

LOVOGREEN NPK 10-5-20+4MgO

Date of issue: 11/09/2009

Date of revision: 24/06/2020 revised version of 17/03/2016

SECTION 1: IDENTIFICATION OF A SUBSTANCE / MIXTURE AND COMPANY / PLANT**1.1 Product identifier:**

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Identification number: none

CAS number: none

ES (EINECS) number: none

Name by registration: it is a mixture

Registration number: it is a mixture

Other names of the substance or mixture: compound fertiliser

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

Multi-component NPK fertiliser with magnesium and trace elements (boron, iron, copper, manganese and zinc) intended for playgrounds and ornamental lawns or plants grown on land subject to stricter water protection regimes.

Uses of the substance or mixture advised against:

Unknown.

1.3 Details of the supplier of the safety data sheet:**Manufacturer**

Name or business name: **Lovochemie, a.s.**

Place of business or registered office: **Lovosice, Terežínská 57**

Identification No.: 49100262

Email: info@lovochemie.cz

1.4 Emergency telephone number:

corporate centre 416 563 441, 736 507 221

Toxicology Information Centre (TIC) Na Bojišti 1, 128 08 Prague 2;

phone (24 hours/day) 224 91 92 93; 224 91 54 02; 224 91 45 75; 224 97 11 11

SECTION 2: HAZARD IDENTIFICATION

Mixture **not classified as dangerous** as defined in Regulation 1272/2008 /EC.

2.1 Classification of the substance or mixture:

under Regulation No. 1272/2008/EC:

not classified

2.2 Label elements:**Hazard pictograms:**

Not applied

Signal word:

Not applied

Components of the mixture to be labelled:

Not applied

Standard hazard statements:

Not applied

Precautions for safe handling:

Not applied

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Additional information on the label:

Not required

2.3 Other hazards:

The mixture and its components are not classified as PBT or vPvB.

SECTION 3: COMPOSITION / INFORMATION ON COMPONENTS**3.2 Mixtures:****Components of the mixture classified as hazardous:****Iron sulphate monohydrate**

Contents: < 2.5 %

Index number: 026-003-00-7

CAS number: 17375-41-6

ES number (EINECS): 231-753-5

Name by registration: iron (II) sulphate

Registration No.: 01-2119513203-57-XXXX

Classification according to 1272/2008:

Acute Tox. 4; H302

Eye Irrit. 2; H319

Skin Irrit. 2; H315

Zinc sulphate heptahydrate

Contents: < 0.01 %

Index number: 030-006-00-9

CAS number: 7446-20-0

ES number (EINECS): 231-793-3

Name by registration: Zinc sulphate

Registration No.: 01-2119474684-27-XXXX

Classification according to 1272/2008:

Acute Tox. 4; H302

Eye Dam. 1; H318

Aquatic Acute 1; H400; M=1

Aquatic Chronic 1; H410; M=1

Components of the mixture with a workplace exposure limit:**Manganese sulphate monohydrate**

Contents: < 0.05 %

Index number: 025-003-00-4

CAS number: 10034-96-5

ES number (EINECS): 232-089-9

Name by registration: Manganese sulphate

Registration No.: 01-2119456624-35-XXXX

Classification according to 1272/2008:

STOT RE 2; H373

Aquatic Chronic 2; H411

Copper sulphate pentahydrate

Contents: < 0.01 %

Index number: 029-004-00-0

CAS number: 7758-99-8

ES number (EINECS): 231-847-6

Name by registration: Copper sulphate

Registration No.: 01-2119520566-40-XXXX

Classification according to 1272/2008:

Acute Tox. 4; H302

Eye Irrit. 2; H319

Skin Irrit. 2; H315

Aquatic Acute 1; H400, M=10

Aquatic Chronic 1; H410, M=10

The full text of classifications and standard hazard statements are given in Section 16.

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SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures:**

If health problems occur or if in doubt, always seek medical advice and give him/her the information contained in this safety data sheet.

If inhaled:

Stop work and move to fresh air.

In case of skin contact:

Remove the contaminated clothing, quickly rinse with plenty of water. Later thoroughly but without great mechanical irritation, wash with soap and water.

If eyes are affected:

Rinse at least 15 min. with plenty of water, do not allow the affected person to close his eyes. If the victim wears contact lenses, remove them before washing. Consult an ophthalmologist.

In case of ingestion:

Rinse your mouth with water, drink a small amount of water (about 0.2 litres). Do not induce vomiting. Seek medical advice immediately and show the container or label of the mixture.

