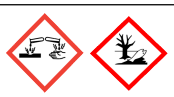
Safety Data Sheet

In accordance with Commission Regulation (EU) No 2015/830

Publication date: 24.10.2022 **Edition:** 1 **Revision date:** 24.10.2022 **Revision:** 1

TECNIFOL ANTICLOROSIS

SECTION 1	**Identification of the substance/mixture and of the company/undertaking**	
1.1	**Product identifier**	
	Trade name	TECNIFOL ANTICLOROSIS
	Synonyms	INORGANIC MICRONUTRIENT FERTILIZERS
	Code	DS-095
	Chemical name	-
	Chemical formula	-
	Index Number	Not applicable.
	EINECS Number	Not applicable
	CAS Number	Not applicable.
	Registration Number	It is a mixture and therefore has no registration number.
1.2	**Relevant identified uses of the substance or mixture and uses advised against**	
	Application of the substance / the mixture	Fertilisers
	Uses advised against	Others than those indicated.
1.3	**Details of the supplier of the safety data sheet**	ADP – Fertilizantes, S.A. Estrada Nacional nº 10 2615-907 Alverca Portugal (00351) 210 300 400 e-mail: fdsinfo@grupofertiberia.com
1.4	**Emergency telephone number**	SOPAC - Sociedade Produtora de Adubos Compostos(00351) 265 304 496 (Office hours only; Monday-Friday; 09:00-18:00)
SECTION 2	**Hazards identification**	
2.1	**Classification of the substance or mixture according Regulation (EC) n° 1272/2008 (CLP)**	Eye Dam. 1 H318 Causes serious eye damage. Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.
2.2	**Label elements**	
	Hazard pictograms	
	Signal word	Danger

	Hazard-determining components of labelling	Magnesium nitrate Zinc sulphate Manganese sulphate
	Hazard statements	H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects.
	Precautionary statements	P102 Keep out of reach of children. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P280 Wear 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. P310 Immediately call a POISON CENTER/doctor. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
	Additional information	Not applicable.
	Supplemental information on the label	Not applicable.
	Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not applicable.
	Special packaging requirements	Not applicable.
	Containers to be fitted with child-resistant fastenings	Not applicable.
	Tactile hazard warning	Not applicable.
2.3	**Other hazards**	
	Other hazards which do not result in classification	None known.
	Results of the PBT and vPvB assessment	Not applicable.

SECTION 3 Composition/information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Name	Index Number	CE number	CAS number	Registration number	%(P/P)	Classification Regulation CE Nª 1272/2008
Aqueous solution of magnesium nitrate (<5% calcium nitrate and <5% nitric acid)	-	233-826-7	10377-60-3	-	10-30%	Eye Dam. H318
Zinc sulphate	030-006-00-9	231-793-3	7446-19-7	-	< 10%	Acute Tox. 4 H302; Eye Dam. 1 H318; Aquatic Acute 1 H400; Aquatic Chronic 1 H410
Manganese sulphate	025-003-00-4	232-089-9	7785-87-7	-	<5%	Eye Damage 1 H318, STOT RE 2 H373, Aquatic Chronic 2 H411

(1) Other substances may be added in quantities that do not affect the classification of the product, such as iron sulfates or magnesium oxide, in concentrations less than 5%.

Additional indications: For the wording of the listed hazard phrases refer to section 16.

SECTION 4 First aid measures

4.1 Description of first aid measures

General information	Provide medical assistance to those affected. People who dispense first aid are advised to wear personal protective equipment. There may be delayed effects on exposure.
Inhalation	Remove from exposure. In severe cases, or if recovery is not rapid or complete, seek medical attention.
Ingestion	Rinse mouth with water. Do not induce vomiting. If patient is conscious, give water to drink. If patient feels unwell, seek medical attention.
Skin contact	Rinse with plenty of water. Remove contaminated clothing and wash before reuse. If irritation persists, seek medical attention.
Eye contact	Irrigate with plenty of water for at least 10 minutes. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Eye contact	Redness, itching, burning.
Inhalation	Difficulty in breathing.
Skin contact	No significant effects or critical hazards are known.
Ingestion	Nausea, vomiting, coughing,

4.3 Indication of any immediate medical attention and special treatment needed

No action involving personal risk or without adequate training should be taken. Avoid direct mouth-to-mouth resuscitation, as it can be dangerous for the person providing the help. Use other methods for resuscitation, preferably oxygen or compressed air equipment. Treat according to the following indications:

	Notes to physician	Treat symptomatically.
	Specific treatments	There is no specific treatment. It depends on specialized medical observation.

