

# MATERIAL SAFETY DATA SHEET

## 1. Product Name/Identification

<b>ChitoVan™ LC</b>
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## 2. Composition

Active Ingredient: <b>Chitosan Lactate, dry flake</b>	CAS # 90-12-76-4
Chemical name(s):	Chitosan Lactate (chitosan and lactic acid)
Lactic Acid	CAS # 598-82-3 2-Hydroxypropanoic acid – milk acid
Source:	Extracted from recycled crab and shrimp shells

## 3. Physical/Chemical Properties

Appearance and Odor:	Dry oatmeal-like flakes.
Solubility:	Completely soluble in water at pH < 6.3 and precipitates at pH > 6.5
Specific Gravity:	1.0 to 1.1
Boiling Point:	NA
Chitosan Molecular Formula	C <sub>6</sub> H <sub>11</sub> NO <sub>4</sub>
Chitosan Molecular Weight	161
pH:	A 1% aqueous solution is pH 3.9 to 4.1

## 4. Toxicological Data

Acute oral, LD50 (mice)	>16 g/kg
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## 5. Ecological Information

LOEC (for Fathead minnow – most sensitive species)	15 mg/l
NOEC (for Fathead minnow – most sensitive species)	7.5 mg/l
GMATC (for Fathead minnow – most sensitive species)	11.6 mg/l

Material tested	Species	Survival 96 hour acute (mg/l)	
		EC25	LC50
Chitosan Lactate	Fathead Minnow	17.4	23.4
Chitosan Lactate	Daphnia pulex	138	353
Chitosan Lactate	Rainbow trout	24.2	>30

## 6. Fire and Explosion Hazard Data

Flash Point:	n/a
Flammability:	Non-flammable
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)

## 7. Health Hazards Information

Acute Health Effects – Signs and Symptoms of Exposure, Emergency and First Aid Procedures:	<p>Eye Contact: ChitoVan LC is mildly irritating to eyes. Flush with water for 15 minutes to remove and call a physician. Skin Contact: ChitoVan LC is not hazardous but cleansing the skin after use is advisable.</p> <p>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.</p>
Potential Chronic Health Effects:	There is no known effect from chronic exposure to this product
Carcinogenicity:	Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

**8. 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. 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.

**10. Storage, Handling and Disposal**

Storage:	Store away from strong oxidizers.
For Spills:	Utilize protective clothing. Sweep up spilled ChitoVan LC 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 LC was used.

**11. 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 LC™

**12. 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.
Instability Conditions:	Stable at normal temperatures and storage conditions.
Decomposition Temperature:	211 <sup>o</sup> F (will boil)
Decomposition Products:	H <sub>2</sub> O and chitosan lactate salt (clear film).

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