SAFETY DATA SHEET
SYMBIO LIQUID ZINC

SDS COMPLETED 8TH JUNE 2018

VERSION 01
REVISION NUMBER: N/A

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier:

Symbio Liquid Zinc

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

Supplied for use as a professional use fertiliser

1.3 Details of the supplier of the safety data sheet:

Company name:
Origin Amenity Solutions Ltd
1-3 Freeman Court,
Jarman Way,
Orchard Road,
Royston,
Hertfordshire,
SG8 5HW
Tel: 0800 138 7222
Email: sales.symbio@originamenity.com

1.4 Emergency phone number

Emergency phone No.	0800 138 7222 (09.00 – 17.00 GMT Monday – Friday)
National emergency telephone number	111

2. Hazards Identification

2.1 Classification of the substance or mixture

CLASSIFICATION according to Directive EC 1272/2008 Classification, Labelling and Packaging

Eye Dam. 1; H318 Causes serious eye damage.
Aquatic Acute 1; H400 Very toxic to aquatic life.
Aquatic Chr. 1; H410 Very toxic to aquatic life with long lasting effects
CLASSIFICATION according to Directive 1999/45/EC and statutory instrument No.716 2009 Chemicals (Hazard Information
and Packaging) regulation)
Xn; R22 Harmful if swallowed.
Xi; R41 Irritant; Risk of serious damage to eyes.
N; R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Primary Hazard
Causes serious eye damage.

2.1 Label Elements

Symbio Liquid Zinc
(contains: Zinc sulphate E.C. 231-793-3))

Signal word: Danger

Hazard Statements:
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.
Precautionary Statements
P280 Wear protective gloves/eye 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 or doctor/physician.
P391 Collect spillage
P501 Dispose of contents/container in accordance with local/national regulations.

2.3 Other Hazards

EUH208: Contains 5-chloro-2- methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3- one [EC no. 220-239-6] (3:1). May produce an allergic reaction.

3. Composition/information on ingredients

3.1 Product Code:

RL250A

3.2 Mixtures

Chemical Name	CAS-No./ EINECS-No.	Annex Index or REACH number	Symbol(s)	Phrase(s)	Concentrations [%]

Zinc sulphate hexahydrate	13986-24-8/ 231-793-3	Index number: 030-006-00-9 REACh registration number: 01-2119474684-27	According to 1272/2008: GHS05  GHS07  GHS09  According to 67/548/EEC:  Xn - HARMFUL  Xi - IRRITANT  N – DANGEROUS FOR THE ENVIRONMENT	According to 1272/2008: Acute Tox. 4 - H302 Eye Dam. 1 – H318 Aquatic acute 1 - H400 Aquatic chronic 1 H410 According to 67/548/EEC: R22, R41, R50/53	25.0 – 30.0
Reaction mass of: 5-chloro-2-methyl-4isothiazolin-3one [EC no. 247-500-7] and 2-methyl-2H isothiazol-3- one [EC no. 220239-6] (3:1)	55965-84-9/ 611-341-5	Index number: 613-167-00-5	According to 1272/2008: GHS05  GHS06 	According to 1272/2008: Acute Tox. 3 * - H331 Acute Tox. 3 * - H311 Acute Tox. 3 * - H301 Skin Corr. 1B – H314 Skin Sens. 1 – H317 Aquatic Acute 1 – H400 Aquatic Chronic 1 – H410	<0.00149

			GHS07  GHS08  According to 67/548/EEC:  T - TOXIC  C - CORROSIVE  Xi - IRRITANT  N – DANGEROUS FOR THE ENVIRONMENT	According to 67/548/EEC: R23/24/25 R34 R43 R50/53	

The full hazard information for individual components if not displayed in section 2 or 3 is displayed in Section 16.

4.0. First Aid Measures

4.1 Description of first aid measures

4.1.1 Inhalation

If symptoms arise remove from source of exposure to fresh air; seek medical attention if symptoms persist or develop

4.1.2 Skin & Eye exposure

Skin: Drench immediately with water. Remove any contaminated clothing and launder before re-use. Obtain medical attention if symptoms persist or develop.

4.1.3 Ingestion

Do not induce vomiting. Wash out mouth with water and give water to drink. Obtain medical attention IMMEDIATELY.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage. May produce an allergic reaction.

