

MATERIAL SAFETY DATA SHEET



1. Product and Company Identification

Product: ChitoVan™ L, ChitoVan™ LC

Manufacturer's Information	
Name	Cascade EcoSolutions
Address	1916 220 th ST SE, #M101, Bothell, WA 98021
Emergency Phone Number	1-888-481-0326

2. Composition

Chemical Name: Chitosan Lactate, dry flake	CAS # 66267-50-6, 146227-11-4
Active Ingredients	Chitosan and lactic acid
Lactic Acid	CAS # 598-82-3 2-Hydroxypropanoic acid – milk acid
Chitosan	CAS 9012-76-4 Chitosan Source: Recovered from recycled crab and/or shrimp shells

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3. Health Hazards Information

Potential Health Effects	
Eye Contact	Mildly irritating
Skin Contact	Mildly irritating
Skin Absorption	Does not absorb while in dry flake format
Ingestion	Not likely to be hazardous
Inhalation	Mildly irritating
Medical Conditions Aggravated	Possibly pre-existing eye or respiratory conditions
Chronic Affects	There is no known effect from chronic exposure to this product
Carcinogenicity:	Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

4. First Aid

Eye Contact	Flush with water for 15 minutes to remove and call a physician.
Skin Contact	ChitoVan L or Chitovan LC is not hazardous but cleansing the skin after use is advisable.
Inhalation:	if a large amount of dust is inhaled remove to fresh air and call a physician.
Ingestion:	If swallowed, no specific intervention is indicated as the compound is not likely to be hazardous by ingestion. However, consult a physician if necessary.

5. Fire and Explosion Hazard Data

Flash Point:	n/a
Flammability:	Non-flammable, but it is advisable to keep away from open flame.
Unusual Fire and Explosion Hazards:	In the form of a solid or water solution, there is no danger of fire or explosion.
Fire Fighting Media:	Use water or foam (not flammable in nature)

6. Accidental Release Measures

Storage:	Store away from strong oxidizers.
For Spills:	Utilize protective clothing. Sweep up spilled ChitoVan Lactate and dilute residual dust with water

	and hose down.
Waste Disposal Method:	Land disposal is acceptable as the compound is biodegradable. Follow local, state and federal regulations.
Work/Hygiene Practices:	Follow good hygienic and housekeeping practices. Clean up areas where ChitoVan Lactate was used.

7. Storage and Handling

Handling	Avoid inhalation of dust or contact with eyes
Storage	Store in a dry area, 10-40 degrees Celsius
Flammability Class	Not applicable

8. Exposure Controls & Personal Protective Equipment

Respiratory Protection:	Not required.
Protective Gloves:	Rubber gloves are recommended.
Eye Protection:	Safety glasses are recommended.
Other Protective Clothing:	Not needed.

9. Physical/Chemical Properties

Appearance and Odor:	Dry oatmeal-like flakes, sweet smelling
Solubility:	Completely soluble in water at pH < 6.3 and precipitates at pH > 6.5
Tap Density	approximately 0.2 g/mL (value is dependent upon particle size)
Boiling Point:	NA
Chitosan Molecular Formula	C ₆ H ₁₁ NO ₄
Chitosan Molecular Weight	161
pH:	A 1% aqueous solution is pH 3.7 ± 0.2

10. Stability and Reactivity

Chemical Family:	Natural polysaccharide
Stability:	Stable
Hazardous Polymerization:	Polymerization will not occur.
Incompatibility:	Incompatible with strong oxidants and strong bases.
Decomposition:	Decomposition will not occur under normal storage conditions
Instability Conditions:	Stable at normal temperatures and storage conditions.
Decomposition Temperature:	greater than 80 degrees Celsius
Decomposition Products:	Unknown

11. Toxicological Data

Acute oral, LD50 (mice)	>16 g/kg
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12. Ecological Info

Aquatic Toxicity Data	Available upon request
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13. Disposal Considerations

Waste Disposal Method:	Land disposal is acceptable as the compound is biodegradable. Follow local, state and federal regulations.
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14. Transportation Information

DOT Shipping Name:	Chitosan Lactate
Technical Shipping Name:	Chitosan Lactate
DOT Hazard Class	Class 50, not regulated
Product RQ (lbs):	None
DOT Label:	None
DOT Placard:	None required
Product Label:	ChitoVan Lactate™

15. Regulatory

TSCA:	Not listed on the TSCA inventory.
OSHA:	Not considered hazardous.
EPA:	Exempt from EPA code.
SARA Section 302:	Does not have an RQ or TPQ.
SARA Section 313:	Not reportable under Section 313.
RCRA	Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a waste material containing the product, or derived from the product should be classified as a hazardous waste.

16. Other This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of CES. The data on this MSDS relates only to the specific material designated herein. CES assumes no legal responsibility for use or reliance upon these data.

Prepared by: John W. Macpherson – Cascade EcoSolutions, Inc. Revised July 2008