



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

- 1.1 Product identifier:** Asset Titanium
Other means of identification:
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant uses: Adjuvant. For professional users only.
Uses advised against: All uses not specified in this section or in section 7.3
- 1.3 Details of the supplier of the safety data sheet:**
Indigrow AB
Motalgatan 18
59232 Vedstena - Sweden
Phone: +44 1189 710 995
growth@indigrow.com
www.indigrow.com
- 1.4 Emergency telephone number:** +44 1189 710 995

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture:**
GB CLP Regulation:
Classification of this product has been carried out in accordance with GB CLP Regulation.
Aquatic Chronic 2: Hazardous to the aquatic environment, long-term hazard, Category 2, H411
Eye Dam. 1: Serious eye damage, Category 1, H318
- 2.2 Label elements:**
GB CLP Regulation:
Danger
-
- Hazard statements:**
Aquatic Chronic 2: Toxic to aquatic life with long lasting effects.
Eye Dam. 1: Causes serious eye damage.
- Precautionary statements:**
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/protective footwear.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Dispose of the contents and/or its container in line with regulations on dangerous waste or packaging and waste packaging respectively.
- Substances that contribute to the classification**
Zinc sulfate monohydrate; manganese sulphate · (H₂O)
- 2.3 Other hazards:**
Product fails to meet PBT/vPvB criteria

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

- 3.1 Substance:**
Non-applicable
- 3.2 Mixture:**
Chemical description: Mixture of substances
Components:

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

In accordance with Annex II of The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020, the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 7446-19-7	Zinc sulfate monohydrate Acute Tox. 4: H302; Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Eye Dam. 1: H318 - Danger	10 - <25 %
CAS: 10034-96-5	manganese sulphate · (H2O) Aquatic Chronic 2: H411; Eye Dam. 1: H318; STOT RE 2: H373 - Danger	2.5 - <10 %
CAS: 77-92-9	Citric Acid Eye Irrit. 2: H319; STOT SE 3: H335 - Warning	2.5 - <10 %
CAS: 107-21-1	Ethanediol Acute Tox. 4: H302 - Warning	2.5 - <10 %
CAS: 7720-78-7	iron (II) sulfate Acute Tox. 4: H302; Aquatic Chronic 2: H411; Eye Irrit. 2: H319; Skin Irrit. 2: H315 - Warning	1 - <2.5 %
CAS: 10043-35-3	Boric acid Repr. 1B: H360FD - Danger	1 - <2.5 %

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

Other information:

Identification	Specific concentration limit
Boric acid CAS: 10043-35-3	% (w/w) >=5.5: Repr. 1B - H360FD

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:

This product is not classified as hazardous through inhalation. However, in case of intoxication symptoms it is recommended to remove the person affected from the area of exposure, provide clean air and keep at rest. Request medical attention if symptoms persist.

By skin contact:

This product is not classified as hazardous when in contact with the skin. However, in case of skin contact it is recommended to remove contaminated clothes and shoes, rinse the skin or if necessary shower the affected person thoroughly with cold water and neutral soap. In case of serious reaction consult a doctor.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

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

Acute and delayed effects are indicated in sections 2 and 11.

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

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

Suitable extinguishing media:

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SECTION 5: FIREFIGHTING MEASURES (continued)

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems.

Unsuitable extinguishing media:

Non-applicable

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...).

Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Isolate leaks provided that there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Evacuate the area and keep out those who do not have protection.

For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

6.2 Environmental precautions:

Avoid at all cost any type of spillage into an aqueous medium. Contain the product absorbed appropriately in hermetically sealed containers. Notify the relevant authority in case of exposure to the general public or the environment.

6.3 Methods and material for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- General precautions for safe use

Comply with the current legislation concerning the prevention of industrial risks with regards manually handling weights. Maintain order, cleanliness and dispose of using safe methods (section 6).

B.- Technical recommendations for the prevention of fires and explosions

Product is non-flammable under normal conditions of storage, handling and use. It is recommended to transfer at slow speeds to avoid the generation of electrostatic charges that can affect flammable products. Consult section 10 for information on conditions and materials that should be avoided.

C.- Technical recommendations on general occupational hygiene

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

Due to the danger of this product for the environment it is recommended to use it within an area containing contamination control barriers in case of spillage, as well as having absorbent material in close proximity.

