

## **Chitin Nanofiber, Chitosan Nanofiber**

Chitin is the main component of crab, shrimp, insect skin and cell wall of bacteria including mushrooms, and these living creatures produce chitin inside their body to maintain their body structure. Chitin is the natural polysaccharides composed of sequential chains of monosaccharide as acetylglucosamine. So that it has similar structure to cellulose as cellulose is composed of multiple numbers of glucose chains. Chitin is the second largest bioresource next to cellulose on the earth.

Chitin nanofiber is the new material made from crab shell. In brief, it can be prepared by making chitin in the nanometer range. Chitin nanofibers are the crystal structure with low defect with stretched chain structure so that they have mechanical strength such as high strength, high elasticity and low thermal expansion coefficient. Therefore, one of application of chitin nanofiber can be reinforcement fiber material. In addition, chitosan nanofiber which can be obtained from chitin, also can be applied as functional coating, additive for glue, sealant, cosmetics, bio-medical use, electronic, optical usage etc...

On the other hand, if one has to define the difference between chitin nanofiber and the plant derived cellulose nanofiber, it is the biocompatibility, biofunction for chitin. Chitin and chitosan have been reported to be good medicine for injured scar, skin damage, fire scar and medical application usage has been researched based on that curing property.

GS Alliance Co.,Ltd. manufacture chitin and chitosan nanofiber in the gel form of nanofiber in water. It is different from chitin and chitosan powder form in the way so that they can be mixed with foods, beverages, cosmetics and for bio medical application etc...

Followings are the application example of chitin and chitosan nanofiber.

1. Increase the moisture and water content of skin.
2. Suppress the inflammation at skin damage and promote the recreation

of bio-tissue.

3. Increase the volume of upper skin layer of healthy skin and recreate the dermal layer of bio-tissue.
4. Protect the skin from outside stimuli.
5. Chitin and chitosan have the effect of promoting hair growth.
6. Chitin nanofiber can be applied as reinforced fiber material owing to its high strength, high elasticity and low thermal expansion coefficient.
7. Mitigate the inflammation by suppressing the production of inflammation related substances by dosing chitin and chitosan nanofiber.
8. Chitin and chitosan nanofiber have diet effect by suppressing the fat accumulation in the body by absorbing bile acid.
9. Suppress the concentration increase of cholesterol and lipids in the blood.
10. Keep the intestine in acidic condition by increasing organic acid which is produced by activating intestinal bacteria.
11. Increase some kind of metabolic substance in blood vessel.
12. Enhance the immune resistivity against bacteria by stimulating natural immune system to the plant.
13. Promote the plant growth.

As described above, chitin and chitosan nanofiber is the great new material with various kinds of remarkable effect.

Please consult with us including technical detail anytime.



Chitin Nanofiber in water

Chitin, Chitosan	0.1 - 1.5 %
Additive	0.01 - 0.5 %
water	95.0 - 99.9 %
viscosity	10.0 - 300000 mPa·s/ 25 °C