

MATERIAL SAFETY DATA SHEET

NovaFerm® Sirius Microbial prepare

Prepared according to the: 1907/2006/EK és 453/2010/EK regulation

1. Identification of the product and the company / enterprise

| | |
|-------------------------------|--|
| Name of the material: | NovaFerm® Sirius microbial prepare |
| Field of application: | Microbial prepare |
| Hazard classification: | Not dangerous preparation |
| Description: | A microbial product containing natural living bacterias, which have biologically active conditioning and fungistatic components in foliar applications. It is a natural bacterial product, which show positive effect on the processes of fungal resistance and healthy protection of the crop against fungal diseases. |

Application of the product: As microbial fungistatic prepare in agriculture

Manufacturer and supplier: **Nova Scienta Kft.**
Kiss Erno u. 75. H-6230 Soltvadkert, Hungary
Telephone: +3670/ 566 3020
E-mail: szilva@novascienta.com;
Webpage: www.novascienta.com;

Person responsible: Rózsa Péter, +3630/3118831

Emergency phone: Medical Toxicological Information Service (ETTSZ)
1096 Budapest, Nagyvárád tér 2.
Tel.: +36 1 476 6464, +36 80 201 199

2. Composition, information about the components

2.1. Classification

The product was classified according to the 1272/2008 [CLP/GHS] EC és 67/548/EEC EU regulation.

Classification: Not dangerous preparation
Does not belong to the REACH regulation.

2.2. Information about the composition:

| Name of component | Concentration | Identification | | Classified on the basis of 67/548/EEC regulation | Classified on the basis of 1272/2008 [CLP/GHS] EC regulation |
|-------------------|---|----------------|-----------|--|--|
| | | CAS: | EINECS: | | |
| Water | 94 % | 7732-18-5 | 231-791-2 | - | - |
| MAP | 0,8-0,9 % | 7722-76-1 | 231-764-5 | R36/37/38 | H302, H315, H335 |
| Bacterial cells* | max. 5 % total germ number: min 1×10^7 cfu/ml | - | - | - | - |

* *Bacillus licheniformis*

2.3. Chemical characteristics

Active agent: < 5%, bacteria strains as described in 2.2.

Vehicle: max. 94 % water

2.4. Physical characteristics

Colour: brownish-yellow
Physical state: liquid
insoluble material: max. 0,1 m/m %
Density: 1,02 kg/ m³
pH: 6,5- 7,5

3. Hazard classification

The product was classified according to the 67/548/EK and the 1999/45/EK guideline, the 1907/2006/EK regulation and the 2006/121/EK guideline, and the 2000. XXV. Act on security, and the 44/2000. (XII.27.) EüM regulation modified by 33/2004. (IV.26.) ESZCSM regulation:

R and S sentences referring to the Hazard classification: S2, S13, S20/21, S36/37/39
No use of any danger symbols is necessary.

See the complete text of S sentences in point 15.

The product was classified and labelled on the basis of the 1272/2008 [CLP/GHS] regulation:

P sentences referring to the hazard classification

P102, P103, P270, P280, P411+235

No use of any danger pictogram is necessary

See the complete text of P sentences in point 15.

The product does not endanger human health or the environment.

Other factors endangering human health and environment: the product has no known other effect endangering human health or the environment.

3.1. The product's effect on human health

Used and stored according to the instructions the bacterial fertilizer is not dangerous. The following points are still to be observed on application:

Dermal contact

- Long contact with skin can cause irritation.

Contact with eye

- Can cause irritation.

Swallowing

- Not dangerous in small quantity
- Swallowing bigger quantities may upset the digestive system.

Inhaling

- Has no side effect.

3.2. The product's effect on the environment

A NovaFerm® Multi Bacterial fertilizer consists of natural bacteria. There are not known adverse effects on the environment.

3.3. Other information

Fire and explosion prevention

The additive substance is not flammable or explosive.

4. First aid

4.1. Description of first aid

Dermal contact

- After removing the contaminated clothing wash with plenty of water and soap.

Contact with eye

- Rinse the eye with clean water for 10- 15 minutes.
- If the irritation does not cease, see the doctor.

Swallowing

- Do not induce emesis.
- Rinse mouth with plenty of water.
- Drink a lot of water.
- Take a comfortable position.
- In case of swallowing a greater dose call the doctor.