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

Dust from granulated fertiliser, depending on the concentration, irritates the skin, the airways and the eyes. The irritant effect increases with moisture or perspiration.

4.3 Indication of any immediate medical attention and special treatment needed:

If swallowed or if eyes are affected, seek medical aid.

SECTION 5: FIRE FIGHTING MEASURES**5.1 Extinguishing agents:****Appropriate extinguishing agents:**

It is not a fire dangerous substance or explosive substance and therefore focus extinguishing measures towards nearby fire.

Inappropriate extinguishing agents:

full stream of water, powder extinguisher

5.2 Special hazards arising from the substance or mixture:

No special measures are necessary.

5.3 Advice for fire fighters:

Avoid inhaling combustion products. In case of fire, extinguish with water while using an isolating respirator. At a small scale, a small focal point of digestion can be excavated and extinguished with water away from the stored fertiliser.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures:**

Wear protective clothing, eye protection, protective gloves, ventilate, do not eat, drink or smoke while working with fertiliser, use dust respirator if excessive dust concentrations are present.

6.2 Environmental precautions:

Clean the contaminated area to prevent contamination of groundwater and surface water.

6.3 Methods and material for containment and cleaning up:

Dispose of in a dry way, we recommend to use a composting plant.

6.4 Reference to other sections:

Requirements for protective equipment are stated in Section 8.
Instructions for disposal are stated in Section 8.

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SECTION 7: HANDLING AND STORAGE**7.1 Precautions for safe handling:**

When handling, observe the principles of personal hygiene, minimise dustiness, do not eat, drink or smoke. Maintain cleanliness, spilled material on a solid support may cause slippage.

7.2 Conditions for safe storage of substances and mixtures, including any incompatible substances and mixtures:

The fertiliser is stored in stockpiles in bulk, up to a maximum of 6 m, spaced min. 1 m or in units (boxes). Both stockpiles and units must be labelled with the name of the fertiliser. Packaged fertiliser of up to 50 kg is stored in bags stacked one on top of another up to max. 1.5 m. When fertiliser bags are stored on pallets, the pallets can be stored up to two layers. Fertiliser must be stored on an impervious surface. It must be protected from direct sunlight and radiant heat, otherwise the granules are destroyed and the fertiliser hardens. It is stored separately from other fertilisers and it must be protected against contamination. The storage area must be protected against moisture penetration. It is recommended to cover the stored fertiliser with a PE tarpaulin.

7.3 Specific end use(s):

Multi-component NPK fertiliser with magnesium and trace elements.

SECTION 8: LIMITING EXPOSITION / PERSONAL PROTECTIVE DEVICES**8.1 Control parameters:****Limits in the workplace:****CR (in accordance with Government Regulation No. 361/2007 Coll.):**

PEL/HPC-P (mg/m^3): recommended value for fertiliser dust $10 \text{ mg}/\text{m}^3$

Component name: **Manganese and its inorganic compounds, such as Mn**

CAS: 7439-96-5

PEL: $0.2 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

PEL: $0.05 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

HPC-P: $0.4 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

HPC-P: $0.1 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

Component name: **Copper (dust, fumes)**

CAS: 7440-50-8

PEL: $1 \text{ mg}/\text{m}^3$ (dust, respirable aerosol fraction)

PEL: $0.1 \text{ mg}/\text{m}^3$ (fumes)

HPC-P: $2 \text{ mg}/\text{m}^3$ (dust, respirable aerosol fraction)

HPC-P: $0.2 \text{ mg}/\text{m}^3$ (fumes)

PEL – Permissible exposure limit of a chemical in the air, HPC – P – the maximum permissible concentration of a chemical in the air (these concentration limits are specified in Government Regulation No. 361/2007 Coll.)

EU (OEL pursuant to Council Regulation No. 98/24/EC):

Component name: **Manganese and inorganic manganese compounds (such as manganese)**

OEL 8 hrs.: $0.2 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

OEL 8 hrs.: $0.05 \text{ mg}/\text{m}^3$ (respirable aerosol fraction)

DNEL and PNEC values:

Iron sulphate monohydrate:

DNEL:

Workers / Dermal / Systemic effects / Long-term – $2.8 \text{ mg}/\text{kg}/\text{day}$

Consumers / Dermal / Systemic effects / Long-term – $1.4 \text{ mg}/\text{kg}/\text{day}$

Consumers / Oral / Systemic effects / Long-term – $0.28 \text{ mg}/\text{kg}/\text{day}$

Consumers / Oral / Systemic effects / acute – $20.0 \text{ mg}/\text{kg}/\text{day}$

PNEC:

