No. 004

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MATERIAL SAFETY DATA SHEET (MSDS)

ProtoHumiX®

Non-Microbial Biostimulant

Manufactured in accordance with the patented technology under
European Patent **EP3135655**,
EU Trademark No. **017182429**,

European Certificate No. **CE-B/18/25/BS**

In accordance with Regulations (EU) No. 1907/2006 (REACH), No. 1272/2008 (CLP), No. 453/2010, and the latest Regulation (EU) No. 1009/2019 of the European Parliament and of the Council of June 5, 2019, establishing rules regarding the placing on the market of EU fertilizing products

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING 4
1.1. Product identifiers 4
1.2. Identified relevant uses of the substance or mixture and uses not recommended Identified use: 4
1.3. Information on the manufacturer and supplier of the safety data sheet 4
1.4. Emergency contact number 5
SECTION 2: HAZARD IDENTIFICATION 5
2.1. Classification of the substance or mixture 5
2.2. Label elements 5
2.3. Other hazards 5
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS 5
3.1. Composition and heavy metal content: 5
3.2. Microbiology: 5
3.3. Concentration of humic-fulvic acids: 6
SECTION 4: FIRST AID MEASURES 6
4.1. Description of first aid measures 6
4.2. Most important symptoms and effects, both acute and delayed: 6
4.3. Indications for immediate medical attention and special treatment 6
SECTION 5: FIREFIGHTING MEASURES 6
5.1. Extinguishing media 6
5.2. Special hazards arising from the substance or mixture 6
5.3. Advice for firefighters 6
5.4. Additional Information 7
SECTION 6: ACCIDENTAL RELEASE MEASURES 7
6.1. Personal Precautions, Protective Equipment, and Emergency Procedures 7
6.2. Environmental Protection Measures 7
6.3. Methods and Materials for Containment and Removal/Cleanup 7
6.4. Reference to other sections 7
SECTION 7: HANDLING AND STORAGE 7
7.1. Precautions for safe handling/transport 7
7.2. Conditions for safe storage, including incompatibilities 7
7.3. Specific end use 8
SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION 8

8.1. Controlled parameters 8
8.2. Exposure controls 8
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES 9
9.1. Information on basic physical and chemical properties 9
SECTION 10: STABILITY AND REACTIVITY 9
SECTION 11: TOXICOLOGICAL INFORMATION 10
11.1. Information on toxicological effects Acute toxicity: No toxicity data available 10
SECTION 12: ECOLOGICAL INFORMATION 10
12.1. Toxicity 10
12.2. Persistence and degradability 10
12.3. Bioaccumulation potential Low. 10
12.4. Mobility in soil 10
12.5. Results of the PBT and vPvB assessment 10
SECTION 13: DISPOSAL OF WASTE 10
13.1. Waste treatment methods 10
13.2. Information on disposal sites and methods Product: 10
SECTION 14: TRANSPORT INFORMATION 11
14.1. UN Numbers: 11
14.2. UN Proper Shipping Name: 11
14.3. Transport hazard class(es): 11
14.4. Packing group: 11
14.5. Environmental hazards: 11
14.6. Special precautions for the user No data available. 11
SECTION 15: REGULATORY INFORMATION 11
15.1. Safety, health, and environmental regulations/legislation specific to the substance or mixture. 11
15.2. Chemical Safety Assessment 11
SECTION 16: OTHER INFORMATION 12
16.1. Additional Information. 12

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

1.1. Product identifiers

Product name:	Non-microbial biostimulant ProtoHumiX®
Synonyms:	Composition/Concentrate of humic-fulvic acids
International brand:	ProtoHumiX®
EU trademark name:	ProtoHumiX®
EU trademark number:	017182429
Production technology:	In accordance with the patented technology, European Patent EP3135655
Product batch No.:	2026/01-04/07
REACH No.:	Not applicable
CAS No.:	1415-93-6
Compliance with EU requirements:	Complies with the requirements of Regulation (EU) No. 2019/1009
EU Certificate No.:	Certificate CE-B/18/25/BS (*expiration date March 30, 2030*). Approved for free placement on the market and use throughout the European Union, without national restrictions
EU registration for use in organic farming, organic agriculture and animal production:	IUNG PIB, EU Certificate No. SE/132/2025, pursuant to Regulation (EU) No. 848/2018. Feed raw material No. 13.10.2. for animal daily ration (Reg EU 68/2013)

1.2. Identified relevant uses of the substance or mixture and uses not recommended

Identified use:

The non-microbial biostimulant ProtoHumiX® is used as a non-microbial fertilizing product that does not contain microorganisms (bacteria, fungi, yeast) and applied to soils, seeds, or plants to have a beneficial effect on soil fertility, plant growth or improve nutrient uptake. It is recommended for the cultivation of all types of crops in organic, bio, and conventional farming, as well as in sustainable agriculture, floriculture, landscaping, and forestry to naturally stimulate plant growth, as well as to improve soil fertility, increase yields and quality of harvests. Suitable for use in combination with all mineral, organic, and organomineral fertilizers, soil conditioners, biologically active substances, growing media, as well as all plant protection products (with the exception of bacterial ones) to synergistically enhance their effectiveness.

