



**LAPI**  

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**COLLAGEN  
PEPTIDES**

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**LAPI GELATINE**



# LAPI

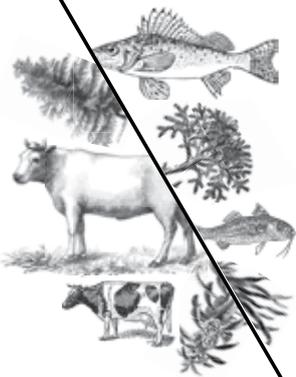
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## COLLAGEN PEPTIDES

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Collagen peptides are a versatile source of protein and an important element of healthy nutrition. Their nutritional and physiological properties promote the health of bones and joints, and contribute to beautiful skin. The product Lapi Collagen Peptides can be obtained from fish skin gelatine (Fish Collagen Peptide) or from bovine skin gelatine (Bovine Collagen Peptide). The raw material for the production of collagen peptides is gelatine derived from animals skin. The first step is to obtain the gelatine from the collagen, which is naturally present in the skin of animals: this is achieved through chemical treatment, extraction in water and purification. With the use of an enzyme, gelatine

### FISH



### BOVINE

#### Raw Material

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The raw material for the production of collagen peptide is the skin of bovine and fish: the skin is washed and treated with alkali and acid to prepare it to the next step, the extraction



#### Extraction

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The collagen which is naturally present in the skin, is extracted by hot water; the extraction process is a step-by-step process done by increasing the temperature of water till boiling.

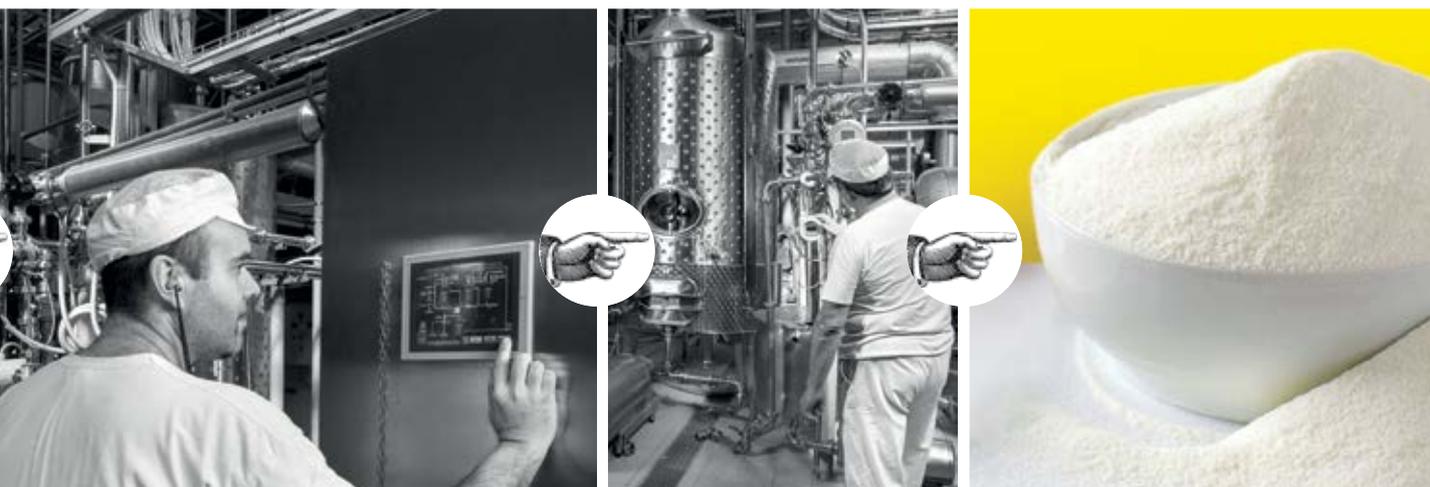


#### Purification

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After the extraction the collagen is in water solution ready to be purified using filtration, ultra filtration and ionic exchange resins.

is then hydrolysed to collagen peptide. Collagen peptides are small molecules with an average molecular weight of about 1.000 – 3.000 Daltons. Peptides have an average number of amino acids included between 2 and 100 and are characterized by excellent cold-water solubility and even in highly concentrated solutions they do not form a gel. Collagen peptide compared with other hydrolysed proteins such as soy or whey, does not have a bitter taste that needs to be masked in the final product. Furthermore, in contrast to other proteins (milk, soy, etc.), collagen peptide is not known to have an allergenic potential.



