

ChitosaCLEAN *colon*

Chitosan dietary fiber with specific binding properties and with bioactive B-Vitamins

Fiber-rich food



Bowel active – Binding – Cleansing – Relieving

ChitosaCLEAN contains chitosan, a purely natural, non-digestible fibre. In-vitro measurements in laboratories chitosan shows a special and universal binding capacity for undesirable substances. Thus, chitosan is bipolar, it is able to adsorb both, polar (water-soluble) and nonpolar (lipid-soluble) substances.

Chitosan is an insoluble fibre

Dietary fibres are characterized by specific binding properties. This applies both to the binding of water-soluble and fat-soluble substances. Dietary fibres contribute to a normal bowel function and can thus support excretion, because the bowel is our most important excretory organ.

Use of ChitosaCLEAN



- as a daily source of dietary fibre
- as a fibre contribution to programs for intestinal regulation
- to support the excretory and body own detox
- for smokers, professional groups suffering from toxic burden, environmental burdens
- at meals, which are rich in saturated or heated fats

Moreover, the consumption of at least 3 g chitosan daily can have a positive effect on cholesterol formation and on blood pressure.



Recommended intake

Take 2 g, i. e. 3 capsules, once a day with sufficient good quality water, preferably at least 20 minutes before a meals.

For application in programs for gut regulation and excretion, we recommend temporarily 2 x 3 capsules, in the morning and in the evening – sober or according to instructions.

Nutrients ChitosaCLEAN *colon*
per 3 capsules (daily recommendation)

	Per 2 g (3 Caps.)	Per 100 g	
Energy/ calorific value	4 kcal (18 kJ)	232 kcal (970 kJ)	--
Fat	0 g	0 g	--
» thereof saturated Fatty Acids	0 g	0 g	--
Carbohydrate	< 0.1 g	2.1 g	--
» thereof sugar	0 g	0 g	--
Fiber	1.5 g	75 g	--
Protein	0,3 g	16 g	--
Salt	< 0.01 g	< 0.1 g	--
Vitamin B1	1.1 mg	58 mg	100 %
Vitamin B2	1.4 mg	74 mg	100 %
Vitamin B6	1.4 mg	74 mg	100 %
Folate	200 µg	10,526 µg	100 %
Vitamin B12	2.5 µg	132 µg	100 %
Vitamin C	75 mg	3,950 mg	94 %
Chitosan	1,500 mg	75,000 mg	--

RDA: % of the Recommended Daily Amount

Chitosan is a naturally occurring biopolymer

Chitosan is a giant molecule, a polyaminosaccharide comprising thousands of interlinked nitrogen-containing “sugar building blocks.” It is produced from chitin by means of alkaline or enzymatic breakdown processes. Chitin was first described in 1811 by Henri Braconnot. The French botanist, chemist and pharmacist conducted experiments with fungi. He put mushrooms of the species *Agaricus volvaceus* with caustic potash, and thereby obtained a substance which he named fungin, since he had obtained it from mushrooms. In 1823 Antoine Odier was able to detect the same substance in insects. Since the term fungin thus no longer seemed to be meaningful, he named fungin in chitin. Chitin is derived from the Greek word *chitōn*, which means “shell” or “casing”.

In Nature, chitin is widely spread – in the realm of animals and in the realm of mushrooms and plants. Chitin is ubiquitous as “wood of cells”. After cellulose – a remarkably similar polysaccharide and main component of plant cell walls and – chitin is the second most common carbohydrate on earth – and a rapidly renewable raw material.

Especially mushrooms are becoming a growing source of chitin for chitosan production. With a content of up to 45 %, chitin is present in algae, in lower mushrooms such as algae fungi and yeasts, as well as in higher pillar fungi such as armillaria, porcini, champignon or oyster mushroom. This chitin raw material is extracted and converted into chitosan by chemical or enzymatic deacetylation. This preserves many of

chitin's valuable properties, such as the haemostatic, antibacterial, antifungal, immune-stimulating and pain-relieving effects that have been used by primitive peoples for thousands of years. However, chitosan also emerges with new properties and has long been viewed in science as somewhat of a "Wunderkind". In order to make the fermentation process economical for the production of chitosan, mushroom mycelia are increasingly being worked up, which are produced as a by-product of the mushroom industry.

Our **PlaistCLEAN** contains chitosan from oyster mushrooms. **ChitosaCLEAN colon** consists of chitosan from Crustacean.