Inhaling

- Take the injured to fresh air.
- In case of persistent symptoms call the doctor.

Directions to the doctor

- There are no other known symptoms.
- No special instructions.

5. Directions for fire extinguishing

The product is not dangerous (E flammability classification), not flammable.

Extinguishing materials: CO₂, powder, jet of water, sand

Do not apply for fire extinguishing: no such regulation.

Dangerous gas emission: CO₂, CO

Other information: The fine powder fractions can cause irritation in the respiratory organ.

5.1. If the product is not directly exposed to fire

Use the material most appropriate to extinguish fire.

5.2. If the product is directly exposed to fire

- Call the fire brigade.
- Avoid inhaling the exhaust gases.
- Use appropriate protective gear (breathing device).
- Use great amount of water.
- Open the doors and the windows to ensure the best possible ventilation.
- Prevent the material from entering the sewage system.
- Prevent the material from contacting oil or other flammable material.
- If the water used to extinguish the fire and contaminated with bacterial fertilizer enters the sewage system, or reaches water resources, immediately inform the appropriate authorities.
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6. Measures in case of accident

Personal protection:

- Only well trained personnel, wearing the appropriate personal protective clothing, who know the proper steps to be taken can stay on the scene of the accident. Open flame, ignition source should be closed. Provide proper ventilation.

Environment:

Materials emitted or waste formed must be treated according to the environment protection laws in effect. The material and its waste must be prevented from infiltrating into living water, the soil and the water canal system, If environment pollution occurs, the appropriate authority must immediately be notified.

7. Handling and storage

7.1. Handling

- Change clothes after working with the product.
- After working with the product wash hands thoroughly with soap and water.
- It is forbidden to eat, drink and smoke at the place of work.
- If contacting the material for a longer period wear appropriate individual protective clothing (i.e. protective gloves, respiration protecting mask, protective clothes).
- Contact with the packed product is safe.
- Keep packaging closed if we do not use the product.

7.2. Storage

- Do not store near ignition sources or flammable materials.
- Keep away from the reach of children.
- Keep in a cool, dry, well ventilated place. Always follow the instructions.
- Store in the original closed package.
- Do not store near foodstuff, medicine, cosmetics, oxidizing and disinfecting materials.
- Smoking and use of open flame in the storing facility is forbidden.
- The product must be protected from direct sunshine.
- Avoid storing on temperatures near freezing point.
- Store between: +4 °C and +25 °C.

7.3. Fire and explosion protection

It is not a dangerous product (E), it is not flammable. If handled and stored properly it is not explosive.

8. Exposition limits / Personal protection

8.1. Limits allowed in the air at work

Limits at work: there are no clear, officially set limits.

8.2. Conditions of work

- Swallowing or getting the product into eyes or skin should be avoided.
-

8.3. Personal protection

- If working with the product for a longer time it is necessary to wear protective gloves protective clothes, protective glasses and protective mask.
- After working with the product change clothes and take a shower.
- Checking the environmental exposition: There is no specific regulation.
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According to the 7.§ (6) paragraph of the 25/2000. (IX. 30.) EüM-SZCSM joint order the employer must decrease the exposition to the lowest possible level expected by the scientific and technical standards in case of dangerous material not regulated by limits. According to these standards the dangerous material does not pose a risk to health.

Personal protective gear: protective gloves, protective clothes, protective glasses, protective mask.



Regulations in these point apply to professional work done under average conditions and in case of use for intended purposes. If work is done under different from average or extraordinary conditions, it is advisable to consult experts about further steps to be taken and about individual protective gear.

9. Physical and chemical characteristics

| | |
|---------------------------|----------------------------|
| Shape | Liquid |
| Colour | Brownish-yellow |
| Smell | Typical bacterial smell |
| Change of physical state | |
| Melting point | 0 °C |
| Boiling point | 100 °C |
| Crystallizing point | Cca 0 °C |
| Flashpoint | N.r. |
| Flammability | Not flammable |
| Ignition temperature | Not flammable |
| Self-ignition ability | N.r. |
| Oxidative characteristics | N.r. |
| Risk of explosion | N.r. |
| Density 20 °C | 1,02 kg/m ³ . |
| Solubility in water | Dissolves well |
| pH value 20 °C | 6,5- 7,5 In water solution |
| Other information | - |

nr.: not relevant

10. Stability and reactivity

10.1. Stability

The product is stable under normal storage and handling.

