



the natural way of weight loss



convenient · safe · effective

weight  
management



- your natural partner for chitosan





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## efficient fat binding

### What is LipoSan Ultra®?

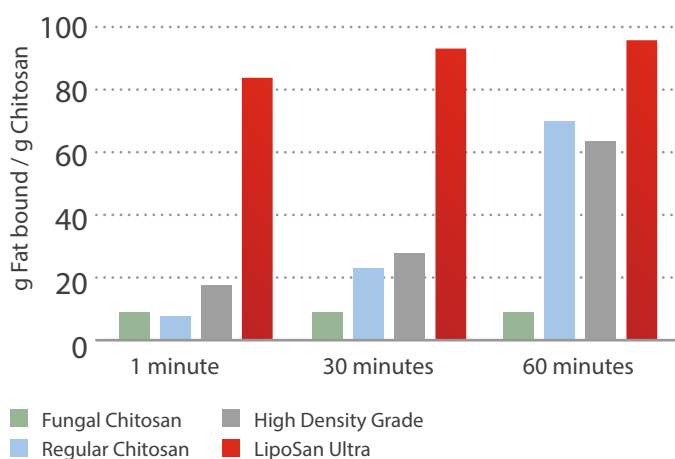
LipoSan Ultra® is a natural dietary supplement ingredient for effective weight management. In the digestive system, LipoSan Ultra® complexes and binds with dietary fat in such a way that it is not absorbed by the body. LipoSan Ultra® is a unique and proprietary dietary fiber formulation, shown to significantly reduce body weight in a human clinical study. The main constituent in LipoSan Ultra® is chitosan, which has been modified and optimized to enhance its solubility in stomach acid and fat binding performance. LipoSan Ultra® is made in Iceland by combining fresh and high quality raw materials and years of manufacturing experience. LipoSan Ultra® is a patented (US Patent #6,130,321) product that also contains succinic acid, a GRAS approved food additive.

### How does LipoSan Ultra® work?

Primex technology makes LipoSan Ultra® a much more convenient and effective weight management supplement than regular chitosan. Chitosan must be completely dissolved in stomach acid in order to efficiently bind and block fat, something that usually takes up to an hour or more for regular chitosan products. In vitro tests have shown LipoSan Ultra® to be more efficient in binding triglycerides than other chitosan products, especially after a short solubilization time (see Figure). The resulting enhanced performance of LipoSan Ultra® is characterized by its rapid solubility in stomach acid, high density and molecular weight, contributing to LipoSan Ultra's greater fat binding capacity. LipoSan Ultra® can be taken at mealtime, in contrast to other chitosan products which are required to be taken at least 30 minutes prior to mealtime.

Viscous fibers, and chitosan in particular, are known to interfere with the dietary fat metabolism, by reducing the absorption of dietary cholesterol and complexing with bile acids, hence lowering serum cholesterol. Unlike other viscous fibers, chitosan becomes positively charged in stomach acid, contributing to enhanced fat absorption. This positive charge is the key element for the higher fat binding capacity of chitosan versus other fibers. In LipoSan Ultra®, the physical structure of the chitosan has been altered, ensuring that the chitosan polymer is open to the rapid protonation of its amine groups which results in its fast solubilization in stomach acid. This is the key to LipoSan Ultra's® superior oil-binding performance compared to other chitosan products which are much more difficult to dissolve in the stomach.