Data not available yet

Manganese sulphate monohydrate:

DNEL:

Workers / Inhalation / Systemic effects / Long-term – $0.2 \text{ mg}/\text{m}^3$

Workers / Dermal / Systemic effects / Long-term – $0.004 \text{ mg}/\text{kg}/\text{day}$

Consumers / Inhalation / Systemic effects / Long-term – $0.043 \text{ mg}/\text{m}^3$

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Consumers / Dermal / Systemic effects / Long-term – 0.002 mg/kg/day

PNEC:

Fresh water – 0.013 mg/l

Sea water – 0 µg/l

Sewage treatment plants (ČOV) – 56 mg/l

Freshwater sediment – 0.011 mg/kg

Sea sediment – 0.001 mg/kg

Soil – 25.1 mg/kg

Food chain – no potential for bioaccumulation

Zinc sulphate heptahydrate:

DNEL:

Workers / Inhalation / Systemic effects / Long-term – 1 mg/m³

Workers / Dermal / Systemic effects / Long-term – 8.3 mg/kg/day

Consumers / Inhalation / Systemic effects / Long-term – 1.25 mg/m³

Consumers / Dermal / Systemic effects / Long-term – 8.3 mg/kg/day

Consumers / Oral / Systemic effects / Long-term – 0.83 mg/kg/day

PNEC:

Fresh water – 20.6 µg/l

Sea water – 6.1 µg/l

Intermittent release – not determined

Sewage treatment plants (STP) – 100 µg/l

Freshwater sediment – 117.8 mg/kg

Sea sediment – 56.5 mg/kg

Soil – 35.6 mg/kg

Food chain – not specified

Copper sulphate pentahydrate:

DNEL:

not specified yet

PNEC:

Fresh water – 7.8 µg/l

Sea water – 5.2 µg/l

Sewage treatment plants (STP) – 230 µg/l

Freshwater sediment – 87 mg/kg

Sea sediment – 676 mg/kg

Soil – 65 mg/kg

Food chain – no potential for bioaccumulation

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Dust concentrations in the air must be kept as low as possible using appropriately designed technical means (local ventilation, local exhaust, etc.).

Protection of breathing organs:

In case of non-compliance of the specified concentration limits – dust respirator

Eye protection:

goggles or face shield

Hand protection:

personal protective gloves

Protection of the whole body:

suitable protective clothing, protective footwear

Additional information including general hygiene measures:

Do not eat, drink or smoke. After work wash your hands with warm water and soap. Treat your skin with appropriate repairation means.

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

State at 20°C and 101.3kPa: solid

Colour: green granules 1–4 mm

Odour: odourless

Odour threshold: not specified

PH value at 20°C: 10% solution 4.5 - 5.5

Boiling point at 101.3 kPa: not specified

Boiling point at 101.3 kPa: not specified

Flash point: not flammable

Flammability: non-flammable

Explosion limits: not explosive substance

Vapour pressure at 20°C: not specified

Vapour density: not specified

Density at 20°C: 1030 kg.m³

Solubility in water: partially soluble

Distributive coefficient n-octanol/water: not specified

Ignition temperature: not flammable

Decomposition temperature: not specified

Viscosity at 20°C: not specified

Explosive properties: Not classified as explosive

Oxidising properties: Not classified as an oxidant

9.2 Additional Information

none

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

Under normal conditions, this is a stable mixture.

10.2 Chemical stability:

Under normal conditions, this is a stable mixture.

10.3 Possibility of hazardous reactions:

Reacts with strong bases to form ammonia.

10.4 Conditions to avoid:

It is dangerous to work with open fire and to weld at places where the fertiliser is stored, During such works, it is necessary to prevent the fall of the hot strands on the fertiliser.

10.5 Incompatible materials:

flammable materials

10.6 Hazardous products of decomposition:

nitrogen oxides, sulphur oxides, ammonia

SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects:**

Based on available data the criteria for classification are not met.

