

SAFETY DATA SHEET

according to Reg. (EC) No 1907/2006 modified by Reg. (EU) No 2020/878

Section 1: Identification of mixture and of the company/undertaking

- 1.1. Product identifier:** **Green Shield**
- 1.2. Relevant identified use:** liquid NPK fertilizer enriched with micro- and meso elements
EC fertilizer – for professional use only
Uses advised against: used other than above
- 1.3. Details of the distributor and supplier of the safety data sheet:**
ALPHAVET Állatgyógyászati Zrt.
Headquarters: H-1194 Budapest, Hofherr Albert u. 42, Hungary
Location: H-8000 Székesfehérvár, Homoksor 7. Hungary
Phone: + 36 22 516 408
www.alphavet.hu
- E-mail address of the person responsible for the safety data sheet:** info@alpha-vet.hu

- 1.4. Emergency telephone numbers:**
Poison Control Centres in EU: <https://poisoncentres.echa.europa.eu/appointed-bodies>
Hungary: Health & Toxicological Information Service: 24 hr service: +36 1476 64 64

Section 2: Hazard identification

- 2.1. Classification of the mixture:** the product is a hazardous mixture according to manufacturer in compliance with Reg. (EC) 1272/2008 and its modifications.

Classification	Hazard Class		Hazard category ¹
Physical hazard:	not classified		
Health hazard:	Eye Irrit. 2	Serious eye damage/eye irritation	2
	Repr. 1B	Reproductive Toxicity	1B
Environmental hazard:	Aquatic Chronic 3	Hazardous to the aquatic environment	3

- 2.2. Label elements:** **Pictogram:** GHS07, GHS08 **Signal word:** DANGER

DANGER  	Hazard statements: H319 Causes serious eye irritation H360FD May damage fertility. May damage the unborn child. H412 Harmful to aquatic life with long lasting effects.
	Precautionary statements: P202 Do not handle until all safety precautions have been read and understood. P264 Wash hands thoroughly after handling. P280 Wear protective gloves, protective clothing, eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 If exposed or concerned: get medical advice. P501 Dispose contents/container: transport to hazardous waste landfill site.

Hazard determinant component: boric acid, copper sulphate pentahydrate

¹ The higher numbers represent less hazard.

2.3. Other hazards

Boric acid is toxic for reproduction and it is on the candidate list of substances of very high concern (SVHC). Concentration of boric acid: 1.14%

The list is available at ECHA website: <http://echa.europa.eu/candidate-list-table>

Components of the product are not listed in the endocrine disruptor and potential endocrine disruptor databases.

Components of the product satisfy neither the PBT (persistent, bio-accumulative and toxic), nor the vPvB (very persistent, very toxic) criteria in accordance with Annex XIII of Reg. (EC) No 1907/2006.

Section 3: Composition/information on ingredients

3.1. Substance: does not apply.

3.2. Mixture: the product is a mixture, aqueous solution

Composition: potassium, magnesium salt in form of phosphates, nitrates and sulphates.

Microelements: copper (Cu^{2+}), manganese (Mn^{2+}), zinc (Zn^{2+}) ions in form of chelates with EDDHSA ethylenediamine-N,N'-di[(2-hydroxy-5-sulfophenyl)acetic acid] and its condensation products (CAS number of the acid: 57368-07-7 and 642045-40-7).

Hazardous components of the product which must be listed according to Reg. (EU) No 2020/878:

Hazardous components	Concentration	Hazard class, category, H-statement
Potassium nitrate (KNO_3)* CAS no.: 7757-79-1 EC no. 231-818-8	5 – <10%	Ox. Sol. 3, H272
Copper sulphate pentahydrate ($\text{CuSO}_4 \times 5\text{H}_2\text{O}$)** CAS no.: 7758-99-8 EC no. 231-847-6 Index no.: 029-023-00-4	1.5 – <2%	Acute Tox. (oral) 4, H302; Eye Dam. 1, H318; Aquatic Acute 1, H400, $M_{(\text{acute})}$: 10; Aquatic Chronic 1, H410, $M_{(\text{chronic})}$: 1 ATE (oral): 481 mg/kg bw
Boric acid (H_3BO_3) CAS no.: 10043-35-3 EC no. 233-139-2 Index no.: 005-007-00-2	1.14%	Repr. 1B, H360FD
Manganese sulphate hydrate ($\text{MnSO}_4 \times \text{H}_2\text{O}$)** CAS no.: 10034-96-5 EC no. 232-089-9 Index no.: 025-003-00-4	1 – 1.2%	STOT RE 2, H373; Aquatic Chronic 2, H411
Zinc sulphate mono hydrate ($\text{ZnSO}_4 \times \text{H}_2\text{O}$) CAS no.: 7446-19-7 EC no. 231-793-3 Index no.: 030-006-00-9	< 0.5%	Acute Tox. (oral) 4, H302; Eye Dam. 1, H318; Aquatic Acute 1, H400, $M_{(\text{acute})}$: 1; Aquatic Chronic 1, H410; $M_{(\text{chronic})}$: 1,

* Substance is not listed in Annex VI of Reg. (EC) 1272/2008

** Substance has workplace exposure limit, see Section 8

The other components of the product are not hazardous, or their concentrations are low enough not to be taken into consideration in the classification and labelling of the product according to relevant regulations.