SECTION 5	**Firefighting measures**	
5.1	**Extinguishing media**	
	The product is not flammable.	
	Suitable extinguishing agents	Dry powder, carbon dioxide (CO2), foam.
	Unsuitable extinguishing agents for safety reasons	None.
5.2	**Special hazards arising from the substance or mixture**	
	Formation of toxic gases is possible during heating or in case of fire.	
	Hazardous thermal decomposition products	Carbon oxides Nitrogen oxides (NOx) Ammonia
5.3	**Advice for firefighters**	
	Open warehouse doors and windows for maximum ventilation. Fire-fighting personnel should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face mask operating in positive pressure mode. Clothing for fire-fighting personnel (including helmets, protective boots) should conform to European standard EN 469 and gloves to EN 659. It should provide a basic level of protection for chemical incidents and should be fire resistant. The facility shall have sufficient protective equipment available to deal with fires.	
SECTION 6	**Accidental release measures**	
6.1	**Personal precautions, protective equipment and emergency procedures**	
	Wear protective clothing.	
	For non-emergency personnel	
	Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. In case of non-flammable spills and leaks, wear vapor protective clothing. Stop leak if you can do so without risk. Keep unnecessary persons away, isolate the danger area and prevent entry. Eliminate sources of combustion. Keep upwind, out of low areas and ventilate confined spaces before entering. Assess the affected area to determine if evacuation is necessary. If it is necessary to evacuate the danger zone, you should follow the advice of an expert. If sheltering in place, tape windows and doors, close outside air intakes (attic fans, etc.) and place a damp towel or cloth over your face (if necessary).	
	For emergency responders	
	If specialized clothing is required to deal with the spill, make note of any information on suitable and unsuitable materials. See also the information in "For non-emergency personnel".	
6.2	**Environmental precautions**	
	In case of accidental spills and leaks avoid dispersal of spilled material, runoff and contact with soil, watercourses (surface and groundwater), drains and sewers. Inform the competent authorities if the product has caused adverse impacts (sewers, watercourses, soil or air).	
6.3	**Methods and material for containment and cleaning up**	

	In case of accidental spills and leaks, avoid dispersal of spilled material. Use water spray or foam to control vapors. Make a protective barrier and ensure closure of drains with suitable containment material. Absorb with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep and shovel into suitable containers for disposal.	
6.4	**Reference to other sections**	
	See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.	
SECTION 7	**Handling and storage**	
7.1	**Precautions for safe handling**	
	Technical precautionary measures	Wear appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering food areas. Avoid contact with eyes, skin or clothing. Do not breathe vapours or mist. Do not ingest. Avoid release to the environment. Keep in original container or approved alternative made of compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residues and may be hazardous. Do not reuse container.
	Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
7.2	**Conditions for safe storage, including any incompatibilities**	
	Avoid contact and packaging with incompatible substances or mixtures. See section 10; Avoid proximity to potential sources of ignition (including electrical equipment); Store in a place that avoids adverse weather conditions (high temperatures); Avoid direct sunlight; Ensure good ventilation of the storage area. Ensure that the quantities that can be stored are not exceeded. See section 15.	
7.3	**Specific end use(s)**	
	Use only as described in section 1.2.	
SECTION 8	**Exposure controls/personal protection**	
8.1	**Control parameters**	
	Occupational exposure	There is no limit of occupational exposure value.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of ventilation or other control measures and/or the need to use respiratory protective equipment. Monitoring standards such as the following may be used as reference: European Standard EN 689 (Atmospheres in the workplace. Guidelines for the evaluation of inhalation exposure of chemical agents for comparison with limit values and measurement strategy), European Standard EN 14042 (atmospheres in the workplace. Guidelines for the application and use of procedures to assess exposure to chemical and biological agents) European Standard EN 482 (atmospheres in the workplace. General requirements for the performance of procedures for measuring chemical agents). National guidance documents on methods for the determination of hazardous substances should also be used as a reference.
Derived effect levels	No DELs available.
Predicted effect concentrations	No PECs available.
Ingredients with limit values that require monitoring at the workplace	CAS:1309-48-4 Magnesium oxide: WEL: Long-term value: 10* 4** mg/m³ - (as Mg) *inhalable dust **fume and respirable dust CAS: 7720-78-7 Iron sulphate: WEL: Short-term value: 2 mg/m³ Long-term value: 1 mg/m³ - as Fe

