



MATERIAL SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH) amended by (EU) No 830/2015

Product Name: **RADIGEN®**

Printing date: 04.08.2017

revised on: 04.08.2017

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SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Trade name: **RADIGEN®**

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

Relevant identified uses: Micronutrient depot fertilizer for use in horticulture including nurseries, specialty crops and the production of substrates or growing media.

Uses advised against: Not to be used as foliar fertilizer, as product is widely insoluble in water.
No additive to food products for human nutrition. Not suitable as animal feed.

1.3 Details of the supplier and the safety data sheet

Supplier/manufacturer: JOST GmbH
Giesestr. 4
58636 Iserlohn
Germany

Telephone: +49 [0] 2371 94 85-23
Only available during the following office hours:
8:00 am to 5:00 pm

Telefax: +49 [0] 2371 94 85 35

E-Mail address: r.buchholz@jost-group.com

1.4 **Emergency telephone number** +49 [0] 228 19 240
University Hospital Bonn
Information Center against Acute Poisoning

SECTION 2: Hazards Identification

2.1 Classification of the substance or mixture

2.1.1 **Classification according to Regulation (EC) No 1272/2008 (CLP)** This product does not meet the criteria for classification in any hazard class. Information on substances contained in the mixture are made in subsection 3.1.

2.2 **Label elements** Not relevant.

2.3 **Other hazards** No further data available.

SECTION 3: Composition/Information on ingredients

3.1 Substances

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Chemical name	CAS No	EC No	REACH Registration No	Weight content (%)	Signal word/ Code
Ethylenediamine-tetraacetic acid, ferric-sodium complex trihydrate	015708-41-5	239-802-2	01-2119496228-27	6.8 – 7.1	none
Hydroxyethyl ethylenediaminetriacetic acid ferric-sodium complex	051181-50-1	257-036-7	01-2119963945-21	6.8 – 7.1	none
Sodium molybdate dihydrate	10102-40-6	231-551-7	01-2119489495-21-0003	1.9 – 2.1	none
Ferrous (II) sulfate monohydrate	17375-41-6	231-753-5	01-2119513203-57-XXXX	< 1.0	Warning*/ Acute Tox. 4: H302, Skin Irrit. 2: H315, Eye Irrit. 2: H319, P280, P301+P312, P302+P352, P305+P351+P 338, P337+P313, P501, P270, P264, P321, P313, P330, P332+P313, P362

* In mixtures substance is classified only when concentration limit ≥ 1 % is exceeded.

3.2 Mixtures

Mixture of materials without registration requirements according to Regulation (EC) No 1907/2006 (REACH) as metal alloys of copper, zinc, manganese, iron, calcium borate, magnesium sulfate, calcium carbonate, and non-classified constituents mentioned under subsection 3.1

SECTION 4: First Aid Measures

4.1 Description of first aid measures

General notes

Movement of the exposed individual from the area to fresh air is recommended.

Inhalation

Dust may cause irritation to mucous membranes. Rinse mouth with clear water. Seek medical treatment in case of persisting symptoms.

Skin contact

Remove contaminated clothing. Wash off immediately with plenty of water and soap. Seek medical treatment in the case of skin irritation. Wash clothing before

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Eye contact	further use. Dust may cause irritation to eyes. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Seek medical assistance if irritation or symptoms persist.
Ingestion	Dust may cause irritation to mucous membranes. Do not induce vomiting! Rinse mouth, give water to drink. Seek medical attention if irritation or symptoms persist.
Self-protection of the first aider	Personal protective equipment for first aid responders is recommended.
4.2 Most important symptoms and effects, both acute and delayed	No specific symptoms related to the product are known.
4.3 Indication of any immediate medical attention and special treatment needed	Treat symptomatically.

SECTION 5: Firefighting Measures

5.1 Extinguishing media	
Suitable extinguishing media	All - non-inflammable. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
5.2 Special hazards arising from the substance or mixture	
Hazardous combustion products	Burning produces irritating, toxic and obnoxious fumes.
5.3 Advice for firefighters	Use Self-contained Breathing Apparatus (SCBA) with boots, overall, chemical resistant gloves, eye and face protection.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures	
6.1.1 For non-emergency personnel	Wear suitable protective equipment (see Section 8 of this safety data sheet). Ensure adequate ventilation.
6.1.2 For emergency responders	Wear suitable protective equipment (see Section 8 of this safety data sheet). Ensure adequate ventilation.
6.2 Environmental precautions	Do not allow product to enter drains. Collect in clean container for re-use (preferred) or disposal.
6.3 Measures and materials for containment and cleaning up	
Methods for cleaning up	Sweep up, avoid formation of dust.
Methods for containment	Collect in suitable and clean container for re-use (preferred) or disposal.
6.4 Reference to other sections	For personal protection see Section 8.

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SECTION 7: Handling and Storage

7.1 Precautions for safe handling

Protective measures

Avoid contact with eyes, skin and clothing. The precautionary measures usual while handling chemicals are to be considered.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep in a cool, dry, well-ventilated area. Store in tightly closed original packaging; separately from the reach of children and domestic animals as well as from food.

Storage class (TRGS 510)

13 (non-flammable solid matter)

Further information on storage conditions

No decomposition of product if stored and applied as directed.