Acute toxicity:

LD50, oral, rat: data for the mixture not available

LD50, oral, rat for iron sulphate: ≥ 670 mg/kg

LD50, oral, rat for manganese sulphate: 2150 mg/kg

LD50, oral, rat for zinc sulphate: 926 mg/kg

LD50, oral, rat for copper sulphate: 481 mg/kg

LD50, dermal, rat/rabbit: data for the mixture not available

LD50, dermal, rat/rabbit for zinc sulphate: > 2000 mg/kg (rat)

LD50, dermal, rat/rabbit for copper sulphate: > 2000 mg/kg (rabbit)

LC50, inhalation, rat: data for the mixture not available

LC50, inhalation, rat for manganese sulphate: > 4.45 mg/l

Causticity / skin irritation:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: skin irritation class 2 (rabbit, 72 hours, OECD No. 404)

manganese sulphate: not corrosive / irritating to skin (rabbit, 72 hours, OECD No. 404)

zinc sulphate: not corrosive / irritating to skin (rabbit, 72 hours, OECD No. 404)

copper sulphate: classified as irritating to skin (rabbit, 72 hours, OECD No. 404)

Serious eye damage/irritation:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: irritating to eyes (rabbit, 72 hours, OECD No. 405)

manganese sulphate: classified as seriously damaging to the eyes (rabbit, 72 hours, OECD No. 405)

zinc sulphate: classified as seriously damaging to the eyes (rabbit, 72 hours, OECD No. 405)

copper sulphate: classified as irritating to eyes (rabbit, 72 hours, OECD No. 405)

Respiratory/skin sensitization:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: not a skin sensitiser according to animal tests, no data available for the category of respiratory sensitisation

manganese sulphate: not a skin sensitiser (mouse, 3 days, OECD No. 429)

zinc sulphate: not a skin sensitiser (rabbit, 3 days)

copper sulphate: not a skin sensitiser (guinea pig, 48 hours, OECD No. 406)

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Germ cell mutagenicity:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: negative result

manganese sulphate: in vitro: negative result (mouse lymph cells, 2 days, OECD No 476); in vivo: negative result (mouse, OECD No. 474)

zinc sulphate: negative (OECD No. 471)

copper sulphate: in vitro: negative result (bacterial reverse mutation, Salmonella typhimurium, OECD No. 471); in vivo: negative result (rat, OECD No. 486)

Carcinogenicity:

Mixture: Based on available data the criteria for classification are not met.

manganese sulphate: negative, NOAEL = 715 mg/kg bw/day (rat – female, 2 years)

zinc sulphate: negative, NOAEL > 22 000 mg/l

copper sulphate: negative (rat, 9 months)

Toxicity for reproduction:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: NOAEL \geq 1000 mg/kg bw/day FeSO₄ x 7 H₂O (rat, oral, OECD No. 422)

zinc sulphate: negative (OECD No. 416)

copper sulphate: NOAEL = 1000 ppm (oral, rat, OECD No. 416)

Toxicity for specific target organs – single exposure:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: no reversible or irreversible effects observed after oral exposure, no data available for dermal route of exposure and inhalation

Toxicity for specific target organs – repeated exposure:

Mixture: Based on available data the criteria for classification are not met.

iron sulphate monohydrate: oral – NOAEL = 54.6 mg/kg bw/day, LOAEL = 163.9 mg/kg bw/day for anhydrous FeSO₄; dermal and inhalation – data not available

manganese sulphate: NOAEL, oral = 200 mg/kg bw/day (rat, 103 weeks)

zinc sulphate: NOAEL, oral = 31.52 mg/kg/day (rat, 13 weeks, OECD No. 408); NOAEL, inhalation = 2.7 mg/m³ (guinea pig, 5 days)

copper sulphate: NOAEL, oral = 1000 ppm (mouse, 92 days)

Aspiration hazard:

Mixture: Based on available data the criteria for classification are not met.

SECTION 12: ECOLOGICAL INFORMATION

Based on available data the criteria for classification are not met. The classification was derived from the properties of individual components of mixtures via the procedures laid down in Regulation (EC) No. 1272/2008.

12.1 Toxicity:

LC₅₀, 96 hours, fish: data for mixture not available

LC₅₀, 96 hours, Rainbow fish (Poecilia reticulata): 925 mg/l – iron sulphate

LC₅₀, 96 hours, salmon trout (Salmo Trutta): 49.9 mg/l – manganese sulphate

LC₅₀, 96 hours., Cottus bairdii: 0.439 mg/l – zinc sulphate

LC₅₀, 96 hours, Fathead minnow (Pimephales promelas): 38.4 µg/l – copper sulphate

EC₅₀, 48 hours, daphnia: data for mixture not available

EC₅₀, 48 hours, Daphnia Magna: 152 mg/l – iron sulphate

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LC₅₀, 48 hours, Daphnia Magna: > 3 mg/l – manganese sulphate
EC₅₀, 48 hours, Daphnia Magna: 1.4 mg/l – zinc sulphate
EC₅₀, 48 hours, Daphnia Magna: 0.024 mg/l – copper sulphate
IC₅₀, 72 hours, algae: data for the mixture not available
EC₀, 24 hours, Pseudomonas putida: 100 mg/l – iron sulphate
EC₅₀, 72 hours, green algae (Desmodesmus subspicatus): 61 mg/l – manganese sulphate
EC₁₀, 48 hours, Green algae (Chlorella sp.): 0.35 mg/l – zinc sulphate
EC₅₀, 4 hours, Green algae (Scenedesmus quadricauda): 0.1 mg/l – copper sulphate

12.2 Persistence and decomposability:

Mixture: Not specified for inorganic substances.

