S.T.I. SOLFOTECNICA ITALIANA S.p.A.
via Matteotti, 16
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name:	Microbagnabile 80 WG, Microbagnabile WG, Colloizol, Machairas WG, Microbagnabile Garden, Microsulf WG, Tioflor WDG, Ecosulf 80 WG, Biotiol
Chemical identification:	yellow water dispersible granules
Chemical type:	mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

Active substances for use in plant protection products, fungicide.

1.3. Details of the supplier of the safety data sheet

Company name:	S.T.I. SOLFOTECNICA ITALIANA S.p.A.
Registered Office:	via Matteotti, 16 - 48121 RAVENNA
Plant:	via Torricelli, 2 - 48010 COTIGNOLA (RA)
Phone:	(+39) 0545 992455
Fax:	(+39) 0545 40270
E-mail:	msds@solfotecnica.com

1.4. Emergency telephone number

Company:	(+39) 0545 992455 (office hours)
National Center for Toxicological Information:	(+39) 0382 24444 (24 h / 24 h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The product is classified as dangerous according Regulation (EC) 1272/2008 (CLP) and Directives 67/548/EEC and 1999/45/EC.

Classification according to Regulation (EC) 1272/2008 (CLP)

Skin Irrit. 2; H315

Classification according to Directives 67/548/EEC and 1999/45/EC

Xi; R38

2.2. Label elements

Labelling according to Regulation (EC) 1272/2008 (CLP)

Hazard pictograms:

Signal word:	Warning	
Hazard statements:	H315	Causes skin irritation
Precautionary statements:		
Prevention	P264	Wash hands thoroughly after handling.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
Response	P302+352	IF ON SKIN: Wash with plenty of soap and water.
	P332+313	If skin irritation occurs: Get medical advice/attention.
	P 362	Take off contaminated clothing and wash before reuse.

2.3. Other hazards

Contact with the product at high temperatures may cause burns. In the molten state it may evolve sulphur dioxide (toxic and corrosive) and hydrogen sulphide (very toxic and flammable). Finely dispersed particles may form explosive mixtures in air. Sulfur (the main constituent) does not satisfy the criteria for PBT or vPvB classification according to Annex XIII of REACH.

SECTION 3: Composition/information on ingredients

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3.2. Mixture

sulfur (~ 80 %)

CAS no:	7704-34-9
EC no:	231-722-6
INDEX no:	016-094-00-1
Registration no:	01-2119487295-27-XXXX

Classification according to Directive 67/548/EEC	Xi ; R38
Classification according to Regulation (EC) 1272/2008 (CLP)	Skin Irrit. 2 ; H315

SECTION 4: First aid measures

4.1. Description of first aid measures

Contact with the eyes:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub the eyes. If irritation, blurred vision or persistent swelling occur, consult a specialist. If hot product comes into contact with the eyes, rinse with water and immediately consult a specialist.
Contact with the skin:	Remove contaminated clothing. Wash with plenty of soap and water. If irritation, persistent swelling or flushing occurs, get immediately medical advice. For thermal burns, cool under cold running water until the pain subsides. Do not attempt to remove portions of clothing attached to burnt skin but cut round them. Consult a specialist.
Inhalation:	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If necessary, give oxygen. If the victim is unconscious and is not breathing, get a specialised person to apply artificial respiration. If necessary, give external cardiac massage. Get immediately medical advice.
Ingestion:	Rinse mouth with water. Do not induce vomiting. Get medical advice.

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

Contact with the product may cause skin irritation and slight eye irritation. In the molten state it may cause thermal burns. If inhalated it may cause irritation of the upper respiratory tract. If ingested it has a slight laxative effect.

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

In all cases of severe burns or in the presence of suspected inhalation of hydrogen sulfide, immediately transfer the victim to hospital.

SECTION 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

For small size fires, use earth, sand, carbon dioxide, foam, or dry chemical powder. For large size fires, use foam, atomised water. Do not use direct water jets on the product that is burning.

5.2. Special hazards arising from the substance or mixture

In case of fire, toxic fumes of sulfur oxides and hydrogen sulfide may evolve. Finely dispersed particles may form explosive mixtures in air if ignited by heat, sparks, static electricity or flames.

5.3. Advice for firefighters

Move containers from fire area if it can be done without risk. Wear special protective equipment, such as boots, overalls, gloves, eye and face protection and breathing apparatus.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment, and procedures in case of emergency

Excepting for cases of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by qualified personnel. Evacuate and isolate the area until complete dispersion of the product. Alert the emergency personnel. Stop or contain leak at the source, if safe to do so. Avoid direct contact with released material. Stay upwind. Avoid generating and spreading dust. Spillage of the product in dust form may create a fire hazard and an explosive atmosphere. Eliminate all ignition sources of heat, sparks, static electricity or flames if safe to do so. Wear appropriate personal protective equipment.

6.2. Environmental precautions

Prevent the product from leaking into the environment and run off into drains, surface waters and groundwater. Alert competent authorities if large amounts into drains or watercourses.

