



SAFETY DATA SHEET MANTLE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name MANTLE
Product number PHP003/10

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

Identified uses Foliar micronutrient fertiliser

1.3. Details of the supplier of the safety data sheet

Supplier Headland Amenity Ltd.
1-3 Freeman Court
Jarman Way
Royston
Hertfordshire
SG8 5HW
+44 (0)1763 255550
sds@headlandamenity.com

Contact person Wendy Johnson

1.4. Emergency telephone number

Emergency telephone +44 (0)1763 255550 (09.00 - 17.00 GMT Monday - Friday)
National emergency telephone number 111

SECTION 2: Hazards identification

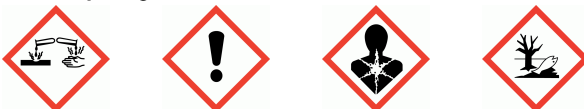
2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified
Health hazards Acute Tox. 4 - H302 Eye Dam. 1 - H318 STOT RE 2 - H373
Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Hazard pictograms



Signal word Danger

Hazard statements H302 Harmful if swallowed.
H318 Causes serious eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

MANTLE

Precautionary statements

P260 Do not breathe dust.
 P264 Wash contaminated skin thoroughly after handling.
 P280 Wear protective gloves, protective clothing and eye protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P314 Get medical advice/ attention if you feel unwell.

Contains MANGANESE SULPHATE MONOHYDRATE, ZINC SULPHATE HEXAHYDRATE

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

MANGANESE SULPHATE MONOHYDRATE	60-100%
CAS number: 10034-96-5	EC number: 232-089-9
	REACH registration number: 01-2119456624-35-XXXX

Classification
 Eye Dam. 1 - H318
 STOT RE 2 - H373
 Aquatic Chronic 2 - H411

ZINC SULPHATE HEXAHYDRATE	10-30%
CAS number: 7733-02-0	EC number: 231-793-3
	REACH registration number: 01-2119474684-27-XXXX
M factor (Acute) = 1	M factor (Chronic) = 1

Classification
 Acute Tox. 4 - H302
 Eye Dam. 1 - H318
 Aquatic Acute 1 - H400
 Aquatic Chronic 1 - H410

CITRIC ACID MONOHYDRATE	1-5%
CAS number: 5949-29-1	EC number: 201-069-1
	REACH registration number: 01-2119457026-42-XXXX

Classification
 Eye Irrit. 2 - H319

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Remove affected person from source of contamination. Get medical attention.

Ingestion Rinse mouth thoroughly with water. Do not induce vomiting. If conscious, give half a litre of water to drink immediately. Get medical attention.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water.

MANTLE

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Continue to rinse for at least 15 minutes.

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

Inhalation There may be irritation of the throat with a feeling of tightness in the chest.

Ingestion There may be soreness and redness of the mouth and throat. Nausea and stomach pain may occur.

Skin contact Skin contact may cause redness and irritation.

Eye contact There may be irritation and redness. Profuse watering of the eyes. May cause blurred vision and serious eye damage.

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

Specific treatments Eye bathing equipment should be available on the premises.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Toxic gases or vapours.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid inhalation of dust. Treat the spilled material according to the instructions in the clean-up section. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains and the aquatic environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Place waste in labelled, sealed containers.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid any direct contact with the substance. Provide adequate ventilation. Avoid generation and spreading of dust.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Promptly remove any clothing that becomes contaminated.

7.2. Conditions for safe storage, including any incompatibilities

MANTLE

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

MANGANESE SULPHATE MONOHYDRATE

Long-term exposure limit (8-hour TWA): WEL 0.2 mg/m³ as Mn;

Long-term exposure limit (8-hour TWA): WEL 0.2 mg/m³ as Mn

WEL = Workplace Exposure Limit.

MANGANESE SULPHATE MONOHYDRATE (CAS: 10034-96-5)

DNEL Workers - Inhalation; Long term systemic effects: 0.2 mg/m³
Workers - Dermal; Long term systemic effects: 0.004 mg/kg/day
General population - Inhalation; Long term systemic effects: 0.043 mg/m³
General population - Dermal; Long term systemic effects: 0.002 mg/kg/day

PNEC Fresh water; 0.03 mg/l
marine water; 0.0004 mg/l
Sediment (Freshwater); 0.011 mg/kg
Sediment (Marinewater); 0.001 mg/kg
STP; 56 mg/l
Soil; 25.1 mg/kg