Based on high quality, the ProtoHumiX® non-microbial biostimulant is also used as the feed raw material in veterenary - natural source of humic substances with intension for use as a component for the animal daily ration.

Not recommended methods of use: Deviations from the recommendations specified in the manufacturer's instructions are not permitted.

1.3. Information on the manufacturer and supplier of the safety data sheet

Company: GLK Ltd.

Addrress: Company GLK Ltd.,
5, ul. Vitoshka Zornitza,
1415 Sofia, BULGARIA.
EU Tax number: BG205584326
e-mail: info@protohumix.bg, aleksej.petrov@protohumix.bg

1.4. Emergency contact number

(Mobile, WhatsApp, Viber): +359882887022, +380988204007

SECTION 2: HAZARD IDENTIFICATION

2.1. Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulations (EU) No. 1272/2008 and No. 1009/2019.

2.2. Label elements

Signal word: Not applicable.
Hazard symbols: Not applicable.
Hazard statements: Not applicable.
Precautionary statements: Not regulated.

2.3. Other hazards

This substance/mixture does not contain components that are considered persistent, toxic, or bioaccumulative.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Contains: no toxins, no harmful elements, no impurities.

3.1. Composition and heavy metal content:

Do not exceed the maximum permissible values specified in Regulation (EU) No. 1009/2019 of the European Parliament and of the Council of June 5, 2019, establishing rules regarding the placing on the market of EU fertilizing products.

- Cadmium (Cd) content: <1.5 mg/kg, dry matter
- Hexavalent chromium (Cr VI) content: <2.00 mg/kg, dry matter
- Lead (Pb) content: <120 mg/kg, dry matter
- Mercury (Hg) content: <1.0 mg/kg, dry matter
- Nickel (Ni) content: <50 mg/kg, dry matter
- Inorganic arsenic (As) content: <40 mg/kg, dry matter
- Copper (Cu) content: <600 mg/kg, dry matter
- Zinc (Zn) content: <1500 mg/kg, dry matter

3.2. Microbiology:

Absence of bacteria of the genus Salmonella – not detected in the 25-ml analytical sample in 5 replicates.

Absence of Escherichia coli or Enterococcaceae: < 10 cfu in 1 g or in 1 ml of the sample, tested in 5 replicates.

3.3. Concentration of humic-fulvic acids:

Humic substance content, dry matter (%):	> 11.5 %
Humic acid content (free, active, water-soluble), dry matter (%):	> 10.1 %
Fulvic acid content (free, active, water-soluble), dry matter (%):	> 1.4 %
pH (0,5% solution):	8.5–9.2

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Basic measures: Personal hygiene measures must be observed when working with the product. Avoid contact with the eyes and ingestion of significant quantities.

If inhaled: Move the affected person to fresh air. If not breathing, administer artificial respiration. In case of skin contact: Wash with soap and plenty of water.

In case of eye contact: as a precaution, rinse eyes with water.

If swallowed: rinse mouth with water.

4.2. Most important symptoms and effects, both acute and delayed:

In case of eye contact: possible redness of the conjunctiva and tearing.

If on skin: possible redness.

If inhaled: mild headache, throat irritation, and coughing may occur.

If swallowed: nausea, vomiting, and diarrhea may occur.

4.3. Indications for immediate medical attention and special treatment

No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Non-flammable, fire- and explosion-safe. In the event of a fire in storage areas or loading/unloading zones, fire extinguishing agents should be selected based on the primary ignition source.

Suitable extinguishing media: water jet/water mist, alcohol-resistant foam, dry chemical powder, or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

The nature of the decomposition products is unknown.

5.3. Advice for firefighters

If necessary, use self-contained breathing apparatus for firefighting. In the event of a fire in storage areas and work areas where the product is handled, flames must be extinguished while wearing a gas mask and protective clothing. The need for evacuation of the emergency zone is determined in accordance with the local evacuation plan. Containers with superhumate

must be cooled with water from the greatest possible distance to prevent water evaporation and the release of toxic gases.