Hazard classes, H statements relate to pure components. Hazard classification of the product is given in Section 2. Full texts of the H statements and hazard classes, categories are listed in Section 16.

Section 4: First Aid measures

4.1. Description of first aid measures

Fast and professional first aid measures can largely diminish progress and severity of the symptoms.

AFTER INHALATION: supply fresh air and consult physician in case of persistent complaints.

SKIN CONTACT: wash the contaminated skin with running water and soap. If irritation and complaints persist call a physician.

EYE CONTACT: immediately and thoroughly flush eyes with large amount of water at least 10 minutes while holding the eyelids wide open and moving the eyeballs. Remove contact lenses if easy to do it. If eye irritation, pain and lacrimation persist consult an eye specialist.

INGESTION: rinse mouth with water and drink 1-2 glass of water. In case of ingestion of large amounts contact a physician immediately, show label or safety data sheet of the product.

4.2. Most important symptoms and effect, both acute and delayed: may be irritating to eyes. If swallowed it may irritate the mucous membranes and digestive tract.

4.3. Indication of any immediate medical attention and special treatment needed: If toxic symptoms develop or suspicion of intoxication occurs, stop the work and provide first aid and then seek medical advice immediately. Show the label and safety data sheet of the product.

Note to physician: symptomatic and supportive treatment is necessary. Specific antidote is not available.

Section 5: Fire-fighting measures

The product is not flammable mixture.

5.1. Extinguishing media: water jet, chemical foam, carbon-dioxide, and dry powder.

Extinguishing measures have to suit surroundings.

Unsuitable extinguishing media: not known.

5.2. Special hazard arising from the mixture: at high temperature combustion and decomposition may produce toxic gases, vapours and fumes (nitrogen oxides, sulphur oxides and carbon oxides and phosphorus oxides, etc.)

5.3. Advice for fire-fighters: wear full protective clothing, gloves and helmet and positive pressure self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedure:

Avoid exposure, avoid eye and skin contact and wear personal protective equipment during collection of large spillages, see details in Section 8. Accidental release measures should be carried out by trained personnel equipped with personal protective equipment. Remove unauthorized persons from danger zone.

6.2. Environmental precautions: ensure that the spilled material and its waste do not enter sewers, surface water, water bodies and groundwater. Dispose of waste material in accordance with local regulations. Competent authorities should be notified if large quantities of the product are released into the environment.

6.3. Methods and material for containment and cleaning up: in the event of a major spillage, absorb large quantities of product into inert material (sand, vermiculite, earth). Collect contaminated absorbent in labelled containers, keep it closed and dispose according to local regulations. Contaminated area should be rinsed with water. Take care of slipping.

6.4. Reference to other sections: see Section 8 and 13.

Section 7: Handling and storage

7.1. Precautions for safe handling

Work carefully to avoid exposure (contact with skin and eyes, ingestion, inhalation of spray).

Avoid accidental ingestion. Do not eat, drink or smoke when using.

Wash hands after handling the product, thorough washing is also recommended.

Precautions in case of fire and explosion: no special measures necessary.

7.2. Conditions for safe storage, including any incompatibilities

Store in the original container in frost free, well ventilated, cool area protected from sunlight.

Container should be properly labelled and tightly closed.

Keep far away from foodstuff, drinks and feeding stuff.

Do not store together with incompatible materials.

Incompatible materials: alkaline, strong acid, oxidizing agents.

Keep out of reach of children. Shelf life: 24 months, if stored properly

7.3. Specific end use:

Liquid NPK fertilizer enriched with micro and meso elements; for professional and public use

Users should read and keep the safety instructions and measures for safe handling and usage.

Section 8: Exposure controls/personal protection

8.1. Control parameters/occupational exposure limits

Limit values in workplace air established in 5/2020. (II.6.) Hungarian ITM decree and Dir. (EU) No 2017/164

Copper and its compounds (calculated as copper): ÁK: 0.1 mg/m³, CK: 0.2 mg/m³

Manganese and its inorganic salts (calculated as Mn): ÁK: 0.2 mg/m³ (inhalable),
0.05 mg/m³ (respirable)

boric acid²: TWA: 0.5 mg/m³; STEL: 1 mg/m³; and 10 mg/m³ – inhalable fraction in form of aerosol

The employers are obliged to reduce the exposure level of the dangerous substances for which limits are not established to the lowest level determined by scientific and technical standards at which there is no harm for human health.

