



Rethink Tomorrow
13100 W. Lisbon Road Suite 600, Brookfield, WI. 53005 USA

Material Safety Data Sheet

1. Product identification

Product use: LCO promoter technology
MSDS number: NZBWI-603
Effective date: August 1, 2011

Ratchet™

2. Composition:

Component	CAS number	% (w/w)
Lipo-chitooligosaccharide (LCO)	Not available	4×10^{-7}
Other ingredients	Not available	>99

3. Hazard identification:

NFPA: Health – 1, Flammability – 1, Reactivity – 1

May be harmful if swallowed, inhaled, or absorbed through the skin

Primary entry routes: Oral (swallowing)

Potential acute health effects:

Eyes: Eye contact may be harmful

Skin: Skin contact may be harmful

Ingestion: May be harmful if swallowed

Inhalation: May be harmful if inhaled

Medical conditions aggravated by exposure:

No known hazard

Target organs: Skin, eyes

Chronic effects: Not a likely hazard

Cancer: Not a likely hazard

Birth defects: Not available

Reproductive effects: Not available

Mutagenic effects: Not available

4. First aid measures:

Eyes: Immediately flush eyes with water for at least 15 minutes while holding eyelids open. Get medical attention if irritation persists

Skin: Wash with soap and water

Ingestion: If ingestion of a large amount does occur, seek medical attention

Inhalation: If symptoms are experienced, move victim to fresh air

5. Fire-fighting measures:

Flash point: >250 °F

Auto-ignition temp.: Not available

Explosive limits:

LEL: Not applicable UEL: Not applicable

Extinguishing media: Water, carbon dioxide, dry chemical, synthetic foam

Fire fighting instructions: Fire fighters should wear full protective clothing, including self-contained breathing equipment

6. Accidental release measures:

Contain the spill with any available absorbent medium and store in a suitable container until proper disposal can be arranged. Wear appropriate personal protective equipment during cleanup. Prevent entry into waterways, sewers, basements, or confined areas

7. Handling and storage:

Store any unused product in original unopened containers in a cool, dry place, away from sunlight, drafts and direct heat sources. Practice reasonable caution to avoid contact with this product. Users should wash hands before eating, drinking, chewing gum, using tobacco or the toilet. Keep out of reach of children. Do not ship or store this product with food, feed, drugs or clothing.

8. Exposure controls, personal protection, and exposure limits:

LCO: Not available

Engineering controls: Good ventilation is required

Breathing: Use an approved air-purifying respirator if respiratory irritation is experienced.

Protective clothing: Wear clean body-covering clothing and impervious gloves when handling this product.

Eyes: Safety glasses with side shields recommended.

Other protection: Washing facilities should be available.

Comments: Practice general personal hygiene after using this product. After handling any chemical or biological product, wash arms, hands and face with soap and water before eating, drinking or smoking.

In Case of Emergency Call: 1-888-744-5662

Available 24 hours a day 7 days a week from April 1st to June 15th,
otherwise available from 8:00am to 4:30pm CST, Monday to Friday.

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9. Physical and chemical properties:

Boiling point: 212 °F (100 °C)
Volatility: Not available
pH: 6-8
Appearance: Yellow to brown
Odour: Mild
Physical state: Liquid
Water solubility: Not applicable
Coefficient of water/oil distribution: Not available
Bulk Density: Not available
Evaporation rate: Not available
Odour threshold: Not available
Freezing point: 32 °F (0 °C)
Melting point: Not applicable
Vapor density: Not available
Specific gravity: 1.0 g/cc

10. Stability and reactivity:

Stability: Stable
Conditions to avoid: None
Hazardous polymerization: Will not occur
Chemical incompatibilities: None known
Hazardous products of decomposition: Oxides of carbon

11. Toxicological information:

Eye effects/eye irritation: No data available
Acute oral effects: No data available
Acute inhalation effects: No data available
Acute dermal effects: No data available
Skin irritation: Irritating
Skin sensitization: Not a skin sensitizer

12. Ecological information:

Toxicity to bees: Not available. Not a likely hazard
Toxicity to fish: Not available. Not a likely hazard
Toxicity to birds: Not available. Not a likely hazard

13. Disposal considerations:

This product may be disposed of by placement in any landfill approved for domestic waste.

14. Transportation information:

This product is not regulated as a hazardous material for all modes of transportation within the U.S. and Canada.

Hazard class: Not applicable

15. Regulatory information:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

Proposition 65: Contains no components subject to warning requirements

Master reference: On file
MSDS status: New MSDS

16. Other information:

Prepared by: M. Sonier

This information may not be adequate for every application and therefore it is up to the user to determine the suitability of this information based on conditions of use, storage or local regulations.

Notice: The information contained in this Material Safety Data Sheet is presented in good faith and is believed to be accurate as of the effective date shown above. However, no other warranty, expressed, or implied, is given. Laws, regulations, and/or third party rights may prevent customers from importing, using, processing and/or reselling the products described herein in a given manner. Without separate written agreement between the customer and Novozymes to such effect this document does not constitute a representation or warranty of any kind and is subject to change without further notice.

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