7.3 Specific end use(s)

fertilizer

SECTION 8: Exposure Controls/Personal protection

8.1 Control parameters

Occupational exposure limit values

Contains no substances with occupational exposure limit values.

Derived No Effect level (DNEL) according to Regulation (EC) No 1907/2006

No hazard identified.

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No 1907/2006

No hazard identified.

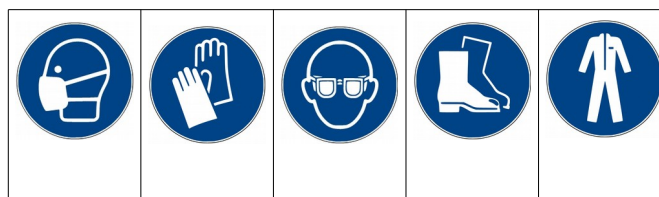
8.2 Exposure Controls

8.2.1 Appropriate engineering Controls

Technical measures to prevent exposure

Install effective exhaust ventilation system.

8.2.2 Personal protective equipment



Respiratory protection

In case of dust formation use a respirator with an approved filter.

Eye/face protection

The usual precautions for handling chemicals should be observed. Use tightly fitting safety goggles during dust formation.

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Skin protection	Consider usual preventive measures while handling fertilizers or chemicals. Use suitable protective clothing.
Hygiene measures	Do not eat, drink, smoke while working.
Environmental exposure controls	
General advice	See subsection 6.2

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Fine powder
Colour	Light grey
Odour	Odourless
Safety data	
pH	6 – 7 (50 g/l water at 20°C)
Melting point	Not applicable
Initial boiling point or boiling range	Not applicable
Flash point:	Mixture is not flammable.
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	1.3
Bulk density:	1,300 kgs/m ³
Solubility in water (20°C):	Widely insoluble
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	No data available, not tested
Decomposition temperature	No data available, not tested
Viscosity	Not applicable
Explosive properties	No data available, not tested
Oxidising properties	No data available, not tested

9.2 Other information

This safety data sheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: Stability and Reactivity

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical Stability:	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4 Conditions to avoid	None known
10.5 Incompatible materials	None known
10.6 Hazardous decomposition products	None known



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SECTION 11: Toxicological Information

11.1	Information on toxicological effects	This mixture does not meet the criteria for classification as hazardous in accordance with Regulation (EC) No 1272/2008.
11.2	Additional toxicological information	From structurally related products an only moderate toxic effect on humans and animals may be expected.

SECTION 12: Ecological Information

12.1	Toxicity	No data available on this product
12.2	Persistence and degradability	No data available on this product Content materials are essential plant nutrients.
12.3	Bioaccumulative potential	No data available on this product Content materials are essential plant nutrients.
12.4	Mobility in soil	No data available on this product
12.5	Results of PBT and vPvB assessment	No data available on this product
12.6	Other adverse effects	No data available on this product
12.7	Additional information	None known

SECTION 13: Disposal Considerations

13.1	Waste treatment methods	
	Product	May be deposited considering the local regulations or used as fertilizer in agriculture and horticulture.
	Waste treatment-relevant information	Sweep up, avoid formation of dust. Collect in clean container for re-use (preferred) or disposal.
	Contaminated packaging	May be deposited considering the local regulations.

SECTION 14: Transport Information

14.1	UN number	This mixture does not meet the criteria for classification as hazardous in accordance with Regulation (EC) No 1272/2008. Not regulated as a dangerous good.
14.2	Proper shipping name	Not regulated as a dangerous good.
14.3	Transport hazard class	Not regulated as a dangerous good.
14.4	Packing group	Not regulated as a dangerous good.
14.5	Environmental hazards	Not regulated as a dangerous good.
14.6	Special precautions for user	Not regulated as a dangerous good.
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable for product as supplied.

SECTION 15: Regulatory Information

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15.1	<p>Safety, health and environmental regulations/legislation specific for the substance or mixture</p> <p>EU regulations</p> <p>National regulations (Germany)</p> <p>Further information</p>	<ul style="list-style-type: none"> - Regulation (EC) 67/548 - Regulation (EC) 1999/45 - Regulation (EC) 1907/2006 (REACH) - Directive (EC) 1272/2008 (CLP, GHS) - Regulation (EU) 453/2010 (REACH, amendments) - Regulation (EU) 830/2015 (REACH, amendments) - ECHA, Guidance on the compilation of safety data sheets, Version 3.0, August 2015 - TRGS 200 (2011) (Labelling) - TRGS 510 (2015) (Storage) - TRGS 900 (Occupational exposure limits) - VwVwS of May 15, 1999 and July 27, 2005 <p>Water contaminating class: WGK 1, slightly water endangering</p> <p>Product is classified as: EC-FERTILIZER Mixture of trace elements.</p>
15.2	Chemical safety assessment	Not applicable for product as supplied.

SECTION 16: Other information

Indication of changes	SDS according to Annex II of Regulation (EC) No 1907/2006 (REACH) is amended by Regulation (EU) No 830/2015.
Abbreviations and acronyms	PBT: Persistent, Bioaccumulative, Toxicity vPvB: very Persistent very Bioaccumulative
Key literature references and sources for data	See subsection 15.1
Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008 (CLP)	Product is non-classified according to Regulation (EC) No 1272/2008 (CLP). Based on calculation method and expert judgement.
Disclaimer	This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.