8.2. Exposure controls

Work carefully to avoid exposure with the product (skin and eye contact).

General rules and good practices of handling chemicals should be followed.

Technical measures

- Provide personal protective equipment.
- Eye wash bottle/fountain should be kept at easily accessible place.

Hygiene measures

- Do not eat, drink or smoke while handling.
- Wash hands after finishing work and at the beginning of every work break and before eating, drinking and smoking.

Personal protective equipment

- **Respiratory system protection:** not necessary if ventilation is good.
- **Hand protection:** protective gloves are recommended. Wear chemically resistance protective gloves according to EN 374 standard. When choosing the material of the gloves take in consideration the expected exposure to the product (short or long exposure time, mechanical stress, risk of full contact, risk of splash, etc.) and possibility of contact with other chemicals.
- **Eye protection:** wearing EN 166 standard compliant safety glasses is necessary if splashing is possible, in case of handling large quantities, industrial operations and decontamination.
- **Body protection:** should be selected depending on the use and expected exposure level (working clothes, protective clothes).

Environmental exposure control: no special measurement is necessary. Avoid accidental release into the environment.

The information above relate to professional and intended use in average circumstances. If operation is done in different or exceptional circumstances, you should consult an expert to decide on additional necessary actions and personal protective equipment.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Appearance:	aqueous solution
Colour:	dark greenish-brown
Odour:	characteristic, sulphur
Odour threshold:	no data
pH value at 20°C:	3 ± 0.5
Pouring point:	cc. – 5°C
Boiling point:	no data
Flash point:	no data, not relevant, aqueous solution
Evaporation rate:	no data
Flammability (gas, solid):	not relevant
Explosion limits:	no data
Vapour pressure/density:	no data
Density:	1.26 g/cm ³

² German limit values: http://limitvalue.ifa.dguv.de/WebForm_gw2.aspx (GESTIS)

Solubility in water:	miscible
Partition coefficient, logP _{o/w} :	not relevant, the product is mixture
Auto ignition temperature:	no data
Decomposition temperature:	no data
Viscosity:	no data
Explosion properties:	no explosion hazard
Oxidizing properties:	not oxidizing

9.2. Other information

9.2.1. Information with regard to physical hazard classes: there are no test results, experiences which result in classification of the product into physical hazard classes.

9.2.2. Other safety characteristics: other safety characteristics: none indicated as relevant for the safe use of the mixture.

Section 10: Stability and reactivity

10.1. Reactivity: it can react with oxidizing agent and alkaline.

10.2. Chemical stability: stable under normal condition (usual temperature and pressure condition) if it is handled, stored according to user's instructions.

10.3. Possibility of hazardous reactions: no hazardous reaction known under conditions of normal use. Heating can cause decomposition; toxic gases can develop.

10.4. Condition to avoid: heat, high temperature, frost.

10.5. Incompatible materials: alkaline, oxidizing agents.

10.6. Hazardous decomposition products: no decomposition if used as directed.

Section 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008:

Assessment is based on concentration and classification of components.

Acute toxicity (oral, dermal, inhalation): based on the composition criteria for classification of the product into acute toxicity hazard classes are not met.

Skin corrosion/irritation: classification criteria are not met according to composition and classification of ingredients.

Serious eye damage/eye irritation: classification criteria are met according to copper sulphate concentration.

Respiratory or skin sensitization: classification criteria are not met based on the composition.

Carcinogenicity: ingredients of the product are not classified as carcinogenic substances. No significant effects or critical hazard is known.

Germ-cell mutagen city: ingredients are not classified as mutagenic substances.

Reproductive toxicity: as the mixture contains more than 0.3% boric acid, the product is classified as Repr. 1B, H360FD.

Specific Target Organ Toxicity single exposure/STOT SE: based on the available data and information on ingredients classification criteria are not met.

Specific Target Organ Toxicity repeated exposure/STOT RE: based on the classification of ingredients the classification criteria are not met as concentration of manganese sulphate hydrate is low.

Aspiration hazard: classification criteria are not met.

