



SAFETY DATA SHEET

SYMBIO LIQUID MANGANESE

SDS COMPLETED 8TH JUNE 2015

VERSION 01
REVISION NUMBER: N/A

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

1.1 Product Identifier:

Symbio Liquid Manganese

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:

Eco Solutions (C&R) Ltd T/a Symbio

Unit 8

Coopers Place

Combe Lane

Wormley

Surrey

GU8 5SZ

Tel: +44 (0) 1428 685762

Fax: +44 (0)1428 685702

Email: info@symbio.co.uk

1.4 Emergency phone number

Tel: +44 (0) 1428 685762

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.

STOT Rep 2; H373 May cause damage to organs through prolonged or repeated exposure.

Aquatic Chr. 3; H412 Harmful 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; R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Primary Hazard

Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.

2.1 Label Elements

Symbio Liquid Manganese

(contains: Manganese sulphate E.C. 232-089-9)



Signal word: Danger



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Hazard Statements:

- H318 Causes serious eye damage.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements

- P260 Do not breathe mist/vapours/spray.
- 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





Mixture not classed as PBT or vPvB
 EUH208 Contains 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) May produce an allergic reaction.

3. Composition/information on ingredients

3.1 Product Code: RL176C/D

3.2 Mixtures

3.3 Hazardous components










Chemical Name	CAS-No./ EINECS-No.	Annex Index or REACH number	Symbol(s)	R-phrases(s)	Concentrations [%]
Manganese sulphate	10034-96-5/ 232-089-9	Index no.: 025-003-00-4 REACH registration no.: 01-2119456624-35	According to 1272/2008: GHS05  GHS08  GHS09  According to 67/548/EEC:  Xn – HARMFUL	According to 1272/2008: Eye Damage 1; H318 STOT Rep. 2; H373 Aqu. Tox. chron. 2; H411 According to 67/548/EEC: R48/20/22 R51/53	10.0 – 20.0



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			 N – DANGEROUS FOR THE ENVIRONMENT		
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)	55965-84-9/ 611-341-5	Index number: 613-167-00-5	According to 1272/2008: GHS05  GHS06  GHS07  GHS08  According to 67/548/EEC:  T - TOXIC  C - CORROSIVE  Xi - IRRITANT  N – DANGEROUS FOR THE ENVIRONMENT	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 According to 67/548/EEC: R23/24/25 R34 R43 R50/53	<0.0012

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

4.0. First Aid Measures

4.1 Description of first aid measures



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4.1.1 Inhalation

Remove from source of exposure to fresh air; seek medical attention.

4.1.2 Skin & Eye exposure

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

Eyes: Rinse cautiously for several minutes, Remove contact lenses, if present and easy to do, rinse with clean water for 15 minutes. Seek medical attention IMMEDIATELY.

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 cause damage to organs through prolonged or repeated exposure. 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 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.

Use personal protective equipment

-appropriate coveralls and gloves

-eye/face protection

-appropriate respirator

Avoid contact with skin and eyes

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) contact local water authority and inform the Environment Agency



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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

No reference necessary

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. Remove contaminated clothing and protective equipment before entering eating areas.

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.

7.3 Specific end use(s)

No specific information available

8. Exposure controls/personal protection

8.1 Control Parameters

Workplace exposure Limits as defined by UK HSE in document EH40/2005 where available:

Substance	CAS number	Workplace Exposure Limit				Comments
		Long-term exposure limit (8-hr TWA reference period)		Short-term exposure limit (15 minute reference period)		
		ppm	mg.m ⁻³	ppm	mg.m ⁻³	
Manganese and its inorganic compounds (as Mn)	-	-	0.5	-	-	The Carc, Sen and Sk notations are not exhaustive. Notations have been applied to the substances identified in IOELV Directives*

*IOELV – Indicative Occupational Exposure Limit Values (IOLEV).

Sk Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

Manganese Sulphate:

DNEL

Industry	Dermal	Long Term	4.14 µg/Kg/day
Industry	Inhalation.	Long Term	0.2 mg/m ³
Consumer	Dermal	Long Term	2.1 µg/Kg/day
Consumer	Inhalation.	Long Term	0.043 mg/m ³

DNELs for the oral route, all "acute effects" and for "long-term local-effects" were not calculated and are not required for the "identified uses" covered in this SDS and the Chemical Safety Report (CSR).



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PNEC

Freshwater	0.0128 mg/l
Marinewater	0.4 µg/l
Spills(freshwater)	30 µg/l
Sediment (Freshwater)	11.4 µg/kg
Sediment (Marinewater)	1.4 µg/kg
Soil	25.1 mg/kg
STP	56 mg/l

Soil & sediment PNEC values are mg/kg wet weight.

8.2 Exposure controls

Goggles – Eye Protection : goggles/face shield to BS EN166.

Gloves – BS EN374 – chemical protection.

