



## RADISAN WG

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

- 1.1 Product identifier:** RADISAN WG
- Other means of identification:**  
Non-applicable
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**  
Relevant uses: Fertilizer. For professional user/industrial user 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:**  
Futureco Bioscience S.A  
Av. del Cadí 19-23, P.I. Sant Pere Molanta, Olèrdola  
08799 Barcelona - Barcelona - Spain  
Phone.: +34 938182891 - Fax: +34 938921726  
m.navarro@futurecobioscience.com  
www.futurecobioscience.com
- 1.4 Emergency telephone number:**

### SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture:**
- CLP Regulation (EC) No 1272/2008:**  
Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.  
Acute Tox. 4: Acute toxicity if swallowed, Category 4, H302  
Aquatic Chronic 3: Hazardous to the aquatic environment, long-term hazard, Category 3, H412  
Eye Dam. 1: Serious eye damage, Category 1, H318  
Skin Irrit. 2: Skin irritation, Category 2, H315
- 2.2 Label elements:**
- CLP Regulation (EC) No 1272/2008:**  
**Danger**
- 

- Hazard statements:**  
Acute Tox. 4: H302 - Harmful if swallowed.  
Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.  
Eye Dam. 1: H318 - Causes serious eye damage.  
Skin Irrit. 2: H315 - Causes skin irritation.
- Precautionary statements:**  
P264: Wash thoroughly after handling.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P302+P352: IF ON SKIN: Wash with plenty of water.  
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.  
P330: Rinse mouth.  
P501: Dispose of contents/container in accordance with regulations on hazardous waste or packaging and packaging waste respectively.
- Substances that contribute to the classification**  
iron (II) sulfate · 7(H<sub>2</sub>O); manganese sulphate · (H<sub>2</sub>O)
- 2.3 Other hazards:**  
Product fails to meet PBT/vPvB criteria

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

**3.1 Substance:**

Non-applicable

**3.2 Mixture:**

**Chemical description:** Mixture of substances

**Components:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 7782-63-0 EC: 231-753-5 Index: 026-003-01-4 REACH: 01-2119513203-57-XXXX	<b>iron (II) sulfate · 7(H<sub>2</sub>O)</b> □ <sup>1</sup> □  Regulation 1272/2008 Acute Tox. 4: H302; Eye Irrit. 2: H319; Skin Irrit. 2: H315 - Warning	ATP ATP01  <b>30 - &lt;50 %</b>
CAS: 77-92-9 EC: 201-069-1 Index: Non-applicable REACH: 01-2119457026-42-XXXX	<b>Citric Acid</b> □ <sup>1</sup> □  Regulation 1272/2008 Eye Irrit. 2: H319 - Warning	Self-classified  <b>5 - &lt;10 %</b>
CAS: 10034-96-5 EC: 232-089-9 Index: Non-applicable REACH: 01-2119456624-35-XXXX	<b>manganese sulphate · (H<sub>2</sub>O)</b> □ <sup>1</sup> □  Regulation 1272/2008 Aquatic Chronic 2: H411; Eye Dam. 1: H318; STOT RE 2: H373 - Danger	Self-classified  <b>5 - &lt;10 %</b>
CAS: 10043-35-3 EC: 233-139-2 Index: 005-007-00-2 REACH: 01-2119486683-25-XXXX	<b>Boric acid</b> □ <sup>1</sup> □  Regulation 1272/2008 Repr. 1B: H360FD - Danger	ATP ATP01  <b>&lt;5 %</b>
CAS: 7446-20-0 EC: 231-793-3 Index: 030-006-00-9 REACH: 01-2119474684-27-XXXX	<b>zinc sulphate · 7 H<sub>2</sub>O</b> □ <sup>1</sup> □  Regulation 1272/2008 Acute Tox. 4: H302; Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Eye Dam. 1: H318 - Danger	ATP CLP00  <b>&lt;5 %</b>

□<sup>1</sup> □ Substances presenting a health or environmental hazard which meet criteria laid down in Regulation (EU) No. 2015/830

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

### 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:**

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

**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:**

Request medical assistance immediately, showing the SDS of this product. Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. In the case of loss of consciousness do not administer anything orally unless supervised by a doctor. Rinse out the mouth and throat, as they may have been affected during ingestion. Keep the person affected at rest.

**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:**

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### SECTION 4: FIRST AID MEASURES (continued)

Non-applicable

### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media:

##### Suitable extinguishing media:

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,...) in accordance with Directive 89/654/EC.

##### 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:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

#### 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:

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal

#### 6.4 Reference to other sections:

See sections 8 and 13.

### SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling:

A.- Precautions for safe manipulation

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

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

Due to its inflammable nature, the product does not present a fire risk under normal conditions of storage, handling and use.