10.2. Conditions to be avoided

- Avoid storage over 30°C.
- Keep away from heat sources, fire, direct sunshine, and radiation.
Avoid storage around freezing point.

10.3. Materials to be avoided

Flammable materials, strong acids, bases, cleaning and disinfecting materials.

10.4. Gases and metabolites emitted

CO₂, CO

11. Toxicological data

11.1. General data

The product is not toxic. It has not been subject to targeted toxicological examinations. Its toxicological classification was done under the modification of the 1999/45/EK directive of the 44/2000. (XII.27.) EüM regulation.

11.2. Toxicity data

| | |
|-------------------------|----------------------------------|
| Acute toxicity | Not toxic |
| LD50 (oral, rats) | - |
| Inhalation toxicity | N.r. |
| Primary irritant effect | N.r. |
| Skin | N.r. |
| Eye | N.r. |
| Sensibilisation | The product does not sensibilate |
| Other information | N.r. |
| CRM effect | N.r. |

nr. not relevant

12. Ecological data

The product has not been subject to targeted ecological examinations. It was evaluated on the basis of the 1999/45/EK directive and the modification of the 44/2000. (XII.27.) EüM regulation.

| | |
|----------------------------------|---|
| Environmental effect | Bacterial fertilizer, dissolves well in water, to be used as biofertilizer in agriculture |
| Persistency and decomposability | - |
| Biological decomposition | The product decomposes biologically |
| Abiotic decomposition | - |
| Bioaccumlational potential | There is no accumulation |
| Bioaccumlational factor (BCF) | - |
| Mobility | Dissolves well in water |
| Behaviour in sewage systems | N.r. |
| Biochemical oxygen need | N.r. |
| Chemical oxygen need (KOI) | N.r. |
| Toxicity for water life (TLM 96) | Not toxic |

Does not harm the ozone layer (according to the 1999/45/EC regulation).

13. Disposal

13.1. General information

Treating and disposing the remnants of the product is done on the basis of the 2000. XLIII. Government regulation: Law on waste management, the 98/2001. (VI. 15.) Government regulation on the conditions of activities done in connection with dangerous waste and the 2008/98/EC regulation. The product and its remnants are not dangerous materials.

13.2. The product

The product is a biofertilizer to be applied in plant cultivation, it is a natural preparation, it does not harm the environment, it is not poisonous and does not accumulate.

13.3. Contaminated packaging

Do not reuse the contaminated packaging. After rinsing with plenty of water contaminated packaging should be disposed of according to the local law. Contaminated packaging is not dangerous waste. Handling and disposing of the remnants of the product is according to the 98/2001 (VI. 15.) Government regulation [modified by: 340/2004 (XII. 22. Government regulation; 313/2005 (XII. 25.) Government regulation] and the 16/2001 (VII. 18) Ministry of Environment regulation [modified by: 22/2004 (XII. 11.) Ministry of Environment and Rural Development].

13.4. EWC code

EWC code: 20 03 01 – (other municipal waste including mixed municipal waste)

14. Transportation data

European Union category:

The product is not dangerous in transportation aspects; it can be transported without limitations. (No ADR/RID obligation)

Should be transported in closed space vehicle under dry conditions, avoiding heat source and direct sunshine.

Special instructions regarding transportation: none.

15. Information on regulations

Chemical safety assessment: -

Regulations on labelling: see point 3.

15.1. Classification and labelling according to the 67/548/EK and the 1999/45/EK directives

Obligatory danger symbols and the R/S sentences concerning the classification and labelling of the product are according to the 67/548/EK and the 1999/45/EK directives:

No use of danger symbols is necessary.

R sentences indicating the dangers/risks of dangerous materials:

R36/37/38: Eye and skin irritating effect, can irritate the respiratory tract (R sentence on MAP only)

S sentences indicating the safe use of dangerous materials:

S2: Must be kept out of the reach of children.

S13: Must be kept away from food, drink and forage.

S20/21: Eating, drinking and smoking are prohibited during use.

S36/37/39: Appropriate protecting clothing, protective gloves and eye and face protectors must be used.

15.2. Classification and labelling of the product on the basis of the 1272/2008 (CLP/GSH) EK regulation

Obligatory danger pictograms, H warning and P safety precaution sentences regarding the classification and labelling are on the basis of the 1272/2008 [CLP/GHS] EC regulation.