DNEL

Substance				10377-60-3	7785-87-7	7733-02-0
				Magnesium nitrate	Manganese sulphate	Zinc sulphate
	Inhalation (mg/m3)	**Long-term**	**Systemic**	No hazard has been identified	0,2 mg/m3	1 mg/m3
			Local	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified
		Short-term	**Systemic**	No hazard has been identified	0,2 mg/m3	No hazard has been identified
			Local	No hazard has been identified	No hazard has been identified	No hazard has been identified
			Systemic	No hazard has been identified	0,004 mg/kg bw/d	8,3 mg/kg bw/d

	Industrial/Professional worker	**Dermal (mg/kg pc/día)**	**Long-term**	**Local**	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified
			Short-term	**Systemic**	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified
				Local	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified
		Ocular (mg/kg pc/día)	**Long-term**	**Systemic**	Not available	Not available	Not available
				Local	Not available	Not available	Not available
			Short-term	**Systemic**	No hazard has been identified	No hazard has been identified	No hazard has been identified
				Local	No hazard has been identified	No hazard has been identified	No hazard has been identified
		Inhalation (mg/m3)	**Long-term**	**Systemic**	No hazard has been identified	0,043 mg/m3	1,25 mg/m3
				Local	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified
			Short-term	**Systemic**	No hazard has been identified	No hazard has been identified	No hazard has been identified
				Local	No hazard has been identified	No hazard has been identified	No hazard has been identified
			Long-term	**Systemic**	No hazard has been identified	0,002 mg/kg bw/d	8,3 mg/kg bw/d
				Local	No hazard has been identified	No-threshold effect and/or no dose-response information available	No hazard has been identified

	Consummer	Dermal (mg/kg pc/day)	Short-term	Systemic	No hazard has been identified	No hazard has been identified	No hazard has been identified
				Local	No hazard has been identified	No hazard has been identified	No hazard has been identified
		Oral (mg/kg pc/day)	Long-term	Systemic	No hazard has been identified	No-threshold effect and/or no dose-response information available	0,83 mg/kg bw/d
				Local	No hazard has been identified	Not available	No hazard has been identified
			Short-term	Systemic	Not available	Not available	No hazard has been identified
				Local	Not available	Not available	No hazard has been identified
		Ocular (mg/kg pc/day)	Long-term	Systemic	Not available	Not available	Not available
				Local	Not available	Not available	Not available
			Short-term	Systemic	No hazard has been identified	No hazard has been identified	No hazard has been identified
				Local	No hazard has been identified	No hazard has been identified	No hazard has been identified
	PNEC						
	Substance				10377-60-3	7785-87-7	7733-02-0
					Magnesium nitrate	Manganese sulphate	Zinc sulphate
	Fresh water (mg/L)				No hazard has been identified	0,03 mg/L	20,6 µg/L
	Salt water (mg/L)				No hazard has been identified	0 mg/L	6,1 µg/L
	STP (mg/L)				18 mg/L	56 mg/L	100 µg/L

	Fresh water sediment (mg/L)	No hazard has been identified	0,011 mg/kg sediment dw	117,8 mg/kg sediment dw
	Salt water sediment (mg/L)	No hazard has been identified	0,011 mg/kg sediment dw	56,5 mg/kg sediment dw
	Air (mg/L)	No hazard has been identified	No hazard has been identified	Not available
	Soil (mg/L)	No hazard has been identified	25,1 mg/kg soil dw	35,6 mg/kg suelo dw
	Predators (secondary poisonment) (mg/L)	The substance has no bioaccumulation potential	The substance has no bioaccumulation potential	The substance has no bioaccumulation potential