Respirators – BS approved protection device with P3 filter.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance;	Brown liquid
Odour;	Information not specified
Odour threshold;	Information not specified
pH;	4.5 – 6.0
Melting point/freezing;	Information not specified
Initial boiling point and boiling range	Information not specified
Flash point;	Information not specified
Evaporation rate;	Information not specified
Flammability (solid, gas);	Information not specified
Upper /lower flammability or explosive limits;	Information not specified
Vapour Pressure;	Information not specified
Vapour density;	Information not specified
Specific gravity;	1.17 – 1.22
Solubility (ies);	Information not specified
Partition coefficient: n-octanol/water;	Information not specified
Auto ignition temperature;	Information not specified
Decomposition temperature;	Information not specified

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

Information not available



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10.4 Conditions to avoid

Extremes of temperature

10.5 Incompatible materials

None Known

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:

Manganese sulphate

Acute Toxicity (Oral LD50) 2150 mg/kg Rat

Acute Toxicity (Dermal LD50) Scientifically unjustified.

Dermal absorption is unlikely due to the physical-chemical properties of the substance.

Acute Toxicity (Inhalation LC50) > 4.45 mg/l (dust/mist) Rat 4 hours

Skin Corrosion/Irritation – Animal Data

OECD 404, 72 hr Rabbit

Primary Dermal Irritation

Index (PDI)

zero scores

Not irritating.

Serious Eye Damage/Irritation Irritating.

Respiratory Sensitisation No information available.

Skin Sensitisation Mouse; Not Sensitising.

Germ Cell Mutagenicity (In Vivo)

Gene Mutation: Negative.

Carcinogenicity NOAEL (Male) 615 mg/kg Oral Rat

NOAEL (Female) 715 mg/kg Oral Rat

The criteria for classification as a carcinogen is not met. (Not classified).

Groups of 70 male and 70 female rats were fed diets containing 0, 1, 500, 5, 000, or 15, 000 ppm manganese (II) sulphate monohydrate for 103 weeks. The level of manganese in the diet received by controls was approximately 92 ppm. As many as 10 rats per group were evaluated after 9 months and 15 months of chemical exposure.

Reproductive Toxicity Not determined.

Suspected reproductive toxicant based on limited evidence.

Testing waived because a more severe health effect was found (STOT-RE class2). Controlling the risk of 'STOT-RE class 2' will control the risks for this endpoint.

Reproductive Toxicity – Development Not determined.

Testing waived because a more severe health effect was found

(STOT-RE class2). Controlling the risk of STOT-RE class 2' will control the risks for this endpoint



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STOT - Single Exposure Not determined.

STOT - Repeated Exposure No information available.

Target Organs Brain

MnSO₄ is already classified under Directive 67/548/EEC as R48/20/22 and under GHS as STOT RE2.

Data exists showing some neurochemical changes at low levels after

inhalation exposure for 90-days, together with locomotor changes, around 3 mg/m³ concentration, suggesting that significant toxicity could occur at the 20-200 mg/m³ concentration level, which supports the current classification of STOT RE 2 for the inhalation route.

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 harmful 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:

Manganese sulphate:

Acute Fish Toxicity

Not considered toxic to fish.

LC 50, 96 Hrs, Fish mg/l 30 (mg Mn)

Acute Toxicity - Fish LC50 96 hours 116 mg/l Onchorhynchus mykiss (Rainbow trout)

Acute Toxicity – Aquatic Invertebrates 48 hours 9.8 mg/l Daphnia magna

LC(50) > 10mg/L Mn. The test was performed using a structural analogue, i.e. an alternative manganese compound.

Acute Toxicity - Aquatic Plants EC50 72 hours 61 mg/l

OECD Guideline 201 (Alga, Growth Inhibition Test). Desmodesmus subspicatus (algae).

Chronic Toxicity - Fish Early Life Stage NOEC 28 days 0.6 mg/l Onchorhynchus mykiss (Rainbow trout)

Chronic Toxicity - Aquatic Invertebrates Not determined.

Data from a supporting substance was used to meet the test data criteria for REACH.



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12.2 Persistence and degradability

Readily biodegradable

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. Do not re-use empty containers for any purpose.

14. Transport Information

14.1 UN number:

Product is unclassified for transport

14.2 UN proper shipping name:

Product is unclassified for transport

14.3 Transport hazard:

Product is unclassified for transport

14.4 Packing group:

Product is unclassified for transport

14.5 Environmental hazards:

Product is unclassified for transport

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



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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 not otherwise listed in full elsewhere:

R23/24/25:	Toxic by inhalation, in contact with skin and if swallowed
R34:	Causes burns
R51/53: environment	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R50/53: aquatic environment.	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
H301:	Toxic if swallowed
H311:	Toxic in contact with skin.
H314:	Causes severe skin burns and eye damage
H331:	Toxic if swallowed or if inhaled
H400:	Toxic to aquatic life.
H410:	Very toxic to aquatic life with long lasting effects.
H411:	Toxic to aquatic life with long lasting effects.

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, 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.