6.3. Methods and material for containment and cleaning up

Contain the spillage with earth, sand or non-combustible materials. Cover drains. Collect the product by mechanical means, and transfer into a suitable container properly labeled. Dispose of in accordance with local and national legislation. Clean surface thoroughly to remove residual contamination.

6.4. Reference to other sections

For information on personal protection see SECTION 8. For information on disposal considerations, see SECTION 13.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized. Ensure adequate ventilation. Wear appropriate personal protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well ventilated place. Keep only in the original container or in a container suitable for the type of product (suitable materials = carbon steel and cement). Keep container tightly closed and properly labeled. Avoid exposure to moisture and direct sunlight. Keep away from heat, sparks, static electricity or flames. Keep away from incompatible materials.

7.3. Specific end use(s)

Not listed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

No specific occupational exposure limit values are defined for either the product or for constituent substances. Where necessary, refer to the ACGIH occupational limits defined below.

"PNOC - particulates (insoluble or poorly soluble) not otherwise classified":

TLV - TWA	= 3 mg/m³	(respirable)
TLV - TWA	= 10 mg/m³	(inhalable)

8.2. Exposure controls

Wear personal protective equipment in accordance with standards set by European and national legislation. Consult the supplier in all cases before making a final decision.

Skin protection:	Wear appropriate work clothes and safety footwear for professional use. If the product is handled in the molten state, wear heat resistant clothes and boots.
Hand protection:	Wear appropriate protective gloves for chemical agents (EN 374). If contact with hot product is possible or anticipated, gloves should be heat resistant and thermally insulated.

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Eye:	Wear appropriate safety glasses with side shields (EN 166).
Respiratory protection:	Wear an appropriate mask with a particle filter (EN 143). In areas in which hydrogen sulphide can accumulate, wear a full-face mask with a B type filter cartridge for inorganic vapours (UNI EN 14387) or self-contained breathing apparatus (EN 529). If exposure levels cannot be determined or estimated with adequate confidence, or an oxygen deficiency is possible, only a self-contained breathing apparatus should be used.
Technical and hygienic measures:	Provide local exhaust ventilation suction or other devices to maintain the levels of particles in the air below the recommended exposure limits. Do not eat, drink, or smoke during use. Wash hands and other exposed areas after use. Wash periodically clothes and personal protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practices.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a) Appearance:	yellow water dispersible granules
b) Odour:	slightly sulfurous
c) Odour threshold:	not available
d) pH:	9.5 - 10.5 (1% water solution)
e) Melting/freezing point:	112.9 - 119 °C
f) Initial boiling point and boiling range:	444.6 °C
g) Flash point:	207 °C (stratus clouds) ; 190 °C (dust clouds)
h) Evaporation rate:	not applicable
i) Flammability (solid, gas):	not available
j) Upper/lower flammability or explosive limits:	35 - 1.400 g/m^3
k) Vapour pressure:	3.96 x 10^{-6} mmHg a 30°C
l) Vapour density:	not available
m) Relative density:	600 g/l
n) Solubility:	insoluble in water ; soluble in carbon disulfide, carbon tetrachloride, toluene, xylene
o) Partition coefficient: n-octanol/water:	not applicable
p) Auto-ignition temperature:	255 ± 10 °C
q) Decomposition temperature:	not applicable
r) Viscosity:	not applicable
s) Explosive properties:	not explosive
t) Oxidising properties:	not applicable

9.2. Other information

Not available.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

No particular danger of reaction with other substances under recommended conditions of use.

10.2. Chemical stability

Stable under recommended use and storage conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions occurs under recommended conditions of use. The product may form explosive mixtures in contact with strong oxidising agents.

10.4. Conditions to avoid

Avoid exposure to moisture and direct sunlight. Keep away from heat, sparks, static electricity or flames.

10.5. Incompatible materials

Strong oxidising agents.

10.6. Hazardous decomposition products

In case of fire thermal decomposition, toxic fumes of sulfur oxides and hydrogen sulfide may evolve.

SECTION 11. TOXICOLOGICAL INFORMATION

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11.1. Information on toxicological effects

a) Acute toxicity

Oral	(rat)	LD_{50} > 2000 mg/kg	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Dermal	(rat)	LD_{50} > 2000 mg/kg	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Inhalatory	(rat)	LC_{50} > 5,43 mg/l/4h	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

No classification of the product for acute toxicity effects.

b) Irritation

Skin	(rabbit)	= irritant	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Eye	(rabbit)	= not irritant	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

The product has skin irritant effects.

c) Corrosion

Skin	(rabbit)	= not corrosive	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Eye	(rabbit)	= not corrosive	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

No classification of the product for skin and/or eye corrosion effects.

d) Sensitisation

Skin	(guinea pig)	= not skin sensitive	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

No classification of the product for skin and/or respiratory sensitization effects.

e) Repeated dose toxicity

Oral	(rat)	$NOAEL_{(sub\text{-}chronic)}$	= 1000 mg/kg/d	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Dermal	(rat)	$NOAEL_{(sub\text{-}acute)}$	= 1000 mg/kg/d	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

No classification of the product for repeated dose toxicity effects.

f) Carcinogenicity

No classification of the product for carcinogenicity effects.

g) Mutagenicity

Ames test	(s. thyphimurium)	= not mutagenic	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

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Chromosome aberration test	(hamster)	= not mutagenic	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Micronucleus test	(mouse)	= not mutagenic	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

No classification of the product for mutagenicity effects.

h) Toxicity for reproduction

No classification of the product for reprotoxicity effects.

