



SAFETY DATA SHEET
SYMBIO 50/50 SOLUBLE IRON

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 50/50 Soluble Iron

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

1.5 2.1 Classification of the substance or mixture

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

Acute Tox. 4; H302 Harmful if swallowed.

Skin Irrit. 2; H315 Causes skin irritation

Eye irritant 2; H319 Causes serious eye irritation

CLASSIFICATION according to Directive 1999/45/EC and statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging) regulation)

Xn, R22; Harmful, Harmful if swallowed

Xi; R36/38: Irritant; Irritating to eyes and skin.

Primary Hazard

Harmful if swallowed, causes serious eye irritation, causes skin irritation.

1.6 2.2 Label Elements

Symbio 50/50 Soluble Iron

(Contains: Iron sulphate E.C. 231-753-5)



Signal word: Warning

Hazard Statements:

H302: Harmful if swallowed.
 H315: Causes skin irritation
 H319: Causes serious eye irritation.






Precautionary Statements

P280 Wear protective gloves/eye protection.
 P301 + P312 IF SWALLOWED: Call a POISON Center or doctor/physician if you feel unwell.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
 P337 + P313 If eye irritation persists: Get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.

2.3 Other Hazards

Mixture not classed as PBT or vPvB

3. Composition/information on ingredients**3.1 Mixtures****Hazardous components**

Chemical Name	CAS-No./ EINECS-No.	Annex Index or REACH number	Symbol(s)	H-pharse(s)	Concentration [%]
Iron sulphate	7720-78-7/ 231-753-5	Index number 026-003-00-7 REACH Number: 01 - 2119513203 – 57	According to 1272/2008: GHS07  According to 67/548/EEC:  Xi - IRRITANT  Xn - HARMFUL	According to 1272/2008: Acute tox. 4, H302 Skin irrit. 2, H315 Eye Irrit. 2, H319 According to 67/548/EEC: R22, R36/38	85 - 95
Citric acid	77-92-9/ 201-069-1	REACH number: 01-2119457026-42	According to 1272/2008: GHS07  According to 67/548/EEC:  Xi - IRRITANT	According to 1272/2008: Eye Irrit. 2, H319 According to 67/548/EEC: R36	< 5.0

The full text and symbols for all hazard information if not displayed in section 2 or 3 are displayed in Section 16

4. 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

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 if symptoms persist or develop.

4.1.3 Ingestion

Do not induce vomiting. Wash out mouth with water and give water to drink. Seek medical attention if symptoms persist or develop.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed, causes serious eye damage

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 and corrosive fumes arising from combustion including oxides of nitrogen.

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 – see section 8

-appropriate coveralls and gloves

-eye/face protection

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

6.3 Methods and material for containment and cleaning up

Sweep avoiding dust into labelled waste container. Contact specialist waste disposal contractor.

6.4 Reference to other sections

See section 8 for personal protective equipment specification

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.

Avoid contact with metals, avoid the formation of mists in the atmosphere, work in a well-ventilated area.

Avoid any direct contact with the product, Do NOT handle without gloves. Do NOT handle if hands have any cuts or wounds.

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.

Store away from incompatible materials – Strong acids, Strong oxidising substances, powdered metals, inorganic peroxides.

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	
Iron salts (as Fe)		-	1.0	-	2.0	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).

Iron Sulphate:

DNELs:

Worker:

Acute systemic effects, dermal	FeSO ₄ .7H ₂ O 2.8 mg/Kg/d
Acute systemic effects, inhalative	FeSO ₄ .7H ₂ O 9.9 mg/m ³
Acute systemic effects, dermal	FeSO ₄ .7H ₂ O 2.8 mg/Kg/d
Acute systemic effects, inhalative	FeSO ₄ .7H ₂ O 9.9 mg/m ³

Consumer:

Acute systemic effects, oral	FeSO ₄ .7H ₂ O 1.4 mg/Kg/d
Acute systemic effects, dermal	FeSO ₄ .7H ₂ O 1.4 mg/Kg/d
Acute systemic effects, inhalative	FeSO ₄ .7H ₂ O 2.5 mg/m ³
Acute systemic effects, oral	FeSO ₄ .7H ₂ O 1.4 mg/Kg/d
Acute systemic effects, dermal	FeSO ₄ .7H ₂ O 1.4 mg/Kg/d
Acute systemic effects, inhalative	FeSO ₄ .7H ₂ O 2.5 mg/m ³

PNECs:

PNECs given were derived based on the concentration which would cause a 10% increase above typical natural background levels of iron in soil in sediment. Thus the respective PNEC is equal to 110% of the typical natural background level of iron.

