**Chitosan Properties:**

-**Biocompatibility:**

Chitin and chitosan are natural biopolymers. They have no antigenicproperties, and thus are perfectly compatible with living tissue. Their antithrombogenic and hemostatic properties make them very suitable for use in all fields of biology.

- **Cicatrizant:**

Chitosan forms films that are permeable to air. It facilitates cellular regeneration while protecting tissue from microbe attack. In addition, chitosan has been found to have a biostimulant effect on the regeneration of tissue. This property has allowed it to be used in making an artificial skin for skin grafts on high degree burns and in surgical applications such as chitin suture thread.

- **Anticholesterolemic agent:**

Chitosan can trap lipids at their insolubilization pH in the digestive tract. Administered to rats, chitosan considerably reduces the level of cholesterol in the blood.

- **Chelation agent:**

Chitin and its derivatives are remarkable chelation agents. Chitosan is used for a wide range of applications: as a chromatography medium, or for trapping heavy metals, or for water treatment.

- **Biodegradable:**

Chitin and chitosan are biodegradable biopolymers. Enzymes - chitinase and chitosanase - break them down into oligopolymers that are then dealt with by the metabolism.

**Uses of Chitosan:**

**-**[**Cosmetics**](http://www.france-chitine.com/ecosm.html)**:**

Chitin, is an excellent cosmetic product that is remarkably well tolerated by the skin. Its biological tolerance has been demonstrated for a long time. In addition, it is an efficient trapper of heavy metals that are responsible for very many contact allergies; therefore it is really interesting for skin allergies.

Chitin is a particularly effective hydrating agent. It has two advantages: it supplies water and it avoids dehydration. In addition, the great advantage of chitin and its derivatives is the lasting quality of their hydrating effect.

Lastly, chitosan forms a protective tensor film on the skin's surface that can fix other active principles for the skin. Thus other hydrating agents, solar filters, organic acids or other active principles can be combined with the derivatives of chitin. Chitin facilitates their effects.

Chitin and its derivatives allow active principles to be placed in close contact with the skin by means of a medium that is not only a film-forming tensor but is especially hydrating. This is a new double advantage that makes chitosan of great interest in cosmetics.

Therefore chitin and chitosan are now used in skin creams, shampoos, lacquers, varnishes, etc.

**-**[**Environment**](http://www.france-chitine.com/eenvironment.html)**:**

There are more than one technology to remediate to soil pollution by organochloride solvents and petroleum products. Some are ex situ involving excavation and transportation of polluted soil to specialised plant some are in situ involving much lower costs. Among those technologies in situ some are based on utilisation of biological activity and are named soil bioremediation. Bioremediation is founded on soil micro-organisms capacity of braking and consuming organic pollutants and oil residues.

**-Agriculture:**

Chitin and Chitosan have been proven to control numerous pre and post harvest diseases on various horticultural commodities. It has been scientifically demonstrated that both soil and foliar plant pathogens of fungal, bacterial and viral origin may be controlled using chitin and/or  chitosan based products.

- [Water Treatment](http://www.france-chitine.com/etrait.html):

The properties of chitosan enable it to attach itself to a variety of organic contaminants (bacteria, algae, urea, sweat) minerals, metals and oil.  Chitosan therefore dramatically increases the effectiveness of filtration systems, being sand, DE or cartridges, which normally cannot capture fine particles and solved pollutant.

**Applications of chitosan:**

: - Removal of Metal Ions.

Wastewater Treatment

- Coagulant: Protein, Dye, Amino Acids.

Food Industry

: - Removal of Dye, Suspended solids etc.

- preservative

- Colour Stabilization

- Animal Food Additive

Medical

: - Bandages

- Blood Cholestrol Control

- Controlled Release of Drugs

- Skin Burn

- Contact Lens

- etc.

Biotechnology

: - Enzyme Immobilization

- Protein Separation

- Cell Recovery

- Chromatography

- Cell Immobilization

Agriculture

: - Seed Coating  
 - Fertilizer

- Controlled Agrochemical Release

Cosmetics

: - Moisturizer

- Face, Hand and Body Creams

- Bath Lotion

- etc.

Pulp and Paper : - Surface Treatment

- Photographic Paper

Membrane : - Permeability Control

-Reverse Osmosis