	Components with biological limit values	Non-existent.
	Additional indications	The Occupational exposure limits lists valid during the making were used as basis.
8.2	**Exposure controls**	
	Appropriate engineering controls	- Ensure adequate ventilation. - Apply technical measures to comply with professional exposure limits. - Consult the protective measures listed in sections 7 and 8.
	Personal — **General protection and hygiene measures**	Wash completely the hands, forearms and face after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Use the appropiate techniques to remove the contaminated clothes. Wash the contaminated clothes before reusing. Verify that the eyes washing stations and safety showers were near to working stations.
	Respiratory protection	If dust concentration is high and/or ventilation is inadequate, use a dust mask or a mask with a suitable filter (e.g. EN 143, 149, filter P1).
	Hand protection	Wear suitable gloves (e.g. rubber or PVC) when handling the product for long periods of time.

	protective measures, such as personal protective equipment	Glove material	Nitrile rubber, NBR
		Other	Use personal protective equipment during use and handling of the product.
		Eye/face protection	Safety eyewear complying with an approved standard EN 166:2002 should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, use the following protection, unless the assessment indicates a higher degree of protection: safety glasses with side shields. Recommended: Eyewear, mask or other protection that covers the entire face must be used if there is a possibility of being exposed to aerosols or splashes, or if hot material is handled.
		Thermal hazards	Not available.
	Environmental exposure controls		General ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
Colour	Colourless
Odour	Light
Odour threshold	Not available.
pH	2-4
Melting point/freezing point	Not available.
Initial boiling point and boiling range	100ºC
Flash point	Not applicable due to physico-chemical characteristics
Evaporation rate	Not available
Flammability	Non-flammable
Upper/lower flammability or explosive limits	
Lower	Not available.
Upper	Not available.
Vapour pressure	Not determined.
Vapour density	Not available.
Relative density	1,3-1,5
Solubility	
In water	Fully miscible.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not determined.

	Viscosity	
	Kinematic	Not available.
	Dynamic	Not available.
	Explosive properties	The product is not explosive
	Oxidising properties	Not available
9.2	**Other information**	No additional information No further relevant information available.

SECTION 10 Stability and reactivity

10.1	**Reactivity**	Stable under recommended storage conditions.
10.2	**Chemical stability**	Chemically stable under the indicated storage, handling and use conditions.
10.3	**Possibility of hazardous reactions**	None known.
10.4	**Conditions to avoid**	When heated above 50°C, the solution may release ammonia vapours. Welding work or work that involves heating equipment that has contained the product without first washing it to remove all traces.
10.5	**Incompatible materials**	None known.
10.6	**Hazardous decomposition products**	In case of fire: see section 5. When heated above 50ºC, or when in contact with alkaline solutions, it may release ammonia.

SECTION 11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 423 Not specified	Rat Rat	Oral Cutaneous	DL50 > 2000 mg/kg bw. DL50 > 5000 mg/kg bw.
Manganese sulphate	7785-87-7	Not specified OECD 403	Rat Rat	Oral Inhalation	DL50: 2150 mg/kg bw. CL50 > 4,45 mg/l air.
Zinc sulphate	7733-02-0	OECD 401 OECD 402	Rat Rat Rat	Oral Cutaneous	DL50: 574 mg/kg bw. DL50 > 2000 mg/kg bw

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

Skin corrosion/irritation

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 404	Rabbit	Cutaneous	Non irritant

Manganese sulphate	7785-87-7	OECD 404	Rabbit	Cutaneous	Non irritant
Zinc sulphate	7733-02-0	Not specified	Rabbit	Cutaneous	Non irritant

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

Serious eye damage/irritation

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 405	Rabbit	Ocular	Category 1. Causes serious eye damage.
Manganese sulphate	7785-87-7	OECD 405	Rabbit	Ocular	Category 1. Causes serious eye damage.
Zinc sulphate	7733-02-0	OECD 405	Rabbit	Ocular	Category 1. Causes serious eye damage.

Category 1. Causes serious eye damage.