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SECTION 7: HANDLING AND STORAGE (continued)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Minimum Temp.: 5 °C

Maximum Temp.: 30 °C

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the workplace:

EH40/2005 Workplace exposure limits, fourth edition, published 2020:

Identification	Occupational exposure limits		
manganese sulphate · (H ₂ O) CAS: 10034-96-5	WEL (8h)		0.05 mg/m ³
	WEL (15 min)		
Ethanediol CAS: 107-21-1	WEL (8h)	20 ppm	52 mg/m ³
	WEL (15 min)	40 ppm	104 mg/m ³

DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Zinc sulfate monohydrate CAS: 7446-19-7 EC: 231-793-3	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	8.3 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1 mg/m ³	Non-applicable
manganese sulphate · (H ₂ O) CAS: 10034-96-5 EC: 232-089-9	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	0.004 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable
Ethanediol CAS: 107-21-1 EC: 203-473-3	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	106 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	35 mg/m ³
iron (II) sulfate CAS: 7720-78-7 EC: 231-753-5	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	2.8 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable
Boric acid CAS: 10043-35-3 EC: 233-139-2	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	392 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	8.3 mg/m ³	Non-applicable

DNEL (General population):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
Zinc sulfate monohydrate CAS: 7446-19-7 EC: 231-793-3	Oral	Non-applicable	Non-applicable	0.83 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	8.3 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1.25 mg/m ³	Non-applicable
manganese sulphate · (H ₂ O) CAS: 10034-96-5 EC: 232-089-9	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	0.002 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	0.043 mg/m ³	Non-applicable
Ethanediol CAS: 107-21-1 EC: 203-473-3	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	53 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	7 mg/m ³

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
iron (II) sulfate CAS: 7720-78-7 EC: 231-753-5	Oral	20 mg/kg	Non-applicable	0.28 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	1.4 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	Non-applicable	Non-applicable
Boric acid CAS: 10043-35-3 EC: 233-139-2	Oral	0.98 mg/kg	Non-applicable	0.98 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	196 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	4.15 mg/m ³	Non-applicable

PNEC:

Identification					
Zinc sulfate monohydrate CAS: 7446-19-7 EC: 231-793-3	STP	0.1 mg/L	Fresh water	0.0206 mg/L	
	Soil	35.6 mg/kg	Marine water	0.0061 mg/L	
	Intermittent	Non-applicable	Sediment (Fresh water)	117.8 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	56.5 mg/kg	
manganese sulphate · (H ₂ O) CAS: 10034-96-5 EC: 232-089-9	STP	56 mg/L	Fresh water	0.03 mg/L	
	Soil	25.1 mg/kg	Marine water	0 mg/L	
	Intermittent	0.088 mg/L	Sediment (Fresh water)	0.011 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	0.001 mg/kg	
Citric Acid CAS: 77-92-9 EC: 201-069-1	STP	1000 mg/L	Fresh water	0.44 mg/L	
	Soil	33.1 mg/kg	Marine water	0.044 mg/L	
	Intermittent	Non-applicable	Sediment (Fresh water)	34.6 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	3.46 mg/kg	
Ethanedial CAS: 107-21-1 EC: 203-473-3	STP	199.5 mg/L	Fresh water	10 mg/L	
	Soil	1.53 mg/kg	Marine water	1 mg/L	
	Intermittent	10 mg/L	Sediment (Fresh water)	37 mg/kg	
	Oral	Non-applicable	Sediment (Marine water)	3.7 mg/kg	
Boric acid CAS: 10043-35-3 EC: 233-139-2	STP	10 mg/L	Fresh water	2.9 mg/L	
	Soil	5.7 mg/kg	Marine water	2.9 mg/L	
	Intermittent	13.7 mg/L	Sediment (Fresh water)	Non-applicable	
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable	

8.2 Exposure controls:


A.- Individual protection measures, such as personal protective equipment

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<UKCA marking>>. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands

Pictogram	PPE	Remarks
 Mandatory hand protection	Protective gloves against minor risks	Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN 420:2004+A1:2010 and EN ISO 374-1:2016+A1:2018


As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.

