QUITOQUIMICA Ltda.
ASESORIAS Y FABRICACION AREA QUIMICA
PLASTICOS Y PLAGUICIDAS BIODEGRADABLES
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CERTIFICATE OF ANALYSIS.

Product: Chitosan Food Grade	Date of Manuf: 05/01/2021
Lot Nº: 01	Date of Analysis: 07/01/2021
Quantity:	Date of Expiration: Indefinite

Items	Specifications	Results
Appearance:	White Powder	Conform
Molecular Weight:	150.000-300.000 g/mol	Conform
Deacetylation Degree:	≥ 95%	96.7%
Viscosity (1% HAc):	50~200 cps	116 cps
Insoluble:	≤ 1%	0.30%
Ash:	≤ 0.5%	0.45%
Moisture:	≤ 10%	8.5%
pH:	7.0~9.0	8.5
Heavy Metals:	≤ 1.0ppm	< 1.0 ppm
Arsenic:	≤ 0.5 ppm	0.02 ppm
Cadmium	≤ 0.5 ppm	0.02 ppm
Lead	≤ 0.5 ppm	0.02 ppm
Mesh Size:	100 mesh (95% pass)	Conform
Total Plate count:	≤ 1000 cfu/g	Conform
Yeast & mold	≤ 100 cfu/g	Conform
E. Coli	Negative	Conform
Salmonella	Negative	Conform

Conclusion: Conform with Specifications.

Analyzed By	Reviewed By	Approved By
Javiera Manriquez	Carlos A. Cárdenas	Dr. Galo Cárdenas
Chemist	Plant Engineer	General Manager.

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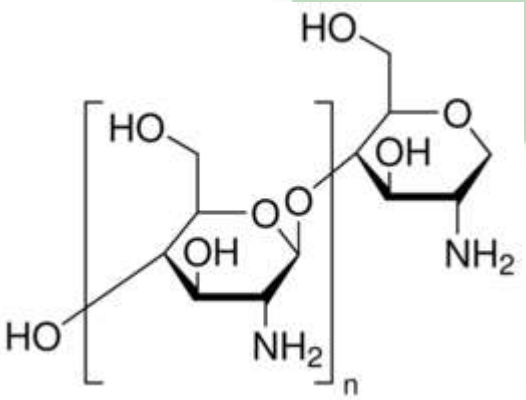
CHITOSAN

Chitosan, a hydrophilic biopolymer industrially obtained by N-deacetylation of chitin, can be applied as an antimicrobial agent. Several publications describes the biological activity of several chitosan derivatives and the modes of action that have been postulated in the literature. It highlights the applications of chitosan as an antimicrobial agent against fungi, bacteria, and viruses and as an elicitor of plant defense mechanisms.

Biocompatible, antibacterial and environmentally friendly polyelectrolyte with a variety of applications including water treatment, chromatography, additives for cosmetics, textile treatment for antimicrobial activity, novel fibers for textiles, photographic papers, biodegradable films, biomedical devices, and microcapsule implants for controlled release in drug delivery.

Chitosan is a macromolecule positively charged with a pH weakly acid (around 6). When retains its positive charge its fiber is similar to a human hair and can be used in the production of several cosmetic products. Chitosan possess the same pH than hair and helps to keep the balance normal which is essencial for a normal hair.



POLY-D-GLUCOSAMINE.

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