### **Concentration**

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The solution of collagen is concentrated using a steam/vacuum concentrator; in order to reach the right concentration for the drying step.

### **Enzymatic process**

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Using an enzyme the molecule of collagen is cut into little peptide.

### **Finished product**

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The solution is ready to be dried through a spray drier. The collagen peptide is packed in bags of 15 kg. After the controls carried out by our Quality Control Department, the product is ready for our customers.



Lapi Collagen Peptides have been specifically developed to deliver multiple health benefits and functional properties. Numerous scientific studies, have demonstrated the ability of the collagen peptide to promote healthy living and benefits in key areas such as:

### **Promoting skin beauty from within**

Promoting skin elasticity, suppleness and hydration. Collagen peptides are scientifically proved to be a powerful anti-aging ingredient. Research suggests that the ingestion of collagen peptides triggers the synthesis of new collagen fibres, supporting skin tissue structure and mechanical strength. (1)

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### **Keeping moving maintaining healthy joints, bones and muscle**

Staying active and healthy for longer is key to maintaining a good quality of life, as we get older. Lapi Collagen Peptide can help to prevent the negative effects of osteoarthritis, osteopenia (loss of bone mass) and sarcopenia (loss of muscle mass). Lapi Collagen Peptide can help to promote chondrocytes (cartilage cells) synthesis, producing increased aggrecan and collagen type 2, the two main components of cartilage.(2) This can reduce the cartilage-degrading effects of osteoarthritis. Research has also indicated that collagen peptides could be more effective than whey protein in preserving muscle mass during the consumption of an older person's typically low protein diet. (3)

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### **Sports and active nutrition, weight management**

Multiple studies demonstrate the benefits collagen peptides provide for sports recovery after exercise and in fitness/weight management programs, making it the clear choice for use in balanced protein blends for sports and active nutrition. Collagen peptides are recognized as an effective supplement to maintain and restore the protein content of muscles following exercise.(4) With the number of obese and overweight people on the increase, solutions that offer a satiating benefit are also in demand. Collagen Peptide, as a pure protein, has an appetite suppressing effect, which may be helpful in weight management programs.

(1) Matsuda N. et al., 2006, Effects of ingestion of collagen peptide on collagen fibrils and glycosaminoglycans in the dermis, *Journal of Nutritional Science and Vitaminology*, 52:211-215

(2) Oesser S. And Seifert, J., 2003, Stimulation of type II collagen biosynthesis and secretion in bovine chondrocytes cultured with degraded collagen, *Cell Tissue Research*, 311:393-399

(3) Hays et al., 2009, Effects of whey and fortified collagen hydrolysate protein supplements on nitrogen balance and body composition in older women, *Journal of the American Dietetic Association*, 109:1082-1087

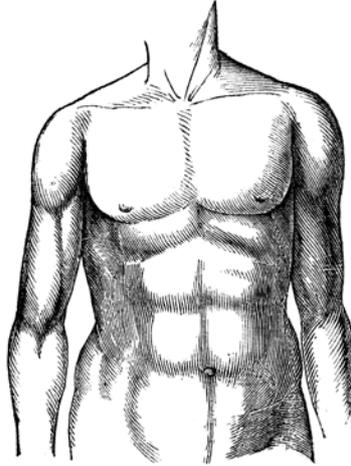
(4) AFSSA, 2007, Protein intake: dietary intake, quality, requirements and recommendations 13 Paddon-Jones D. et al., 2004, Potential ergogenic effects of arginine and creatine supplementation, *The Journal of Nutrition*, 134 (10):28,885-28,945





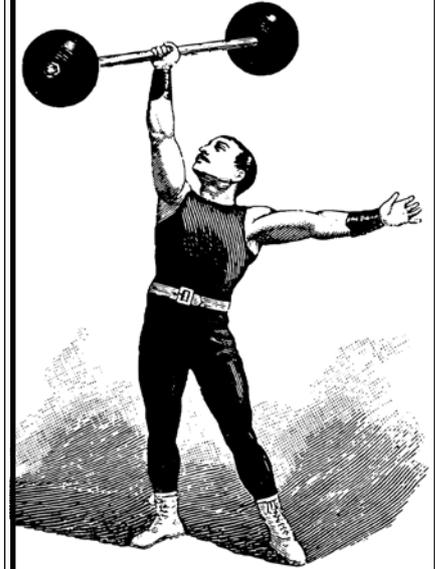
### Neutral in taste & odour

Lapi Collagen Peptides delivers excellent organoleptic properties, imparting no distortion in the taste or odour of finished products – even when used in high concentration.