SEZIONE 12: Informazioni ecologiche

12.1. Tossicità

Fish	(oncorhynchus mykiss)	NOEC > 5 µg/l --- (96h)	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Invertebrates	(daphnia magna)	EC_{50} > 5 µg/l --- (96h)	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Invertebrates	(daphnia magna)	NOEC > 100 µg/l --- (21d)	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Algae		NOEC > 5 µg/l --- (72h)	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)
Sediments	(chironomus riparius)	NOEC > 608 mg/kg --- (28d)	data on "sulfur" (CAS no 7704-34-9 - EINECS no 231-722-6)

The product, due to its insolubility in water, is not expected to have toxic effects for aquatic organisms.

12.2. Persistence and degradability

Sulfur (the main constituent) is an element abundantly present in nature and - through a cycle of red-ox reactions - is converted into both organic and inorganic compounds. Product degradation proceeds primarily via the microbial and plant, generating volatile oxides in soil and water.

12.3. Bioaccumulative potential

Sulfur (the main constituent) is expected to have a low bioaccumulative potential, as inorganic substance.

12.4. Mobility in soil

Sulfur (the main constituent) is expected to have a low mobility in soil, as inorganic substance.

12.5. Results of PBT and vPvB assessment

Sulfur (the main constituent) does not satisfy the criteria for PBT or vPvB classification according to Annex XIII of REACH.

12.6. Other adverse effects

Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Disposal must be performed in accordance with local and national legislation. These provisions are applicable also for the contaminated packaging. It is therefore advisable to contact the authorities or authorized specialized companies that can give indications on how to dispose. Do not recover product residues. Do not reuse empty containers.

SECTION 14. TRANSPORT INFORMATION

The hazard classification for transportation provided for sulfur (Hazard Class: 4.1) does not apply to the product on the basis of the results of the test procedure defined in the "Manual of Tests and Criteria" (Part III Section 33.2.1). The product is therefore not subject to the provisions of existing legislation governing the transport of dangerous goods by road (ADR), rail

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(RID), sea (IMDG Code) and air (IATA).

14.1. UN number
Not applicable.

14.2. UN proper shipping name
Not applicable.

14.3. Transport hazard class(es)
Not applicable.

14.4. Packing group
Not applicable.

14.5. Environmental hazards
Not applicable.

14.6. Special precautions for user
Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
The product does not contain substances of very high concern (SVHC) included in the candidate list for Authorisation or subjected to Authorisation/Restriction according to Regulation (EC) 1907/2006 (REACH).

15.2. Chemical safety assessment
A chemical safety assessment has been performed for sulfur (the main constituent).

SECTION 16. OTHER INFORMATION

Revision of the safety data sheet:

The previous version of this safety data sheet has been modified according to Regulation (EC) 453/2010.

Full text of risk phrases (R) and hazard statements (H) cited in SECTION 2 and SECTION 3:

R38	Irritating to skin
H315	Causes skin irritation

Key references and data sources:

- Directive 67/548/EEC (and its subsequent modifications and amendments)
- Directive 1999/45/EC (and its subsequent modifications and amendments)
- Regulation (EC) 1272/2008 (CLP) (and its subsequent modifications and amendments)
- Regulation (EC) 1907/2006 (REACH) (and its subsequent modifications and amendments)
- SDS of raw materials suppliers

Acronyms:

ACGIH:	american conference of governmental industrial hygienists
ADR:	european agreement concerning the international carriage of dangerous goods by road
CAS:	chemical abstracts service
CLP:	classification labelling and packaging
EC_{50}:	effective concentration for 50 percent of the organisms
EINECS:	european inventory of existing commercial chemical substances
IATA:	international air transport association
IMDG Code:	International Maritime Dangerous Goods Code
LC_{50}:	lethal concentration for 50 percent of the organisms
LD_{50}:	lethal dose for 50 percent of the organisms
NOAEL:	no observed adverse effect level
NOEC:	no observed effect concentration
PBT:	persistent, bioaccumulative and toxic
REACH:	registration, evaluation and authorization of chemicals
RID:	regulations concerning the international carriage of dangerous goods by rail
STEL:	short-term exposure limits

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TLV:	threshold limit value
TWA:	time weighted average
vPvB:	very persistent and very bioaccumulative

Notes:

The information provided in this safety data sheet is correct to the best of our knowledge at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation and disposal and is not to be considered a warranty or quality specification. The user must verify the suitability and completeness of the information in relation to its particular use of the product.