2.000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 5,02 mg/l Exposure time: 4 h Determined in the form of a respirable fine dust.
Acute dermal toxicity	LD50 (Rat) > 2.000 mg/kg
Skin corrosion/irritation	Slight irritant effect - does not require labelling. (Rabbit)
Serious eye damage/eye irritation	Moderate eye irritation. (Rabbit)
Respiratory or skin sensitisation	Micro-organisms may have the potential to provoke sensitising reactions.

Assessment STOT Specific target organ toxicity – single exposure

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

Assessment STOT Specific target organ toxicity – repeated exposure

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

Assessment mutagenicity

Bacillus firmus: Test not required for microorganisms.

Assessment carcinogenicity

Bacillus firmus: Test not required for microorganisms.

Assessment toxicity to reproduction

Bacillus firmus: Test not required for microorganisms.

Assessment developmental toxicity

Bacillus firmus: 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)) > 100 mg/l
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	Exposure time: 96 h The value mentioned relates to the active ingredient.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 100 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 24,2 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient.
12.2 Persistence and degradability	
Biodegradability	Bacillus firmus: Evaluation of biodegradability is not relevant for micro-organisms.
12.3 Bioaccumulative potential	
Bioaccumulation	Bacillus firmus: Evaluation of bioaccumulation is not relevant for micro-organisms.
12.4 Mobility in soil	
Mobility in soil	Bacillus firmus: Evaluation of mobility in soil is not relevant for micro-organisms.
12.5 Results of PBT and vPvB assessment	
PBT and vPvB assessment	Bacillus firmus: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
12.6 Other adverse effects	
Additional ecological information	No other effects to be mentioned.

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.
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

SECTION 14: TRANSPORT INFORMATION**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.

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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.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Further information**

WHO-classification: III (Slightly hazardous)

15.2 Chemical safety assessment

A chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION**Text of the hazard statements mentioned in Section 3**

H302	Harmful if swallowed.
H319	Causes serious eye irritation.

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
EC-No.	European community number
EC _x	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)
IC _x	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LC _x	Lethal concentration to x %
LD _x	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

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006



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RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

Reason for Revision: Safety Data Sheet according to Regulation (EU) No. 2015/830.

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