ZINC SULPHATE HEXAHYDRATE (CAS: 7733-02-0)

DNEL Workers - Inhalation; systemic effects: 1 mg/m³
Workers - Dermal; systemic effects: 8.3 mg/kg
Consumer - Oral; systemic effects: 0.83 mg/kg
Consumer - Dermal; systemic effects: 8.3 mg/kg

PNEC - Fresh water; 0.0206 mg/l
- marine water; 0.0061 mg/l
- Sediment (Freshwater); 235.6 mg/kg
- Sediment (Marinewater); 113 mg/kg
- Soil; 106.8 mg/kg
- STP; 0.0052 mg/l

CITRIC ACID MONOHYDRATE (CAS: 5949-29-1)

PNEC Fresh water; 0.44 mg/l
marine water; 0.044 mg/l
STP; 1000 mg/l
Sediment (Freshwater); 3.46 mg/kg
Sediment (Marinewater); 34.6 mg/kg
Soil; 33.1 mg/kg

8.2. Exposure controls

Appropriate engineering controls Provide adequate ventilation.

Eye/face protection Wear tight-fitting, chemical splash goggles or face shield. Ensure eye bath is available.

MANTLE

Hand protection	Wear protective gloves.
Other skin and body protection	Wear protective clothing.
Respiratory protection	Self-contained breathing apparatus must be available in case of emergency. Respiratory protective device with particle filter.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Solid.
Colour	Brown.
pH	pH (diluted solution): 6.7 (5%)
Melting point	No information available.
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Vapour pressure	No information available.
Relative density	No information available.
Solubility(ies)	No information available.
Partition coefficient	No information available.
Viscosity	No information available.
Oxidising properties	Not known.

9.2. Other information

Other information	No other relevant information available.
--------------------------	--

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Stable under recommended transport or storage conditions.
-------------------	---

10.2. Chemical stability

Stability	Stable under normal conditions.
------------------	---------------------------------

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Under normal conditions of storage and use, no hazardous reactions will occur.
---	--

10.4. Conditions to avoid

Conditions to avoid	Avoid heat.
----------------------------	-------------

10.5. Incompatible materials

Materials to avoid	Strong oxidising agents. Strong acids.
---------------------------	--

10.6. Hazardous decomposition products

Hazardous decomposition products	In combustion emits toxic fumes.
---	----------------------------------

MANTLE

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 500.0

Inhalation	There may be irritation of the throat with a feeling of tightness in the chest.
Ingestion	There may be soreness and redness of the mouth and throat. Nausea and stomach pain may occur.
Skin contact	Skin contact may cause redness and irritation.
Eye contact	Profuse watering of the eyes. There may be irritation and redness. May cause blurred vision and serious eye damage.

SECTION 12: Ecological information

12.1. Toxicity

Ecological information on ingredients.

MANGANESE SULPHATE MONOHYDRATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 8.79 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - microorganisms NOEC, 3 hours: 560 mg/l, Activated sludge

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 65 days: 1.51 mg/l, Salvelinus fontinalis (Brook trout)

ZINC SULPHATE HEXAHYDRATE

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Chronic aquatic toxicity

M factor (Chronic) 1

CITRIC ACID MONOHYDRATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 440-706 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, : 1535 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability The product is biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient No information available.

MANTLE

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste product or used containers in accordance with local regulations Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

Disposal methods Dispose of waste product or used containers in accordance with local regulations

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	3077
UN No. (IMDG)	3077
UN No. (ICAO)	3077
UN No. (ADN)	3077

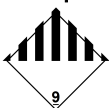
14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS MANGANESE SULPHATE MONOHYDRATE, ZINC SULPHATE HEXAHYDRATE)
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS MANGANESE SULPHATE MONOHYDRATE, ZINC SULPHATE HEXAHYDRATE)
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS MANGANESE SULPHATE MONOHYDRATE, ZINC SULPHATE HEXAHYDRATE)
Proper shipping name (ADN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CONTAINS MANGANESE SULPHATE MONOHYDRATE, ZINC SULPHATE HEXAHYDRATE)

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M7
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels



14.4. Packing group

ADR/RID packing group	III
-----------------------	-----

MANTLE

IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	2Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(-)

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

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

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision comments	Revised classification. Product UFI added (not relevant to GB). Supplier company address updated. Emergency contact details updated. NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	15/09/2020
Revision	2
Supersedes date	01/11/2016
SDS number	20452
Hazard statements in full	H302 Harmful if swallowed. 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.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.