C.- Technical recommendations to prevent ergonomic and toxicological risks

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

D.- Technical recommendations to prevent environmental risks

Sweep up and shovel product or collect by other means and place in container for reuse (preferred) or disposal See sections 8 and 13.

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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.:	4 °C
Maximum Temp.:	8 °C
Maximum time:	18 Months

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 (European OEL, not country-specific legislation):

Directive (EU) 2000/39, Directive 2004/37/EC, Directive (EU) 2006/15, Directive (EU) 2009/161, Directive (EU) 2017/164, Directive (EU) 2019/1831:

Identification	Occupational exposure limits	
manganese sulphate · (H2O) CAS: 10034-96-5    EC: 232-089-9	IOELV (8h)	0,05 mg/m <sup>3</sup>
	IOELV (STEL)	

Nuisance dust: Inhalable dust 10 mg/m<sup>3</sup> // Respirable dust 4 mg/m<sup>3</sup>

#### DNEL (Workers):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
iron (II) sulfate · 7(H2O) CAS: 7782-63-0 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 <sup>3</sup>	Non-applicable
zinc sulphate · 7 H2O CAS: 7446-20-0 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 <sup>3</sup>	Non-applicable

#### DNEL (General population):

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
iron (II) sulfate · 7(H2O) CAS: 7782-63-0 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 <sup>3</sup>	Non-applicable
zinc sulphate · 7 H2O CAS: 7446-20-0 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 <sup>3</sup>	Non-applicable

#### PNEC:

Identification			
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

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### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification				
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
zinc sulphate· 7 H2O CAS: 7446-20-0 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

#### 8.2 Exposure controls:

##### A.- General security and hygiene measures in the work place

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Regulation (EU) 2016/425. 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

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Compulsory use of face mask	Filter mask for particles		EN 149:2001+A1:2009	Replace when an increase in resistance to breathing is observed.

##### C.- Specific protection for the hands

Pictogram	PPE	Labelling	CEN Standard	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.- Ocular and facial protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Panoramic glasses against splash/projections.		EN 166:2002 EN ISO 4007:2018	Clean daily and disinfect periodically according to the manufacturer´s instructions. Use if there is a risk of splashing.

##### E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	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		EN ISO 20347:2012	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

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## RADISAN WG

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

**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

**Volatile organic compounds:**

With regard to Directive 2010/75/EU, this product has the following characteristics:

V.O.C. (Supply):	0 % weight
V.O.C. density at 20 °C:	0 kg/m <sup>3</sup> (0 g/L)
Average carbon number:	Non-applicable
Average molecular weight:	Non-applicable

### 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:	Solid
Appearance:	Granulated
Colour:	Brown
Odour:	Characteristic
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:	Non-applicable *
Relative density at 20 °C:	Non-applicable *
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	5 - 6 (ASTM D3838-05) (at 1 %)
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *

**Flammability:**

Flash Point:	Non-applicable
Heat of combustion:	Non-applicable *
Flammability (solid, gas):	Non-applicable *

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

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## RADISAN WG

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Autoignition temperature:	1010 °C
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
<b>Explosive:</b>	
Lower explosive limit:	Non-applicable *
Upper explosive limit:	Non-applicable *

#### 9.2 Other information:

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 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
Not applicable	Not applicable	Not applicable	Not applicable	Avoid alkalis or strong bases

#### 10.6 Hazardous decomposition products:

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 (CO<sub>2</sub>), 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

##### 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 : The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.
- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

B- Inhalation (acute effect):

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

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

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## RADISAN WG

### SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- Contact with the skin: Produces skin inflammation.
- 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 dangerous 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 dangerous 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 dangerous 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 dangerous with sensitising effects. For more information see section 3.
  - Cutaneous: Based on available data, the classification criteria are not met, as it does not contain substances classified as dangerous 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, as it does not contain substances classified as dangerous for this effect. 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 dangerous 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 dangerous for this effect. For more information see section 3.

**Other information:**

Non-applicable

**Specific toxicology information on the substances:**

Identification	Acute toxicity		Genus
Boric acid CAS: 10043-35-3 EC: 233-139-2	LD50 oral	2660 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
iron (II) sulfate · 7(H2O) CAS: 7782-63-0 EC: 231-753-5	LD50 oral	500 mg/kg (ATEi)	
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
Citric Acid CAS: 77-92-9 EC: 201-069-1	LD50 oral	5400 mg/kg	Rat
	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	
zinc sulphate· 7 H2O CAS: 7446-20-0 EC: 231-793-3	LD50 oral	1710 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:**

Identification	Acute toxicity		Species	Genus
Citric Acid CAS: 77-92-9 EC: 201-069-1	LC50	1516 mg/L (96 h)	Lepomis macrochirus	Fish
	EC50	160 mg/L (48 h)	N/A	Crustacean
	EC50	Non-applicable		