5.4. Additional Information

No special environmental protection measures are required.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment, and Emergency Procedures

Avoid dust formation. Avoid inhaling vapors, mist, or gas. Move the vehicle to a safe location. Isolate the hazardous area within a 50-meter radius. Adjust the specified distance based on the results of chemical reconnaissance. Remove unauthorized persons. Enter the danger zone only while wearing protective equipment. Eliminate the cause of the leak. Observe fire safety measures. Provide first aid to affected persons. Send people from the affected area for medical examination.

6.2. Environmental Protection Measures

No special environmental protection measures are required.

6.3. Methods and Materials for Containment and Removal/Cleanup

In case of an outdoor spill, the soil must be plowed. For indoor spills, direct the product into the sewer or wipe up with a dry cloth.

6.4. Reference to other sections

For personal protection—see Section 8.

For disposal information—see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling/transport

Ensure adequate local exhaust ventilation in areas where dust is generated. For precautions, see Section 2.2. Transportation is carried out by all modes of transport in accordance with the rules for the carriage of goods applicable to the respective mode of transport.

7.2. Conditions for safe storage, including incompatibilities

Storage recommendations: Keep the container tightly closed in a dry and well-ventilated place. Store in a cool place. The product should be stored on shelves in closed, well-ventilated storage areas at a temperature not lower than 0°C. Containers must be stored with lids facing upward and protected from direct sunlight, high temperatures, and corrosive substances. Storage of partially emptied containers is not recommended. Storage together with foodstuffs, animal feed, and household chemicals is permitted.

Packaging materials:

The product is filled into hermetically sealed polyethylene terephthalate (PET) bottles, canisters, or drums with a volume of 0.5, 1, 5, 10, 20, 50, 100, 200, and 500 liters, in composite containers with a 1 m^3 polymer inner container, as well as in flexitanks for transport containers.

The containers may be grouped into transport packages.

7.3. Specific end use

Apart from the uses specified in Section 1.2, no other specific uses are intended.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Controlled parameters

Not hazardous, based on the combined action of its components.

8.2. Exposure controls

Appropriate engineering controls: general industrial hygiene practices.

Technical measures to reduce exposure:

Place the product outdoors or in well-ventilated areas. The exhaust system should include cyclones and bag filters. Forced ventilation systems should be designed according to local conditions: the airflow should be directed away from the source of harmful emissions and away from personnel. Equipment should, whenever possible, be used in a closed configuration. Air containing harmful aerosols must be treated before being released into the atmosphere to comply with established maximum permissible levels.

Work areas must be cleaned at the end of each shift. In areas where the biostimulant is used, storing food, eating, and smoking are not recommended. Hands must be washed and the mouth rinsed before eating; take a shower at the end of the shift.

Personal protective equipment:

- Eye/face protection: Use eye protection tested and approved according to relevant national standards such as NIOSH (U.S.) or EN 166 (EU).
- Skin protection: Wear gloves. Gloves must be inspected before use. Use proper technique when removing gloves (avoid contact with the outer surface) to prevent contact with the product. Dispose of contaminated gloves in accordance with applicable laws and good laboratory practices. Wash and dry your hands.
- The selected protective gloves must comply with the requirements of Regulation (EU) 2016/425 and standard EN 374.
- Full contact:
- Material: nitrile rubber
- Minimum film thickness: 0.11 mm Breakthrough time: 480 min Splash protection:
- Material: nitrile rubber
- Minimum layer thickness: 0.11 mm
- Breakthrough time: 480 min

If used in a solution or mixture with other substances, and under conditions other than those specified in EN 374, consult the supplier of CE-approved gloves. This is only a recommendation and should be evaluated by an occupational health and safety specialist.

Body protection:

Select based on the type, concentration, and quantity of hazardous substances and the specific work environment.

Respiratory protection:

Not required. If protection against dust at the irritation level is needed, use N95 (US) or P1 (EN 143) masks. Use respirators and components tested and approved according to relevant standards such as NIOSH (US) or CEN (EU).

Environmental impact control:

No special environmental protection measures are required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

– Appearance: homogeneous liquid suspension
– Color: dark brown, almost black
– Odor: none
– pH (0,5% solution): 8.5–9.2
– Melting/freezing point: 300 °C
– Initial boiling point and boiling range: >100 °C
– Flash point: not applicable
– Evaporation rate: not applicable
– Flammability (solid, gas): not applicable
– Upper/lower flammability or explosive limits: not applicable
– Vapor pressure: no data available
– Vapor density: no data available
– Relative density: no data available
– Solubility in water: no data
– Partition coefficient: n-octanol/water: no data available
– Autoignition temperature: no data available
– Decomposition temperature: no data available
– Viscosity: no data available
– Explosive properties: no data available
– Oxidizing properties: no data available

9.2. Other safety information

No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity No data available.