Water

Iron is an essential trace element for fish, aquatic invertebrates and plants. A direct toxicity could not be demonstrated in tests. Therefore no PNEC was derived.

Sewage treatment plants (STP): PNEC STP Fe: 500 mg/l; FeSO₄.7H₂O 2483 mg/l

Sediment

PNEC Sediment (freshwater): Fe 49.5 g/Kg; FeSO₄.7H₂O : 246 g/Kg dry weight

PNEC Sediment (marine): Fe 49.5 g/Kg; FeSO₄.7H₂O : 246 g/Kg dry weight

Soil

PNEC soil: Fe: 55.5 g/Kg; FeSO₄.7H₂O : 276 g/Kg dry weight

Oral

Iron is an essential trace element for fish, aquatic invertebrates and plants. A direct toxicity could not be demonstrated in tests. Therefore no PNEC was derived.

8.2 Exposure controls

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

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

Gloves – Acid-resistant protective gloves. Long protective gloves, which go over the sleeves

Skin and body protection - Impermeable suit (Hypalon, Tyvek, Saranex, PVC...).

Impermeable boots.

Wear suitable protective clothing, gloves and eye/face protection.

Personal protective equipment must be defined after risk assessment for the workstation. Protective equipment must be chosen according to current CEN standards and in cooperation with the supplier of protective equipment.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance;	Green solid.
Odour;	Information not specified
Odour threshold;	Information not specified
pH;	Information not specified
Melting point/freezing;	Information not specified
Initial boiling point and boiling range;	Information not specified
Flash point;	Information not specified
Evaporation rate;	Information not available
Flammability (solid, gas);	Mixture not classified as Flammable
Upper /lower flammability or explosive limits;	Mixture not classified as Explosive
Vapour Pressure;	Information not specified
Vapour density;	Information not specified
Specific gravity;	Information not specified
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

May react with metals.

10.2 Chemical Stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Information not available

10.4 Conditions to avoid

Extremes of temperature

10.5 Incompatible materials

Powdered metals, metal containers

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. Full mixture classification is given in section 2. Individual component classifications are given in section 3 and 16.

Toxicological information on hazardous ingredients:Iron sulphate:**Toxicological information****Acute toxicity**

The overall pattern of oral toxicity for iron salts is that they are harmful if swallowed. The human oral lethal dose is approximately 1000 mg/kg and 500-2000 mg/kg in rats. Toxic effects may, however, be produced by much lower doses especially when administered systemically. There is limited evidence that inhaled soluble iron salts are tolerated by rats plus limited evidence that inhaled soluble iron salts do not impair lung function and the dermal lethal dose would be greater than 2000 mg/kg. The dermal limit dose of Ferrous Chloride in rats is greater than 2,000 mg/kg (>881 mg Fe/kg) and thus should be used to compare against Ferrous Sulphate. This suggests little potential for systemic toxicity in humans after dermal contact.

Dose descriptor: Oral - LD50S 300-2000 mg/kg bw

Dermal - LD50S >2000 mg/kg bw

Inhalation-No data

Skin corrosion / irritation

Ferrous Sulphate is skin irritant based on (2:1 animals majority) in rabbit test and is an eye irritant. Read across from Ferrous Sulphate and Ferric Chloride, indicates that solutions have the same or a lower classification than the solid and that classification based on pH would be overly cautious. On this basis an irritant classification, Skin Irritation Cat 2. H315: Causes skin irritation should be applied to solutions based on rules for mixtures. This classification therefore applies for solutions of concentration > 10%. Ferrous Sulphate should not be seen as corrosive just as an irritant.