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**RADISAN WG**

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Acute toxicity		Species	Genus
manganese sulphate · (H2O) CAS: 10034-96-5 EC: 232-089-9	LC50	>1 - 10 mg/L (96 h)		Fish
	EC50	>1 - 10 mg/L (48 h)		Crustacean
	EC50	>1 - 10 mg/L (72 h)		Algae
Boric acid CAS: 10043-35-3 EC: 233-139-2	LC50	447 mg/L (96 h)	Oncorhynchus mykiss	Fish
	EC50	Non-applicable		
	EC50	Non-applicable		
zinc sulphate· 7 H2O CAS: 7446-20-0 EC: 231-793-3	LC50	>0.1 - 1 mg/L (96 h)		Fish
	EC50	>0.1 - 1 mg/L (48 h)		Crustacean
	EC50	>0.1 - 1 mg/L (72 h)		Algae

**12.2 Persistence and degradability:**

Identification	Degradability		Biodegradability	
Citric Acid CAS: 77-92-9 EC: 201-069-1	BOD5	Non-applicable	Concentration	10 mg/L
	COD	Non-applicable	Period	28 days
	BOD5/COD	Non-applicable	% Biodegradable	97 %

**12.3 Bioaccumulative potential:**

Identification	Bioaccumulation potential	
Citric Acid CAS: 77-92-9 EC: 201-069-1	BCF	3
	Pow Log	-1.55
	Potential	Low
Boric acid CAS: 10043-35-3 EC: 233-139-2	BCF	0
	Pow Log	-0.76
	Potential	Low

**12.4 Mobility in soil:**

Identification	Absorption/desorption		Volatility	
Citric Acid CAS: 77-92-9 EC: 201-069-1	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

**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 (Regulation (EU) No 1357/2014)
06 10 02*	wastes containing hazardous substances	Dangerous

**Type of waste (Regulation (EU) No 1357/2014):**

HP14 Ecotoxic, HP6 Acute Toxicity, 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 with Annex 1 and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) 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. We do not recommended disposal down the drain. See paragraph 6.2.

**Regulations related to waste management:**

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

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## RADISAN WG

### SECTION 14: TRANSPORT INFORMATION

This product is not regulated for transport (ADR/RID,IMDG,IATA)

### SECTION 15: REGULATORY INFORMATION

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

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Boric acid  
Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable  
Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable  
Article 95, REGULATION (EU) No 528/2012: Citric Acid (Product-type 2) ; Boric acid (Product-type 8)  
REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

#### Seveso III:

Non-applicable

#### Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):

Non-applicable

#### 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 product could be affected by sectorial legislation

#### 15.2 Chemical safety assessment:

The supplier has not carried out evaluation of chemical safety.

### SECTION 16: OTHER INFORMATION

#### Legislation related to safety data sheets:

The SDS shall be supplied in an official language of the country where the product is placed on the market. This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830).

#### Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:

Non-applicable

#### Texts of the legislative phrases mentioned in section 2:

H315: Causes skin irritation.  
H318: Causes serious eye damage.  
H412: Harmful to aquatic life with long lasting effects.  
H302: Harmful if swallowed.

#### 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

#### CLP Regulation (EC) No 1272/2008:

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.

#### Classification procedure:

- CONTINUED ON NEXT PAGE -

**RADISAN WG****SECTION 16: OTHER INFORMATION (continued)**

Skin Irrit. 2: Calculation method  
Eye Dam. 1: Calculation method  
Aquatic Chronic 3: Calculation method  
Acute Tox. 4: Calculation method

**Advice related to training:**

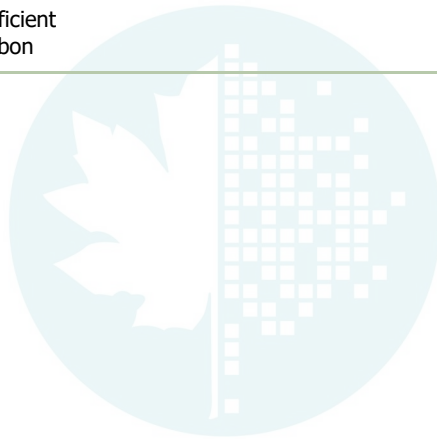
Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

**Principal bibliographical sources:**

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

**Abbreviations and acronyms:**

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: 5-day biochemical oxygen demand  
BCF: Bioconcentration factor  
LD50: Lethal Dose 50  
LC50: Lethal Concentration 50  
EC50: Effective concentration 50  
Log-POW: Octanol-water partition coefficient  
Koc: Partition coefficient of organic carbon



The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, 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 -