Binding undesirable substances in environmental technology

The finishing process turns the neutral molecule chitin into a kind of magnet. A key factor here is the high amount of reactive amino groups contained in chitosan, which are able to bind different metal ions selectively (Kurita et al., 1979; Randall et al., 1979), for example, cadmium, copper, uranium, mercury and chromium (Eiden et al., 1980). In environmental technology, chitosan is therefore a popular and well-established choice for treating waste water: it can bind metals by adsorption and form complexes that are difficult to dissolve and therefore easy to filter out. In terms of cleaning power, chitosan is similar to the synthetic flocculants used on a large scale in wastewater technology – the difference being that chitosan is non-toxic and biodegradable. The disadvantage is that chitosan is much more expensive, given the complex and time-consuming nature of obtaining the substance. Nonetheless, it shows great potential in the field of treating drinking water.

But chitosan can do even more. In agriculture and the food industry its antimicrobial and antifungal effect is put to good effect, for example, to preserve food, fruit and vegetables, in animal feed or seed treatment. Chitosan works as a natural insecticide and inhibits fungal growth biologically and without any chemical battering.

A better metabolic availability by biologically activated vitamins

In addition, **ChitosaCLEAN** contains the for gut nutrition important vitamin B complex. The nutritional implications of B vitamins are particularly important for cell nutrition in the mucous membranes, especially for energy production (B1, B2, B6, B12, biotin, niacin, pantothenic acid), macronutrient utilization (biotin), cell protection (B2), protein synthesis (B6), cell division and cell preservation or regeneration (folate, B12, niacin), is particularly important for our intestinal cells because they have to renew extremely quickly.

In **ChitosaCLEAN fungus** we provide the biologically active forms methylcobalamin (B12), pyridoxal phosphate (B6) and methylfolate (B9). "Biologically active" means that the vitamins are already present in a physiological form, as they occur in the organism and fulfil their tasks there forms therefore have a better absorption and biological availability in the metabolism.

Vegetarians and especially vegans have additional needs for biologically active forms since these are mainly contained in meat, in particular when also dairy products and eggs are despised. However, elderly people whose metabolic functions often are slowed down can suffer easily from B12 or folic acid deficiency, since it is no longer absorbed sufficiently from the diet.

Methylcobalamin is one of the two bioactive coenzyme forms of vitamin B12, which are actually used by our organism. Only methylcobalamin and adenosylcobalamin have a direct effect on the metabolic processes – all other forms of vitamin B12 have to be converted by the body into these bioactive forms in order to be effective as coenzymes.

Compared to common cyanocobalamin, methylcobalamin shows a significantly better cellular uptake. Although the blood values for cyanocobalamin are initially even higher than for methylcobalamin. However, a large portion of the cyanocobalamin is excreted unused shortly thereafter, while methylcobalamin is transported directly to the cells and increases the cellular B12 level. Especially in the central nervous system, B12 is used for the function of the nervous system as well as the synthesis of neurotransmitters.

Also, important are its functions for error-free cell division and DNA synthesis.

Methyfolate is the natural form of folic acid in the organism. Folic acid is a synthetic compound that does not have a vitamin function and does not exist in nature. Folic acid has to be converted into folate in the liver and thus biologically activated. However, the activation step does not always work due to reduced enzyme activity. When the body is supplied with folate as a biologically active coenzyme form, both uptake and bioavailability are much higher.

Folate (called folic acid) plays a key role in all growth and development processes of the cells, is actively involved in DNA replication and is particularly needed during pregnancy for the healthy development of the embryo. In combination with vitamin B12 and iron, folate contributes to the formation of blood, furthermore to the amino acid and protein synthesis and the function of the immune system.

Pyridoxal phosphate is the activated coenzyme form of vitamin B6 and occurs in this form also in nature. The water-soluble B-vitamin is involved in over 100 enzymatic reactions, especially in the amino acid and protein metabolism. As a coenzyme, it can primarily support neurotransmitter synthesis and thus provide an emotional balance. In addition, activated vitamin B6 has a positive effect on nervous and immune system functions.

Ingredients

Chitosan from crustaceans (75%) from Chinese origin, capsule shell: hydroxypropylmethylcellulose, calcium L-ascorbate (vitamin C), pyridoxal-5-phosphate (vitamin B6), thiamine hydrochloride (vitamin B1), riboflavin-5-phosphate (vitamin B2), methylfolate (5-MTHF), methylcobalamin (vitamin B12)

Content

90 capsules (59 g). Sufficient for 30 day.

Chitosa**CLEAN** *colon* can be obtained from:



Legal note: This product is for nutrition and therefore does not affect any Drug Act of any country. A good nutritional status can help the organism prevent or to overcome diseases. All statements describe characteristics and physiological effects, which can be different for consumers, and do not constitute a healing or health promise. Many of the claims used are evaluated by the European Food Safety Association (EFSA).

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