Respiratory or skin sensitation

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 429	Mouse	Cutaneous	Non sensitising
Manganese sulphate	7785-87-7	-	-	-	There are no available studies. Based on the information available regarding other substances
Zinc sulphate	7733-02-0	Not specified	Mouse	Cutaneous	Non sensitising

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

Germ cell mutagenicity

Component	CAS number	Method	Species	Result
Magnesium nitrate	10377-60-3	OECD 471 OECD 473 OECD 476	Bacteria Cromosomic aberration Mutation of mammal cells	Non mutagenic
Manganese sulphate	7785-87-7	OECD 471 OECD 473 OECD 476	Bacteria Cromosomic aberration Mutation of mammal cells	Non mutagenic
Zinc sulphate	7733-02-0	Not specified	Bacteria Mutation of mammal cells	Non mutagenic

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

Carcinogenicity

Component	CAS number	Method	Species	Route	Result

Magnesium nitrate	10377-60-3	-	-	-	Not available
Manganese sulphate	7785-87-7	-	-	-	An extensive review of the available literature regarding inorganic forms of manganese leads to the conclusion that
Zinc sulphate	7733-02-0	-	-	-	There are no experimental studies conducted on animals that are suitable for assessing the carcinogenicity of the

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

Reproductive toxicity

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 422	Rat	Oral	Effects on fertility: NOAEL >= 1500 mg/kg bw/d. Toxicity for the development: NOAEL >= 1500 mg/kg bw/d
Manganese sulphate	7785-87-7		Rat	Oral Inhalation	Effects on fertility : NOAEL: 20 µg/l Toxicity for the development: NOAEL: 25 µg/l
Zinc sulphate	7733-02-0		Rat Mouse	Oral	Effects on fertility: NOAEL: 20 mg/kg bw/d. Toxicity for the development: NOAEL: 50 mg/kg bw/d.

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

STOT- single exposure

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	Not available	Not available	Not available	Not available
Manganese sulphate	7785-87-7	Not available	Not available	Not available	Not available
Zinc sulphate	7733-02-0	Not available	Not available	Not available	Not available

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

STOT-repeated exposure

Component	CAS number	Method	Species	Route	Result
Magnesium nitrate	10377-60-3	OECD 422	Rat	Oral	NOAEL >= 1500 mg/kg bw/d
Manganese sulphate	7785-87-7	Not specified	Rat Monkey	Oral Inhalation	There are no relevant effects associated to repeated exposure .
Zinc sulphate	7733-02-0	OECD 408	Rat Guinea Pig	Oral Inhalation	NOAEL: 13,3 mg/kg bw/d. NOAEC: 2,7 mg/m3

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

Aspiration hazard

Component	CAS number	Result
Magnesium nitrate	10377-60-3	No significant effects or critical hazards are known.
Manganese sulphate	7785-87-7	No significant effects or critical hazards are known.
Zinc sulphate	7733-02-0	No significant effects or critical hazards are known.

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

SECTION 12 Ecological information

12.1 Toxicity

Aquatic toxicity

Component	Nº CAS		Fish	Crustacea	Algae
Magnesium nitrate	10377-60-3	Short term	CL50(96h) > 100 mg/l	NOEC: 157 mg/l	CE50(48h): 490 mg/l
		Long term	Not available	CE50(72h): 1700 mg/l	CE10/NOEC: 1700 mg/l
Manganese sulphate	7733-02-0	Short term	CL50: 0,169 mg Zn/l (Oncorhynchus	Fresh water: NOEC: 0,44 - 0,570 mg Zn/l	CE50: 0,413 mg Zn/l at acid pH and
		Long term	Fresh water: NOEC: 0,037- 0,4 mg Zn/l	Fresh water: CL50: 0,136 mg Zn/l (Selenastrum	
Zinc sulphate	7785-87-7	Short term	CL50(96h): 49,9 mg/l	NOEC: 4,5 mg Mn/l	CL50(96h): 13,7 mg/L
		Long term	NOEC: 20 µg/L	NOEC(7d): 30,72 mg/l	