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

Information not available

5. Fire-Fighting measures

5.1 Extinguishing media

Use foam, carbon dioxide, dry powder, sand. The mixture is not classified as flammable as such extinguishing media should also be chosen as appropriate for surrounding materials.

5.2 Special Hazards arising from the substance or mixture

Possible irritant fumes arising from combustion

5.3 Advice for fire-fighters

Cool down containers/equipment exposed to heat with a water spray. Contain spread of extinguishing fluids (these fluids may be hazardous for the environment). Wear complete protective clothing and self-contained breathing apparatus

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

The following precautions are considered to be good practice when using any chemicals irrespective of their classification unless otherwise specified.
Ensure adequate ventilation
Use personal protective equipment,
- Gloves
- Eye protection
- Suitable respirator if dust is generated during handling

6.2 Environmental Precautions

Do not allow to enter storm drains or water courses. If this product enters a water course or a sewer (including via contaminated soil & vegetation) in large quantities contact local water authority and inform the Environment Agency

6.3 Methods and material for containment and cleaning up

Use soil, sand or other absorbent material. Contact specialist waste disposal contractor.

6.4 Reference to other sections

See also section 8

7. Handling and storage

7.1 Precaution for safe handling

Avoid contact with skin and eyes. Wash Hands thoroughly after handling Do not eat, drink or smoke when using this product

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool dry atmosphere, in original labelled containers. Refer to manufacturer for maximum safe stacking height. Keep away from heat sources, combustible materials and strong oxidising agents.

7.3 Specific end use(s)

No specific information available

8. Exposure controls/personal protection

8.1 Control Parameters

Zinc sulphate:

DNEL

Industry	Inhalation	Long Term	Systemic Effects	1 mg/m^3
Industry	Dermal	Long Term	Systemic Effects	8.3 mg/Kg/day
Consumer	Oral	Long Term	Systemic Effects	0.83 mg/Kg/day
Professional	Inhalation	Long Term	Systemic Effects	1.3 mg/m^3
Consumer	Dermal	Long Term	Systemic Effects	8.3 mg/Kg/day

The units are expressed in 'mg/µg' of: Zinc.

PNEC

Freshwater	0.0206 mg/l
Marine water	0.0061 mg/l
Sediment (freshwater)	235.6* mg/Kg
Sediment (Marine water)	113* mg/Kg
Soil	106.8** mg/Kg
STP	0.0052*** mg/l

The units are expressed in 'mg/µg' of: Zinc. These PNECs are added value PNECs- they are to be added to the natural background levels of: Zinc. - in the appropriate compartments (e.g. soils, sediments).
(*) A generic bioavailability factor of 0.5 is applied by default, according to the EU risk assessment (ECB 2008).

(**) by default this value was multiplied by '3' to take into account "lab-to-field" differences in toxicity. (STP) The PNEC for STP was derived by applying an assessment factor to the lowest relevant toxicity value (5.2mg Zn/L). (Dutka et al., 1983)

8.2 Exposure controls

The following precautions are considered to be good practice when using any chemicals irrespective of their classification unless otherwise specified.

Primary Hazard considered as handling of concentrate.
Gloves: to BS EN374 of gauntlet type in Natural Rubber or PVC (not Nitrile) recommended for acid resistance.
Clothing: Coveralls/apron to BS EN465/466/467

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance;	Brown liquid
Odour;	No Information available
Odour threshold;	No Information available
pH;	5.0 – 6.0
Melting point/freezing;	No Information available
Initial boiling point and boiling range;	No Information available
Flash point;	No Information available
Evaporation rate;	No Information available
Flammability (solid, gas);	Mixture is not classed as flammable
Upper /lower flammability or explosive limits;	Mixture is not classed as explosive
Vapour Pressure;	No Information available
Vapour density;	No Information available
Specific Gravity;	1.19 – 1.22
Solubility (ies);	No Information available
Partition coefficient: n-octanol/water;	No Information available
Auto ignition temperature:	No Information available
Decomposition temperature:	No Information available

9.2 Other Information

No other relevant information available

10. Stability and reactivity

10.1 Reactivity

Unknown

10.2 Chemical Stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Possibility of corrosive reaction with metals

10.4 Conditions to avoid

Extremes of temperature

10.5 Incompatible materials

Metals

10.6 Hazardous decomposition products

Possible Irritant fumes

11. Toxicological Information

11.1 Information on toxicological effects

The mixture has not been assessed for toxicological effects, the mixture classification is given in section 2 based on individual component contents. Individual component hazards are given in section 3