D.- Eye and face protection

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Pictogram	PPE	Remarks
 Mandatory face protection	Panoramic glasses against splash/projections.	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Remarks
	Work clothing	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2013, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
	Anti-slip work shoes	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 20345:2012 y EN 13832-1:2007

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

Environmental exposure controls:

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 °C:	Liquid
Appearance:	Undefined
Colour:	According to the markings on the package
Odour:	Undefined
Odour threshold:	Non-applicable *

Volatility:

Boiling point at atmospheric pressure:	Non-applicable *
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	Non-applicable *
Evaporation rate at 20 °C:	Non-applicable *

Product description:

Density at 20 °C:	1234.1 kg/m ³
Relative density at 20 °C:	1.234
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Concentration:	Non-applicable *
pH:	Non-applicable *
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Flammability:	
Flash Point:	Non Flammable (>60 °C)
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	400 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
Particle characteristics:	
Median equivalent diameter:	Non-applicable

9.2 Other information:

Information with regard to physical hazard classes:

Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *

Other safety characteristics:

Surface tension at 20 °C:	Non-applicable *
Refraction index:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products:

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SECTION 10: STABILITY AND REACTIVITY (continued)

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO₂), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

Contains glycols. It is recommended not to breathe the vapours for prolonged periods of time due to the possibility of effects that are hazardous to the health.

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A- Ingestion (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.

C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for skin contact. For more information see section 3.
- Contact with the eyes: Produces serious eye damage after contact.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for the effects mentioned. For more information see section 3.
IARC: Non-applicable
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous with sensitising effects. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

F- Specific target organ toxicity (STOT) - single exposure:

Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.

G- Specific target organ toxicity (STOT)-repeated exposure:

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met. However, it does contain substances which are classified as dangerous due to repetitive exposure. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

Other information:

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SECTION 11: TOXICOLOGICAL INFORMATION (continued)

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
Ethanedial CAS: 107-21-1	LD50 oral	500 mg/kg	Rat
	LD50 dermal	>5000 mg/kg	Rabbit
	LC50 inhalation	Non-applicable	
Zinc sulfate monohydrate CAS: 7446-19-7	LD50 oral	500 mg/kg (ATEi)	
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Citric Acid CAS: 77-92-9	LD50 oral	5400 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
iron (II) sulfate CAS: 7720-78-7	LD50 oral	1480 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Boric acid CAS: 10043-35-3	LD50 oral	4080 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	

SECTION 12: ECOLOGICAL INFORMATION

The experimental information related to the eco-toxicological properties of the product itself is not available

12.1 Toxicity:

Acute toxicity:

Identification	Concentration	Species	Genus
Zinc sulfate monohydrate CAS: 7446-19-7	LC50	0.43 mg/L (96 h)	Oncorhynchus mykiss
	EC50	Non-applicable	
	EC50	Non-applicable	
manganese sulphate · (H2O) CAS: 10034-96-5	LC50	>1 - 10 mg/L (96 h)	Fish
	EC50	>1 - 10 mg/L (48 h)	Crustacean
	EC50	>1 - 10 mg/L (72 h)	Algae
Citric Acid CAS: 77-92-9	LC50	1516 mg/L (96 h)	Lepomis macrochirus
	EC50	160 mg/L (48 h)	N/A
	EC50	Non-applicable	
Ethanedial CAS: 107-21-1	LC50	53000 mg/L (96 h)	Pimephales promelas
	EC50	51000 mg/L (48 h)	Daphnia magna
	EC50	24000 mg/L (168 h)	Selenastrum capricornutum
iron (II) sulfate CAS: 7720-78-7	LC50	>1 - 10 mg/L (96 h)	Fish
	EC50	>1 - 10 mg/L (48 h)	Crustacean
	EC50	>1 - 10 mg/L (72 h)	Algae

Chronic toxicity:

Identification	Concentration	Species	Genus
Zinc sulfate monohydrate CAS: 7446-19-7	NOEC	0.44 mg/L	Oncorhynchus mykiss
	NOEC	Non-applicable	

12.2 Persistence and degradability:

Substance-specific information:

Identification	Degradability		Biodegradability	
Citric Acid CAS: 77-92-9	BOD5	Non-applicable	Concentration	10 mg/L
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	97 %

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SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Degradability		Biodegradability	
Ethenediol CAS: 107-21-1	BOD5	0.47 g O ₂ /g	Concentration	100 mg/L
	COD	1.29 g O ₂ /g	Period	14 days
	BOD5/COD	0.36	% Biodegradable	90 %

12.3 Bioaccumulative potential:

Substance-specific information:

Identification	Bioaccumulation potential	
Citric Acid CAS: 77-92-9	BCF	3
	Pow Log	-1.55
	Potential	Low
Ethenediol CAS: 107-21-1	BCF	10
	Pow Log	-1.36
	Potential	Low