Terrestrial toxicity

Component	Nº CAS	Macro-organism	Micro-organism	Terrestrial plants	Other organisms
Magnesium nitrate	10377-60-3	Not available	Not available	Not available	-
Manganese sulphate	7785-87-7	Not available	Not available	Not available	Not available
Zinc sulphate	7733-02-0	NOEC/EC10: 35,7 (Enchytraeus albidus) - 1634 mg Zn/kg bw (Lumbricus terrestris)	NOEC/EC10s: 17 mg Zn/kg bw - 2623 mg Zn/kg bw	NOECs/EC10: 32 mg Zn/kg bw (Trifolium pratense y Vicia sativa) -	-

Microbiological activity in wastewater treatment plants

Component	Nº CAS	Toxicity to aquatic micro-organisms
Magnesium nitrate	10377-60-3	CE50 > 1000 mg/l NOEC: 180 mg/l
Manganese sulphate	7785-87-7	CE50 > 1000 mg/l NOEC: 560 mg/l
Zinc sulphate	7733-02-0	NOEC/CE10: 100 µg/L

12.2 Persistence and degradability

	Component	Nº CAS	Degradation	
	Magnesium nitrate	10377-60-3	**Hydrolysis**	Hydrolisis is not seen. It is not necessary.
			Photolysis	Not available.
			Biodegradation	According to Annex VII of REACH, It is not necessary to carry out biodegradability studies since the substance is inorganic.
	Manganese sulphate	7785-87-7	**Hydrolysis**	Scientifically not necessary
			Photolysis	Not available.
			Biodegradation	Not available.
	Zinc sulphate	7733-02-0	**Hydrolysis**	Not necessary
			Photolysis	Not necessary
			Biodegradation	Not necessary

12.3 Bioaccumulative potential

Component	Nº CAS	Octanol-water partition coefficient (Kow)	Bioacumulation factor (BFC)	Observations
Magnesium nitrate	10377-60-3	-	-	Simple inorganic salts with high solubility in water exist dissociated in an aqueous solution. This type of substance has a low bioaccumulation potential.
Manganese sulphate	7785-87-7	-	-	-
Zinc sulphate	7733-02-0	Not applicable. Inorganic substance.	-	-

12.4 Mobility in soil

Component	Nº CAS	Result
Magnesium nitrate	10377-60-3	Simple inorganic salts have a high solubility in water and exist dissociated in aqueous solution. This type of substance has a low adsorption potential.
Manganese sulphate	7785-87-7	Log Kp (solids-water in the soil): 3,1. Log Kp (solids-water in sediment): 3,1. Log Kp (solids-water in suspended matter): 3,1. Log Kp (solids-water in sewage sludge): 3.1. Log Kp (solids-water in sedimented wastewater sludge): 3.1. Log Kp (solids-water in activated sewage sludge): 3,1. Log Kp (solids-water in effluent sludge): 3,1.
Zinc sulphate	7733-02-0	Kp for particulate matter and water: 11000 l/kg Kp for water and sediments: 73000 l/kg Kp for marine waters: 6010 l/kg Kp for solids-water in soil: 158.5 l/kg

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Significative effects o critics risks are not known.

SECTION 13 Disposal considerations

13.1 Waste treatment methods

	Methods of disposal	Waste management (disposal and recovery) : Consult the authorised waste manager for recovery and disposal operations, in accordance with Annex 1 and Annex 2 (Directive 2018/851/EC, Law 7/2022 of 8 April, on waste and contaminated soil for a circular economy).. Packaging: According to codes 15 01 (Commission Decision 2014/955/EU), if the packaging has been in direct contact with the product, it should be treated in the same way as the product itself, otherwise it should be treated as non-hazardous waste. Discharge into waste water is not recommended. See section 6.2. Waste management provisions : In accordance with Annex II of Regulation (EC) No 1907/2006 (UK REACH), the Community or national provisions on waste management are presented. Community legislation: Directive 2018/851/EC, Commission Decision 2014/955/EU, Regulation (EU) no. 1357/2014 and the national legislation.
	Hazardous waste code	HP4: Irritant - skin irritation and eye damage HP14: Ecotoxic