Eye damage / irritation

Results are available for a GLP-compliant guideline study (Johnson, 2003), which showed that a 25% solution of Ferrous Sulphate Heptahydrate caused no more than mild redness and chemosis after instillation into the rabbit eye. The predicted classification based on reading across of several iron salts would be a classification between no classification and causes serious eye damage however due to the lack of test data and low pH (<2) a precautionary approach should be taken with classification as Eye Damage2.

Respiratory / Skin sensitisation

Ferrous Sulphate Heptahydrate has been tested in a guideline, GLP, Local Lymph Node Assay (Stitzinger, 2010: reliability 1). In this test Ferrous Sulphate gave a clear negative result and is therefore not considered a skin sensitiser. Results of a reliable LLNA test were clearly negative for Ferrous Sulphate Heptahydrate. There are a few case studies in which human subjects showed signs of sensitisation to iron; however overall these data are poor and

do not provide convincing evidence of a positive reaction in humans. There is also poor evidence in animal studies of sensitisation as a result of exposure to iron. The widespread exposure of iron and its role in biological processes, together with the extensive use of dietary supplements suggest that sensitisation is not a concern.

Germ cell mutagenicity

With regard to their mutagenic properties, iron salts have been extensively tested in microbial and mammalian systems in vitro, and in mammalian and insect tests in vivo. There are inconsistencies in the in vitro findings, with a small number of studies returning positive results. This has been attributed to DNA damage following reduction of Fe(III) to Fe(II) with free radical or superoxide formation and subsequent redox recycling. This contrasts with the consistently negative results obtained in vivo where, presumably, more efficient control mechanisms exist that protect the body from iron-induced oxidative damage. It is concluded that iron salts are not genotoxic.

Due to its potential pro-oxidant effects, there has been extensive research into possible links between iron and cancer development. These include many clinical investigations into the effects of oral (dietary) iron salts in humans and links to cancer. Although iron has been implicated in the development of cancers at various sites because of its role as a pro-oxidant, the UK Scientific Advisory Committee on Nutrition concluded that there is not enough evidence to reach conclusions for any specific links (EVM, 2003).

Reproductive toxicity

Results from recent guideline oral screening studies performed on Ferrous Chloride and Ferrous Sulphate gave NOAELs for reproductive and developmental effects of >500 mg/kg body weight/day or >1000 mg/kg body weight/day (no adverse effects were observed), respectively. These findings are considered to be relevant to Ferric as well as Ferrous salts, as oxidation of Ferrous to Ferric occurs in the low pH of stomach before ingested iron is absorbed into the body. In humans, iron supplementation of about 5.8 to 11.7 mg/kg bw/day (for a 60kg individual) is routinely prescribed throughout pregnancy with no adverse effects on pregnancy outcome. Evidence of adverse effects on male testes has only been observed at acutely toxic, overload doses, at which some of the experimental animals died.

Dose descriptor: Oral - LD50S >1000 mg/kg bw day

Dermal - No data

Inhalation - No data

Repeated dose toxicity

No human data is available for Ferrous Sulphate and repeated dose toxicity and even though effects are shown in some animal studies the overall conclusion is that no classification should be assigned for all endpoints oral, inhalation and dermal. NOAEL 49 days -100mg/kg Ferrous Sulphate Heptahydrate, result = no effect.

Aspiration hazard

No data, not an aspiration hazard.

Citric acid

Acute toxicity

LD/LC50 Oral 3000mg/Kg (rat)

Primary irritant effect:

On the skin: No irritant effect

On the eye: Irritating effect

Sensitisation: No sensitising effects known

Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Irritant

Routes of exposure: The substance can be absorbed into the body by inhalation (of solution mist and dust) and by ingestion.

12. Ecological Information

12.1 Toxicity

Mixture not classified as toxic to the environment in accordance with Directive 1999/45/EC and CHIP regulations 2009

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. 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:

Product is unclassified for transport

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.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has not been undertaken for this substance

16. Other Information

Reasons for revision:

Updated in line with Regulation 1272/2008 and Regulation 1907/2006.

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.

Disclaimer

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