12.3 Bioaccumulation potential:

Mixture: The study has not been performed. It is a substance partially soluble in water. It is not stored in adipose tissue.

12.4 Mobility in soil:

Mixture: not specified

copper sulphate: K_p = 2120 l/kg

12.5 Results of PBT and vPvB assessment:

Mixture: It is not a PBT and vPvB substance.

12.6 Other Adverse Effects

It has an adverse effect on the oxygen balance in water.

SECTION 13: INSTRUCTIONS FOR DISPOSAL**13.1 Waste treatment methods:**

Dispose of in a dry way, we recommend to use a composting plant.

Methods of removal of contaminated containers:

Cleaned PE packaging is recyclable. Possible waste code 16 03 03* for a mixture and 15 01 02 for plastic packaging.

Other details:

Removal must be in accordance with applicable legislation.

SECTION 14: TRANSPORT INFORMATION

The mixture is not classified as dangerous for transport (ADR/RID, IMDG, ICAO/IATA).

14.1 UN number: none

14.2 Official (UN) Designation for Transport: none

14.3 Class/ classes of transport hazard: not specified

14.4 Packaging group: not specified

14.5 Environmental hazards:

Not classified as hazardous to the environment according to the Agreement concerning the International Carriage of

14.6 Special safety precautions for a user:

There is no need for special precautions.

14.7 Transport in bulk according to Annex II of MARPOL Convention and the IBC Code:

Not specified

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SECTION 15: REGULATORY INFORMATION**15.1 Regulations Relating to the Safety, Health and Environment / Specific Legislation for the Substance or Mixture**

European Agreement on International Road Transport of Hazardous Items (ADR)
European Parliament and Council Regulation (EC) No. 1907/2006 (REACH)
European Parliament and Council Regulation (EC) No. 1272/2008 (CLP)

15.2 Chemical safety assessment:

The Chemical Safety Report – CSR has been prepared for the components of the mixture above.

SECTION 16: OTHER INFORMATION**Changes made to the Safety Data Sheet as part of the revision:**

Revision 1 – update of the data on the components of the mixture in section 3, update of the conditions for safe storage in section 7, addition of DNEL and PNEC values in section 8, amendment of sections 11, 12, 14, 15 and 16

Key or legend to abbreviations:

Acute Tox. 4 – acute toxicity, cat. 4
Aquatic Acute 1 – hazardous to the aquatic environment, cat. 1
Aquatic Chronic 1 – hazardous to the aquatic environment, cat. 1
Aquatic Chronic 2 – hazardous to the aquatic environment, cat. 2
Eye Dam. 1 – serious eye damage, cat. 1
Eye Irrit. 2 – eye irritation, cat. 2
Skin Irrit. 2 – skin irritation, cat. 2
STOT RE 2 – toxicity for specific target organs – repeated exposure, cat. 2
M – multiplication factor
DNEL – Derived No Effect Level (derived concentration of a substance at which no adverse effects are incurred)
PNEC – Predicted No Effect Concentration (estimated concentrations at which no adverse effects are incurred)
PEL – Permissible exposure limit, long-term (8 hours)
HPC-P – Highest permissible concentration, short-term limit
CLP – Regulation No. 1272/2008/EC
REACH – Regulation No. 1907/2006/EC
PBT – Persistent, bioaccumulative and toxic substance at the same time
vPvB – very persistent and very bioaccumulative substance

Key literature references and sources of data:

The information has been drawn from safety data sheets, literature, national and European legislation, MedisAlarm databases and human experience.

List of relevant hazard statements, precautionary statements:

H302 – harmful if swallowed
H315 – causes skin irritation
H318 – causes serious eye damage
H319 – causes serious eye irritation
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

Training Guidelines:

According to the Safety Data Sheet.

Additional information:

It contains details necessary to secure safety and protection of health at work and protection of the environment. Such information does not substitute the quality specification and cannot be considered as a warranty of suitability and applicability of this product for a specific application. The shown details correspond to the current state of knowledge and experience and are in accordance with statutory provisions. The user is responsible for compliance with local laws in force.