### Fat binding comparison

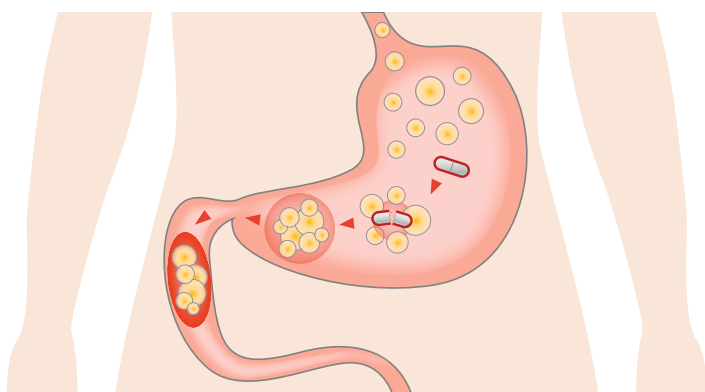




# effective weight management tool

People are getting increasingly conscious about their diet and life style. This has led to an increased consumer demand for convenient weight management and weight loss solutions. Most people are aware that a balanced diet along with physical exercise are important for the general well-being, as well as to reduce the risk of developing lifestyle-related diseases. However, with today's busy life people are looking for efficient and documented dietary supplements to assist in both weight management and weight loss, such as LipoSan Ultra®.

*LipoSan Ultra® can be used with a non-restrictive diet and lead to significant weight loss*



The patented formulation of LipoSan Ultra allows the chitosan polymer to rapidly protonate and quickly dissolve in stomach acid. Once in solution, the positively charged chitosan polymer binds with the negatively charged surface of dietary fat globules that separate from the digesting food. The resulting emulsion subsequently gels when it passes from the stomach to the small intestine, forming a protective matrix around the fat globules.

## Technical advantages:

- More granular in texture than regular chitosan
- With much better flow properties
- With high tap density allowing
  - easier and faster capsule filling and
  - higher fill weights resulting in fewer capsules

## User's benefits:

- Fast acting – dissolves in 3-5 minutes.
- Convenient – can be taken right before meal
- Binds fat up to 5 times more than similar products
- Help maintaining normal blood LDL cholesterol level\*

\*Claim approved by European Food Safety Authority<sup>1</sup>.

## Clinical Study Assessing LipoSan Ultra®

A randomized, double-blind, placebo-controlled study, involving 59 overweight, mildly obese women (21-55 years old), evaluated the efficacy of rapidly-soluble LipoSan Ultra® in facilitating weight loss and reducing body fat<sup>2</sup>. The dosage applied was 1.5 g chitosan as LipoSan Ultra® (3 capsules) taken prior to the two main meals. After 8 weeks, they observed significant weight loss (1 kg) and a reduced body mass index (BMI) in LipoSan Ultra® treated subjects adhering to a non-restrictive diet compared to 1.5 kg weight gain and increased BMI in placebo group. Here, positive results were observed in treated subjects even though there was no modification of the diet. Moreover, no significant changes in functional gastrointestinal and elimination symptoms were reported in either group, but increased water consumption was recommended. A daily dose of 3 g of chitosan is recommended<sup>1</sup>. In conclusion, this study demonstrates the beneficial use of LipoSan Ultra® to consumers who want to lose weight by simple routines and minimal changes of lifestyle.

1. EFSA Journal 2011; 9(6):2214 [21 pp]. doi:10.2903/j.efsa.2011.2214

2. R.N. Schiller, E. Barrager, A.G. Schauss, E.J. Nichols (2001) A randomized, double-blind, placebo-controlled study examining the effects of a rapidly soluble chitosan dietary supplement on weight loss and body composition in overweight and mildly obese individuals. J. Amer. Nutr. Ass. 4(1): 42-49





Primex ehf is an Icelandic marine biotech company and a global leader in sustainable production of a high quality chitosan based ingredients from shrimp shell under the brand names ChitoClear® and LipoSan Ultra®. The products are certified as natural.

Pure source – 100% traceability

The shell of the coldwater shrimp, *Pandalus borealis*, is the raw material for Primex ChitoClear® and Liposan Ultra® chitosan. The shrimps are harvested from the cold and pristine waters of the North Atlantic Ocean where shrimp fishing is controlled by a quota system to ensure a sustainable utilization of natural resources.

In 2012, Primex received “*The Icelandic Innovation Award*” discerned by The Icelandic Centre for Research-Rannis, Promote Iceland, Innovation Centre Iceland and The New Business Venture Fund to a company that has surpassed all others in development of a product or a service that is based on science and research and has been successful in the marketplace. In early 2014, Primex was entitled “*THE STRONGEST IN ICELAND 2013*” as it contributes to the future of the Icelandic economy.



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