Toxicological information on hazardous ingredients: Zinc sulphate:

Acute toxicity:

Acute Toxicity (Oral LD50) > 574 mg/kg Rat

Very soluble zinc sulphate (monohydrate, hexahydrate and heptahydrate) has LD50 oral values ranging from 574 to 2, 949 mg/kg bw, 862 to 4, 429 mg/kg bw and 920 to 4, 725 mg/kg bw, respectively for the three forms of zinc sulphate. Tests conducted to standard protocols Litton (Bionetics, 1974, Courtois et al., 1978.)

Acute Toxicity (Dermal LD50) > 2000 mg/kg Rat

Test method(s): OECD 402. (Van Huygevoort 1999)

Acute Toxicity (Inhalation LC50)

Rat 4 hours

Effects of inhalation exposure to zinc sulphate were limited to pulmonary effects only.

Skin Corrosion/Irritation:

Dose Rabbit

Primary dermal irritation index (PDI) 0 Erythema\eschar score No erythema (0).

Oedema score No oedema (0).

Not classified. Test method(s): OECD 404. (Van Huygevoort 1999)

Not irritating.

Serious eye damage/irritation:

Irritating. Test method(s): OECD 405. (Van Huygevoort 1999)

Respiratory or skin sensitisation:

Skin sensitisation

Patch Test: Mouse

(Van Huygevoort, 1999 i, Ikarashi et al, 1992) Not Sensitising.

Germ cell mutagenicity:

Genotoxicity - In Vitro Gene Mutation:

In vitro genotoxicity studies indicate that zinc compounds do not have genotoxic activity [Zinc CSR(s), 2010]. This conclusion is in line with those achieved by other regulatory reviews of the genotoxicity of zinc compounds (WHO, 2001; EU RAR, 2004, MAK, 2009).

Negative.

Genotoxicity - In Vivo

Chromosome aberration:

In vivo genotoxicity studies indicate that zinc compounds do not have genotoxic activity [Zinc CSR(s), 2010]. This conclusion is in line with those achieved by other regulatory reviews of the genotoxicity of zinc compounds (WHO, 2001; EU RAR, 2004, MAK, 2009).

Negative.

Carcinogenicity:
Carcinogenicity
No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity (based on cross-reading between Zn compounds; no classification for carcinogenicity required) (Chemical Safety report (CSR) zinc oxide. 2010).

Reproductive Toxicity:
Reproductive Toxicity - Fertility -
No experimental or epidemiological evidence exists to justify classification of zinc compounds for reproductive or developmental toxicity (based on cross-reading between Zn compounds; no classification for reproductive toxicity required) (Chemical Safety Report (CSR) for zinc compounds. 2010)

Specific target organ toxicity - single exposure:
STOT - Single exposure -
No experimental or epidemiological sufficient evidence for specific target organ toxicity (single exposure) (based on crossreading from ZnO; no classification for target organ toxicity (single exposure: STOT-SE) required) (Heydon and Kagan, 1990; Gordon et al., 1992; Mueller and Seger, 1985 [Cited in Chemical Safety report (CSR) zinc sulphate. 2010)]).

Specific target organ toxicity - repeated exposure:
STOT - Repeated exposure -
No experimental or epidemiological sufficient evidence for specific target organ toxicity (repeated exposure) (no classification for specific target organ toxicity (repeated exposure: STOT-RE) required) (Lam et al, 1985, 1988; Conner et al. , 1988 [Cited in Chemical Safety Report (CSR) for zinc(s). 2010)]).

Aspiration hazard:
Viscosity
No data available. Health Warnings
INHALATION. Prolonged inhalation of high concentrations may damage respiratory system. SKIN CONTACT. Acts as a defatting agent on skin. May cause cracking of skin, and eczema. Prolonged or repeated exposure may cause severe irritation. EYE CONTACT. May cause severe irritation to eyes. INGESTION. The product causes irritation of mucous membranes and may cause abdominal discomfort if swallowed.
Target Organs
Skin Eyes Respiratory system, lungs

reaction mass of:
5-chloro-2- methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3- one [EC no. 220-239-6] (3:1) Oral LD50: 67 mg/Kg (rat)
Dermal LD50: >140 mg/Kg (rat)
Inhalation LC50/4hr 0.17 mg/l (rat) Aerosol THR 48/971458

