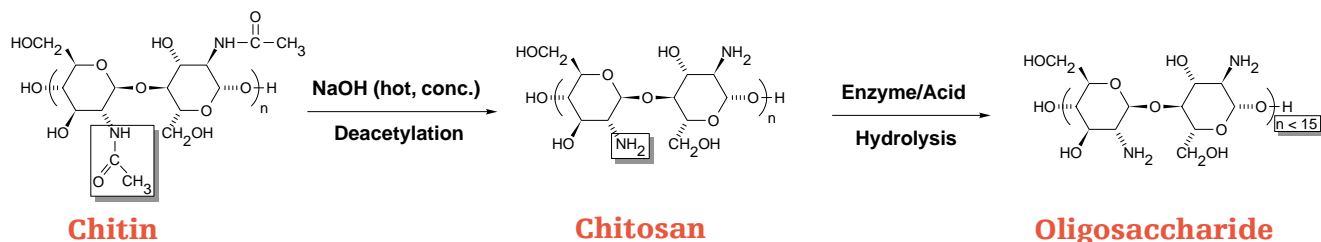


Chitosan – A Technologically Important Biomaterial

Chitin is the second most abundant natural polymer in the world after cellulose. Upon deacetylation, it yields the novel biomaterial Chitosan, which upon further hydrolysis yields an extremely low molecular weight oligosaccharide (see **Scheme 1**). Chitosan possesses a wide range of useful properties. Specifically, it is a biocompatible, antibacterial and environmentally friendly polyelectrolyte, thus lending itself to a variety of applications¹ including water treatment, chromatography, additives for cosmetics, textile treatment for antimicrobial activity,² novel fibers for textiles, photographic papers, biodegradable films,³ biomedical devices, and microcapsule implants for controlled release in drug delivery.⁴⁻⁶



Aldrich offers **Chitin** as well as **Chitosan** of various molecular weights including the oligosaccharide (Catalog No. **52,368-2**; < 15 glucosamine units/chain) to aid in your R&D efforts. These are highlighted below along with the degree of deacetylation and viscosity. For our comprehensive selection of **natural polymers** including **cellulosics, lignin, starch and more**, visit our Web site at www.sigma-aldrich.com or request your free copy of the **NEW 2000-2001 Aldrich Handbook of Fine Chemicals and Laboratory Equipment** today.

Cat. No.	Product Description	% Deacetylation	[†] Viscosity (cps)	Unit Sizes
41,795-5	Chitin , from crab shells	0	-	100g 1kg
44,886-9	Chitosan , low molecular weight	75 - 85	20 - 200	50g 250g
44,887-7	Chitosan , medium molecular weight	75 - 85	200 - 800	50g 250g
41,941-9	Chitosan , high molecular weight	> 75	800 - 2000	50g 250g
41,796-3	Chitosan , from crab shells, practical grade, may contain foreign matter	≥ 85	> 200	25g 100g
52,368-2 NEW	Chitosan, oligosaccharide lactate , oligosaccharide content ca. 60%, $\bar{M}_n < 5000$; prepared by enzymatic hydrolysis of Chitosan	> 90	~ 6	1g 10g

[†]Brookfield method, 1% solution in 1% acetic acid.

Monomers, Polymers and Additives – The Link To All Your Polymer Needs

References: (1) Kobayashi, S. et al. *J. Am. Chem. Soc.* **1996**, *118*, 13113. (2) Shin, Y. et al. *J. Appl. Polym. Sci.* **1999**, *74*, 2911. (3) Hirano, S. et al. *Biochem. Syst. Ecol.* **1991**, *19*, 379. (4) Sezer, A.D.; Akbuga, J. *J. Microencapsulation* **1999**, *16*, 687. (5) Bartkowiak, A.; Hunkeler, D. *Chem. Mater.* **1999**, *11*, 2486. (6) Suzuki, T. et al. *J. Biosci. Bioeng.* **1999**, *88*, 194.



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