No use of danger symbols is necessary.

H warning sentences on dangerous materials:

H302: Harmful if swallowed. (H sentence on MAP only)

H315: Can irritate skin. (H sentence on MAP only)

H335: Can irritate the respiratory tract. (H sentence on MAP only)

P warning sentences on precautions regarding dangerous materials:

P102: Must be kept out of the reach of children.

P103: Before use read the information on the label.

P270: Eating, drinking and smoking are prohibited during use.

P280: Protective gloves, protective clothes, eye and face protectors must be used.

P411+ 235: Store at a maximum of +25°C. To be kept in a cool place.

Environment protection regulation: It is forbidden to discard the unused remnants of the product, waste contaminated by it or its packaging into rivers, lakes, streams, reservoirs. Prior authorization by the competent authority is needed to use the product in conservation areas, national parks and protected landscape areas.

The buyer of the product is responsible for compliance with the laws and regulations in effect.

The safety form was prepared following of the directions of the REACH and CLP regulations.

15.3. European Union and Hungarian laws and regulations to apply:

Worker safety:

- Maximum levels of dangerous materials in the air at the workplace: 25/2000.(IX.30.) EüM-SzCSM joint regulation on the chemical safety and the 13/2002.(XI.28.) EszCsM-FMM joint regulation modifying it
- The 2004. XI. and the 1993. XCIII.law on worker safety modified by the 1997. CII.

Chemical safety:

- The 2000. XXV. and the 2004.XXVI. law on chemical safety
- The 44/2000.(XII.27.) EüM regulation on the detailed rules for procedures and activities concerning dangerous materials and dangerous preparations, the 33/2004.(IV.26)ESzCsM regulation modifying it, the 61/2004.(VII.12)ESZCSM regulation and the 3/2006.(I.26.) EüM regulation.

Waste:

- 2000. XLIII. law on waste management modified by the 2004. XXIX. law.
- EWC codes: 16/2001.(VII.18.) KöM regulation on the list of waste and the 10/2002(III.26.). KöM regulation modifying it.

Fire protection:

- The 1996. XXXI. law on protection against fire, technical rescue and the fire fighters
- The 35/1996. (XII.29.) BM regulation modified by the 9/2000. (II.16.) BM regulation.

Transportation:

- Department of Road Transport: 28/2002.(XII.9.)GKM regulation (the modified regulation on the publication and the Hungarian application of the of the “A” and “B” annex of the European Agreement on Road Transportation of dangerous goods) and the 46/2005.(VI.28.)GKM regulation modifying it and the 29/2002.(XII.9.)GKM regulation (on the modification of the 4/1987.(V.13) KM regulation on the publication of the annex of the Uniform Rules (CIM) on the International Convention concerning the transport of goods by rail) and the 47/2005.(VI.28.)GKM regulation modifying it.

European Union laws and regulations to apply:

- 1907/2006 EC regulation (REACH regulation on registration, assessment, licensing, and restriction of chemical materials)
- 1272/2008 EC regulation (CLP/GSH regulation on the classification labelling and packaging of substances and mixtures)
- 67/548 EEC or 1999/45 EC regulation: directive on the dangerous materials and preparations
- 2001/58 EC regulation
- 2004/73 EC regulation on dangerous materials
- 2006/8 EC regulation on the classification labelling and packaging of dangerous materials

Notes:

n. a. = not applicable
n. r. = no available data

n. sz. = not regulated

The above data were compiled to the best of our knowledge on the basis of the safety sheet and analysis provided by the manufacturer and the general regulatory information. The safety sheet describes the safety requirements concerning the product, but it does not guarantee any determined characteristics of the product and neither the observation of any regulations which should locally be observed. With regard to all these, the compiler and the signatory company of the safety sheet – not knowing the circumstances of the use and handling the product – does not take any direct or indirect responsibility for the quality of the product and does not guarantee that all the information, data and recommendations in the safety sheet will prove fully precise and correct at the time of use. The compiler of the safety sheet and the manufacturer and distributor company issuing the safety sheet cannot be held responsible for what is recorded here, neither for any harmful event, loss, injury, accident, or any other incident similar to or in connection with these, which can be associated with the information given here. Assessing the reliability of the information in the safety sheet and determining the actual use and handling of the product is the responsibility of the user. The user is obliged to keep all the directions of the current legislation in connection with the activities concerning the product.