Primary irritant effect:
On the skin: Caustic effect on skin and mucous membranes
On the eye: Strong caustic effect
Sensitization: Sensitization possible by skin contact

12. Ecological Information

12.1 Toxicity

Mixture Classified as Toxic to aquatic life with long lasting effects to the environment in accordance with the Dangerous Preparations Directive 1999/45/EC Toxicity of ingredients where available: Zinc sulphate:
The reference values for acute aquatic toxicity, based on the lowest observed EC50 values of the corresponding databases at different pH and expressed as Zn++ ion concentration are:

- for pH <7: 0.413 mg Zn++/l (48 hr - Ceriodaphnia dubia test according to US EPA 821-R-02-012 standard test protocol; reference: Hyne et al 2005)
- for pH >7-8.5: 0.136 mg Zn++/l (72 hr - Selenastrum capricornutum (=Pseudokircherniella subcapitata) test according to OECD 201 standard protocol; reference: Van Ginneken, 1994)

After applying the molecular weight correction (transformation/dissolution testing is not relevant since this zinc compound is readily soluble), the specific reference values for acute aquatic toxicity of the different zinc sulphates are: For zinc monohydrate (a ZnSO4.H20/Zn molecular weight ratio of 2.74):

- for pH <7: 1.13 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)
- for pH >7-8.5: 3.73 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above) For zinc hexahydrate (a ZnSO4.6H20/Zn molecular weight ratio of 4.12):
- for pH <7: 1.70 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)
- for pH >7-8.5: 0.56 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above) For zinc heptahydrate (a ZnSO4.7H20/Zn molecular weight ratio of 4.4):
- for pH <7: 1.82 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)
- for pH >7-8.5: 0.60 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above) M-factor: 1

CHRONIC AQUATIC TOXICITY:
The chronic freshwater aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 23 species (8 taxonomic groups) obtained under a variety of conditions.
The chronic marine-water aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 39 species (9 taxonomic groups) obtained under a variety of conditions.
These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNECs for freshwater and marine-water were derived (expressed as Zn+2ion concentration).

12.2 Persistence and degradability

Information not available

12.3 Bioaccumulative potential

Information not available

12.4 Mobility in soil

Information not available

12.5 Results of PBT and vPvB

Not classified

12.6 Other adverse effects

Information not available

13. Disposal considerations

13.1 Waste Treatment Methods

Use only licensed waste disposal companies for unwanted chemical. Do not re-use empty containers for any purpose.

14. Transport Information

14.1 UN number:

UN3082

14.2 UN proper shipping name:

Environmentally hazardous substance, liquid N.O.S. (contains: Zinc sulphate E.C. 232-089-9)

14.3 Transport hazard:

9

14.4 Packing group:

III

14.5 Environmental hazards:

Product is classified as toxic to aquatic life with long lasting effects.

14.6 Special precautions for user:

Not specified

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

Applicable for Maritime bulk transport only. Check with carrier.

15. Regulatory information

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

This substance is classified and labelled in accordance with regulation 1999/45/EC, 1272/2008, the statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging) regulations and the EC Fertiliser Regulations 2003, Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. Regulation (EC)

15.2 Chemical Safety Assessment

CSA not undertaken for this substance

16. Other Information

Hazard Information assigned to individual ingredients, but not carried to final classification:

R23/24/25:	Toxic by inhalation, in contact with skin and if swallowed
R34:	Causes burns
R43:	May cause sensitisation by skin contact.
H301:	Toxic if swallowed
H302:	Harmful if swallowed.
H311:	Toxic in contact with skin.
H314:	Causes severe skin burns and eye damage

H317: May cause an allergic skin reaction.
H331: Toxic if swallowed or if inhaled

SDS information:
This Safety data sheet is compiled using data submitted for raw materials and practical experience. This product is intended for professional users only.
This Safety Data Sheet is prepared in compliance with Directive 1999/45/EC, regulation 1272/2008 and Annex I of the REACH regulation 453/2010.
THE INFORMATION GIVEN HEREIN IS, TO THE BEST OF OUR KNOWLEDGE, CORRECT AND IS PRESENTED IN GOOD FAITH BUT NO WARRANTY, EXPRESSED OR IMPLIED IS GIVEN.

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