Section 12: Ecological information

12.1. Toxicity: classification is based on data and classification of the components. Using summation method given in CLP the product should be classified as hazardous mixture to the aquatic environment due to sulphate salts content of copper, manganese and zinc. The product is classified as Aquatic Chronic 3: harmful to aquatic life with long lasting effects. Product turns water colour to green and depending on the water quality colour may change to yellowish brown after 24 to 48 hours

12.2. Persistence and degradability: not relevant.

12.3. Bio accumulative potential: not expected.

12.4. Mobility in soil: probably mobile.

12.5. Results of PBT- and vPvB-assessment: e components of the mixture are not identified PBT/vPvB substances.

12.6. Endocrine disrupting properties: components of the product are not listed in the available lists and databases of endocrine disruptors and suspected endocrine disruptors.

12.7. Other adverse effects: not known.

Section 13: Disposal considerations

13.1. Waste treatment methods: If it is possible avoid or at least minimize waste generation.

Chemical and its waste and packaging must be disposed of in compliance with state and local regulations and Directive EC 2008/98.

Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

European Waste Catalogue waste codes are not specific for products, but for their uses.

Therefore, appropriate waste code should assign final user according to his specific use.

Recommended EWC code: 02 01 08*

Do not empty waste into drains, rivers, watercourses, ponds, standing waters, natural waterways.

Section 14: Transport information

According to the international transport (ADR/RID, IMDG and ICAO/IATA) regulations the product **is non-dangerous goods**.

14.1. UN-number: not applicable.

14.2. UN proper shipping name: not applicable.

14.3. Transport hazard class (es): not applicable.

14.4. Packaging group: void.

14.5. Environmental hazards: none.

14.6. Special precautions for users: not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: not applicable.

Section 15: Regulatory information

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

The product contains SVHC candidate substance (boric acid) greater than $\geq 0.1\%$.

Relevant European Acts

Regulation (EU) 2019/1009 laying down rules on the making available on the market of EU fertilising products

REACH and its modifications: Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Regulation (EC) No 1272/2008 (CLP) and its modifications

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and Repealing Certain Directives

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Lists of proposed occupational exposure limit values for the implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work in Directives 2000/39/EU, 2006/15/EU, 2009/161/EU, 2017/164/EU and 2019/1831/EU and Directive 2004/37/EC and its amendment; <https://echa.europa.eu/hu/cad-and-cmd-legislation>

15.2. Chemical Safety Assessment: has not been carried out.

Section 16: Other information

The information contained in the Safety Data Sheet is true and correct to our best knowledge at the date of issue; it is intended as a guide for safe use, handling, disposal, storage and transportation.

Manufacturer/Distributor does not assume any warranty or responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected to the handling, storage, use or disposal of the product because conditions of application, handling, storage, use or disposal of the product is beyond our control.

Classification of the product: the mixture was classified by calculations methods in accordance with the Reg (EC) No. 1272/2008.

Training recommendation: in the annual occupational safety training workers should be informed about the hazards of handling chemicals and the general safety and health protection measures. Before handling, storing or using the present substance for the first time, employees must be informed – about dangers of the product.

SAFETY DATA SHEET SHOULD ALWAYS BE AVAILABLE FOR WORKERS AT HAND.

Abbreviations: hazard classes (numbers after abbreviations mean the hazard category within the class, higher numbers mean less hazard): Ox. Sol.: oxidizing solid; Acute Tox.: acute toxicity; Eye Dam.: Eye damage, Eye Irrit.: Eye Irritation; Aquatic Acute: Hazardous to the aquatic environment, acute hazard; Aquatic Chronic: Hazardous to the aquatic environment, chronic hazard; Repr.: reproductive toxicity.

H272	May intensify fire, oxidiser.
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360FD	May damage fertility, May damage unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ÁK	average, allowable concentration of pollutants in the air, in a shift, which will not cause any adverse health effect
ATE	Acute Toxicity Estimate
CAS	Chemical Abstract Service, number for the identification of chemical substances.
CK	Allowable peak concentration: short-term allowable concentration of air pollutants in the air of the workplace
CLP	Classification, Labelling and Packaging
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization Technical Instruction for the Safe Transport of Dangerous Goods by Air
IMDG	International Maritime Dangerous Goods Code
logP _{o/w}	log of octanol-water partition coefficient
M	Multiplying factor, it is used to derive by summation method the classification of mixtures
M _(acute)	M-factor of aquatic acute toxicity; M _(chronic) M-factor of aquatic chronic toxicity
PBT	Persistent, bio accumulative and toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Accord Européen Relatif Au Transport International Des Marchandises Dangereuses Par Route
STEL	Short Term Exposure Limit
SVHC	Substance of Very High Concern
TWA	Time Weighted Average
vPvB	Very persistent and very bio accumulative

History: Safety Data Sheet (2.0-EN) is issued on 15th Feb. 2024, it is based on the manufacturer's data, supersedes the previous version, the purpose of the modification is to comply with the Reg. (EU) No 2020/878.