12.4 Mobility in soil:

Identification	Absorption/desorption		Volatility	
Citric Acid CAS: 77-92-9	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	2.045E-2 N/m (350.93 °C)	Moist soil	Non-applicable
Ethenediol CAS: 107-21-1	Koc	0	Henry	1.327E-1 Pa·m ³ /mol
	Conclusion	Very High	Dry soil	No
	Surface tension	4.989E-2 N/m (25 °C)	Moist soil	No

12.5 Results of PBT and vPvB assessment:

Product fails to meet PBT/vPvB criteria

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Code	Description	Waste class
	It is not possible to assign a specific code, as it depends on the intended use by the user	Dangerous

Type of waste:

HP14 Ecotoxic, HP10 Toxic for reproduction, HP4 Irritant — skin irritation and eye damage

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance The Waste Regulations 2011, 2011 No. 988. As under 15 01 of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. Waste should not be disposed of to drains. See paragraph 6.2.

Regulations related to waste management:

In accordance with Annex II of UK REACH the provisions related to waste management are stated:

UK legislation: The Waste Regulations 2011.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:

With regard to ADR 2021 and RID 2021:

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SECTION 14: TRANSPORT INFORMATION (continued)



- 14.1 UN number:** UN3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc sulfate monohydrate)
14.3 Transport hazard class(es): 9
Labels: 9
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user
Tunnel restriction code: -
Physico-Chemical properties: see section 9
Limited quantities: 5 L
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by sea:

With regard to IMDG 40-20:



- 14.1 UN number:** UN3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc sulfate monohydrate)
14.3 Transport hazard class(es): 9
Labels: 9
14.4 Packing group: III
14.5 Marine pollutant: Yes
14.6 Special precautions for user
Special regulations: 335, 969, 274
EmS Codes: F-A, S-F
Physico-Chemical properties: see section 9
Limited quantities: 5 L
Segregation group: Non-applicable
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

Transport of dangerous goods by air:

With regard to IATA/ICAO 2023:



- 14.1 UN number:** UN3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc sulfate monohydrate)
14.3 Transport hazard class(es): 9
Labels: 9
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user
Physico-Chemical properties: see section 9
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code: Non-applicable

SECTION 15: REGULATORY INFORMATION

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

- Substances listed in UK candidate list of substances of very high concern (SVHCs): *Boric acid (10043-35-3)*
- Substances listed in UK REACH Authorisation List (Annex 14): Non-applicable

The Control of Major Accident Hazards Regulations 2015:

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SECTION 15: REGULATORY INFORMATION (continued)

Section	Description	Lower-tier requirements	Upper-tier requirements
E2	ENVIRONMENTAL HAZARDS	200	500

Restrictions to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII UK REACH, etc):

Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

Other legislation:

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2020.

Control of Substances Hazardous to Health Regulations 2002 (as amended)

EH40/2005 Workplace exposure limits.

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.

Texts of the legislative phrases mentioned in section 2:

H318: Causes serious eye damage.

H411: Toxic to aquatic life with long lasting effects.

Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

GB CLP Regulation:

Acute Tox. 4: H302 - Harmful if swallowed.

Aquatic Acute 1: H400 - Very toxic to aquatic life.

Aquatic Chronic 1: H410 - Very toxic to aquatic life with long lasting effects.

Aquatic Chronic 2: H411 - Toxic to aquatic life with long lasting effects.

Eye Dam. 1: H318 - Causes serious eye damage.

Eye Irrit. 2: H319 - Causes serious eye irritation.

Repr. 1B: H360FD - May damage fertility. May damage the unborn child.

Skin Irrit. 2: H315 - Causes skin irritation.

STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure.

STOT SE 3: H335 - May cause respiratory irritation.

Classification procedure:

Eye Dam. 1: Calculation method

Aquatic Chronic 2: Calculation method

Advice related to training:

Training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

<http://echa.europa.eu>

<http://eur-lex.europa.eu>

Abbreviations and acronyms:

- CONTINUED ON NEXT PAGE -



SECTION 16: OTHER INFORMATION (continued)

ADR: European agreement concerning the international carriage of dangerous goods by road
IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
COD: Chemical Oxygen Demand
BOD5: 5day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
LC50: Lethal Concentration 50
EC50: Effective concentration 50
LogPOW: Octanolwater partition coefficient
Koc: Partition coefficient of organic carbon
UFI: unique formula identifier
IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at UK, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -