

Gree Industry Co.,Ltd

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MATERIAL SAFETY DATA SHEET

Version 2.1

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SECTION 1: Identification of the substance and of the company/undertaking

1.1 Product identifiers

Product Name Chitosan oligosaccharide
Synonyms Chitosan oligomer

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

Identified uses Fertilizer additives, Food additives.

1.3 Details of the supplier of the safety data sheet

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SECTION 2: Composition/information on ingredients

2.1 Substances

Chemical name	Low-poly-D-glucosamine hydrochloride, Low-poly-D-glucosamine acetate, Low-poly-D-glucosamine lactate, etc.
CAS No.	148411-57-8

SECTION 3: Hazards identification

3.1 Classification of the substance

This substance is not classified in explosives.
This substance is not classified in flammable substance.
This substance is not classified in toxic and infectious substance.
This substance is not classified in radioactive material.
This substance is not classified in corrosives.
This substance presents no other dangerous properties.

3.2 Health hazards

Eye contact: May cause eye irritation.
Skin contact: May cause skin irritation.
Inhale: May accumulate on nose and lung membranes, resulting in dryness and coughing.

3.3 Other hazards

This substance contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, foam, dry extinguishing powder or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x).

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation.

Avoid breathing dust mist.

For personal protection see section 8.

6.2 Environmental precautions

No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place, keep container tightly closed in a dry and well-ventilated place.

Storage class: Not classified in flammable substances.

7.3 Specific end use(s)

See the uses mentioned in section 1.2

SECTION 8: Exposure controls/personal protection**8.1 Control parameters**

No data available.

8.2 Exposure controls

Appropriate engineering controls

Hygiene measures: General industrial hygiene practice.

Personal protective equipment

Eye/face protection:

Use equipment for eye protection tested and approved under appropriate government standards.

Skin protection:

Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection:

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection:

An approved respirator is recommended when the dust is airborne.

Use respirators and components tested and approved under appropriate government standards.

Control of environmental exposure:

No special environmental precautions required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance Form: Powder, Light brown.

Odor: Weak odor.

Odor Threshold: No data available.

PH: 4.0-7.0

Melting point/freezing point: No data available.

Initial boiling point and boiling range: No data available.

Flash point: No data available.

Flammability: Not classified in flammable substance.

Upper/lower flammability or explosive limits: No data available.

Relative density: About 0.2-0.6g/ml.

Water solubility: Soluble in water.

Auto-ignition temperature: No data available.

Decomposition temperature: No data available.

Viscosity: Less than 15mpa.s in 1% water

Explosive properties: No data available.

Oxidizing properties: Not classified in oxidizing substances.

9.2 Other safety information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under the storage conditions of recommended.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO_x).

Other decomposition products: No data available.

In the event of fire: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: LD50 Oral - Rat - > 10,000 mg/kg.

Skin corrosion/irritation: No data available.

Serious eye damage/eye irritation: No data available.

Respiratory or skin sensitization: No data available.

Germ cell mutagenicity: No data available.

Carcinogenicity: Not component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: No data available.

Specific target organ toxicity - single exposure: No data available.

Specific target organ toxicity - repeated exposure: No data available.

Aspiration hazard: No data available.

Additional Information RTECS: Not available.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish:

LC50 - *Oncorhynchus mykiss* (rainbow trout) - 1.73 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 - *Daphnia pulex* (Water flea) - 13.69 mg/l - 48 h

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging: Dispose of as unused product.

13.2 Other

Observe all Federal, State and local environmental regulations.

SECTION 14: Transport information

14.1 UN number

None

14.2 UN proper shipping name

Not classified

14.3 Transport hazard class

Not classified

14.4 Packaging group

Not classified

14.5 Environmental hazards

None

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.