Chemical stability

Stable under recommended conditions of use, transport, and storage; does not oxidize or decompose. Freezes at sub-zero temperatures.

Evaporation at (20 ± 15) °C is minimal.

Possibility of hazardous reactions No data available.

Conditions to avoid

No specific data available. Contact of the biostimulant with acids or bases should be avoided, as well as exposure to high temperatures that may cause drying or freezing.

Incompatible materials

Strong oxidizers, bases, acids

Hazardous decomposition products None under normal conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects Acute toxicity: No toxicity data available

- Skin corrosion/irritation: No data
- Serious eye damage/irritation: No data
- Respiratory or skin sensitization: No data
- Germ cell mutagenicity: No data
- Carcinogenicity: No data
- Reproductive toxicity: No data
- Specific target organ toxicity – single exposure: No data
- Specific target organ toxicity – repeated exposure: No data
- Aspiration hazard: No data available
- Additional information: Not classified as a human carcinogen.

To the best of our knowledge, the full chemical, physical, and toxicological properties have been investigated at a basic and advanced level, confirming the safety of the product. However, these properties have not yet been fully investigated.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

It is not classified as hazardous to the environment.

12.2. Persistence and degradability

Biodegradable. Does not form toxic compounds in air or wastewater in the presence of other substances or factors.

12.3. Bioaccumulation potential

- Low.

12.4. Mobility in soil

High water solubility; readily absorbed by soils.

12.5. Results of the PBT and vPvB assessment

This substance/mixture does not contain components considered to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at concentrations ≥ 0.1%. 12.6. Other adverse effects No data available.

SECTION 13: DISPOSAL OF WASTE

13.1. Waste treatment methods

Safety precautions for handling waste are the same as for handling the finished product.

13.2. Information on disposal sites and methods Product:

Dispose of excess and non-recyclable solutions with a licensed disposal company.

Waste:

Collect in a sealed container and send for reuse in the manufacturing process. Dispose of unsuitable waste and raw materials in accordance with environmental protection requirements and applicable legislation.

Contaminated packaging:

Dispose of as an unused product.

SECTION 14: TRANSPORT INFORMATION

14.1. UN Numbers:

ADR/RID: -

IMDG: -

IATA: -

14.2. UN Proper Shipping Name:

ADR/RID: Non-hazardous goods

IMDG: Non-hazardous goods

IATA: Non-hazardous goods

14.3. Transport hazard class(es):

ADR/RID: -

IMDG: -

IATA: -

14.4. Packing group:

ADR/RID: -

IMDG: -

IATA: -

14.5. Environmental hazards:

Does not pose a hazard to the environment when used as directed.

ADR/RID: No;

IMDG (marine pollutant): No; IATA: No.

14.6. Special precautions for the user No data available.

SECTION 15: REGULATORY INFORMATION

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

This safety data sheet complies with the requirements of Regulations (EU) No. 1907/2006 (REACH), No. 1272/2008 (CLP), No. 453/2010, and No. 1009/2019.

15.2. Chemical Safety Assessment

The non-microbial bio stimulant ProtoHumiX® is manufactured in accordance with patented technology, European Patent EP3135655. Quality and safety standards have been verified by an accredited laboratory (research laboratory accreditation number – PCA AB1866, PCA, Polskie Centrum Akredytacji AC013). All tested parameters of the ProtoHumiX® biostimulant comply with the requirements of Regulation (EU) No. 1009/2019 of the European Parliament and of the Council of June 5, 2019, establishing rules for the placing on the market of EU fertilizing products.

The non-microbial biostimulant ProtoHumiX® is certified in the European Union and holds European CE Certificate No. CE-B/18/25/BS (valid until March 30, 2030).

Based on high quality and safery standards, non-micrabial biostimulant ProtoHumiX® is included into the Veterinary Feed Catalogue (No. 13.10.2) under the rules of Regulation (EU) 68/2013, as the feed raw material - natural source of humic substances, and is intended for use as a component of the animal daily ration.

The non-microbial biostimulant ProtoHumiX® is authorized for free marketing and use throughout the entire territory of the European Union, without national restrictions.

SECTION 16: OTHER INFORMATION

16.1. Additional Information.

The above information is believed to be accurate but is not intended to be exhaustive and should be used only as a guide. The information in this document is based on the current state of our knowledge and applies to the product with regard to appropriate safety measures.

The company and its affiliates cannot be held liable for any damages resulting from handling the product or contact with it.

Developed by: G L K Ltd., BULGARIA, EU