SECTION 14 Transport information

	Regulatory information	ADR/RID	ADNR	IMDG	IATA
14.1	**UN number**	UN3082			
14.2	**UN proper shipping name**	UN3082 ENVIRONMENTALLY HAZARDOUS LIQUID SUBSTANCE, N.O.S. (copper sulfate, zinc sulfate (anhydrous))		ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (manganese sulphate, zinc sulphate (anhydrous)), MARINE POLLUTANT	
14.3	**Transport hazard class(es)**				
	Class	9 (M6) Various hazardous materials and objects		9 Various hazardous materials and objects	
	Label	9		9	
14.4	**Packing group**	III			
14.5	**Environmental hazards**	Marine pollutant			
14.6	**Special precautions for user**	Not applicable.			
		Hazard Identification Number (Kemler Number: 90 EMS number: F-A,S-F Segregation groups: - Stowage Category: A Stowage Code: SW2 Clear of living quarters			
	Segrgation Code				

14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.		
	Additional information	ADR/RID/ADN Limited Quantities (LQ) 5L Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml Transport category 3 Tunnel restriction code	Limited quantities (LQ) 5L -Excepted quantities (EQ) Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml "UNECE Model Regulations: UN 3082 ENVIRONMENTALLY HAZARDOUS LIQUID SUBSTANCE, N.O.S. (manganese sulphate, CINC (ANHIDRO) SULPHATE), 9, III	-

SECTION 15 Regulatory information

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

GB Regulation (EC) No 1907/2006 (REACH)	This product complies with the UK REACH Regulation.
Named dangerous substances - ANNEX VI (CLP)	Contains zinc sulphate according to Index entry: 030-006-00-9. Contains manganese sulfate according to Index entry: 025-003-00-4.
SEVESO Category	E2 Dangerous for the aquatic environment
Qualifying quantity (tonnes) for the application of lower-tier requirements	200 t
Qualifying quantity (tonnes) for the application of upper-tier requirements	500 t

	Regulation (EC) No 1907/2006 - ANNEX XVII	Restriction No. 3
15.2	**Chemical safety assessment**	
	A chemical safety assessment has not been carried out since this is a mixture (exempt from registration), however the exposure scenarios of the substances that form the composition may be requested.	
SECTION 16	**Other information**	
	Relevant phrases	H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. 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 ef fects. H411 Toxic to aquatic life with long lasting effects.
	Abbreviations and acronyms	ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road). STP: Sewage treatment plant. OECD: Organisation for Economic Co-operation and Development. NOAEL: No observed adverse effect level.. IMDG: International Maritime Code for Dangerous Goods. IATA: International Air Transport Association. GHS: Globally Harmonised System of Classification and Labelling of Chemicals. CAS: Chemical Abstracts Service (division of the American Chemical Society). DNEL: Derived No-Effect Level (UK REACH). PNEC: Predicted No-Effect Concentration (UK REACH).
	Data compared to the previous version altered	It is the first version.
	References	This safety data sheet has been prepared in accordance with: - ANNEX II: Guidance for the preparation of Safety Data Sheets of Regulation (EC) No 1907/2006 (Regulation (EU) 2015/830) based on the data included in the chemical safety report of registered substances. - Guidance available on the European Chemicals Agency (ECHA) website: (http://echa.europa.eu/). - Guidance for the compilation of safety data sheets for fertilizer materials (www.fertilizerseurope.com).
	Methods used for the classification of the mixture (Article 9 of Regulation (EC) No 1272/2008)	Classification and Labeling in accordance with the principle of extrapolation of Regulation No. 1272/2008 (CLP).

	Advice on any training appropriate for workers to ensure protection of human health and the environment	Minimum training in the prevention of occupational hazards is recommended for personnel who will handle this product, in order to facilitate the understanding and interpretation of this safety data sheet, as well as the product label.

The information contained in this safety data sheet is provided in good faith and its accuracy is based on knowledge of the product at the time of publication. The information presented is only intended to describe the product from the point of view of human and environmental protection and safety, and therefore cannot be regarded as product specifications. It does not imply acceptance of any commitment or legal responsibility on the part of the Company, for the consequences of its use or misuse in any circumstances. The information provided is considered accurate and current at the time of this edition, referring only to the product and may not be valid in compositions or formulations with other products. The responsibility for its use belongs to the users.