### Digestible and bioavailable

Unlike native collagen, Lapi Collagen Peptides are highly digestible and bioavailable. Studies have demonstrated that over 90% of Collagen Peptides are digested and available in connective tissues within a few hours of ingestion. This rapid availability ensures the effective delivery of essential peptides and amino acids to the body.



### Sports Nutrition

Multiple studies demonstrate the benefits collagen peptides provide for sports recovery after exercise and in fitness/weight management programs, making it the clear choice for use in balanced protein blends for sports and active nutrition. Collagen Peptide, as a pure protein, has an appetite suppressing effect, which may be helpful in weight management programs.



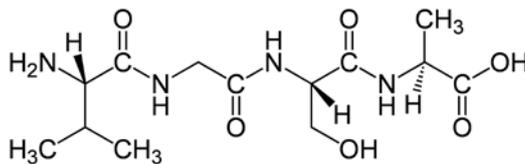
### Bone Health

Lapi Collagen Peptide can help to prevent the negative effects of osteoarthritis, osteopenia (loss of bone mass) and sarcopenia (loss of muscle mass). This can reduce the cartilage-degrading effects of osteoarthritis. Research has also indicated that collagen peptides could be more effective than whey protein in preserving muscle mass during the consumption of an older person's typically low protein diet.



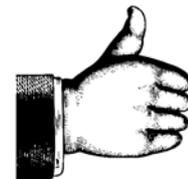
### Skin Health

Promoting skin beauty from within; promoting skin elasticity, suppleness and hydration. Collagen peptides are scientifically proved to be a powerful anti-aging ingredient.



### Amino acid composition

Lapi Collagen Peptide are characterized by a combination of 18 key amino acids, with a particularly high concentration of glycine and proline/hydroxyproline, type I collagen peptides, the same collagen that is found in human bones and skin.



### No negative side effects

In contrast to other ingredients that are beneficial to joint health, collagen peptide has no negative side effects.

# Fish and Bovine Collagen Peptide

## Technical characteristics

### Product description

Collagen peptide is a white odourless powder, neutral in taste and easily soluble in cold liquids. The collagen peptide is made by hydrolysis process from type I collagen. The same collagen as that found in human bones and skin. It is a natural product containing more than 94 % protein (on a dry weight basis), contains 18 amino-acids, including 8 out of 9 essential amino-acids. It is characterized by the predominance of glycine, proline and hydroxyproline, which represent around 50 % of the total amino-acid content. This specific composition of amino-acids provides collagen peptides with functional properties that cannot be found with other protein sources.



### Technological properties

- Excellent solubility
- Heat-stability
- Stable against food acids
- Brilliant clarity
- No precipitation or flocculation in liquid applications
- Low viscosity
- Neutral in taste and odour

### Applications

**Nutricosmetics:** skin health is the cornerstone of the "Beauty from Within" movement.

**Cosmetics:** collagen peptides products for topical personal care applications.

**Food Bars:** collagen peptides improve texture in hi-protein formulations.

**Beverages:** dry-mix and ready-to-drink beverages are an ideal platform for collagen peptides.

**High-Protein Foods:** little impact on food texture, with improved texture found in protein bars.

**Sports Nutrition:** stable protein in ready-to-drink formulas with minimal impact on overall flavor profile.

**Tablets:** the powders can be used in direct compression applications.

STANDARD PARAMETERS	SPECIFICATIONS
AVERAGE MOLECULAR WEIGHT	1.000 - 3.000 Da
PROTEIN CONTENT (on dry matter)	> 94%
pH	5,0-6,5
TURBIDITY	< 50 FTU
MOISTURE	< 8%

RESIDUE LIMITS	
ASH CONTENT	< 2%
ARSENIC	< 1.0 ppm
CADMIUM	< 0.5 ppm
CHROMIUM	< 10 ppm
COPPER	< 30 ppm
MERCURY	< 0,15 ppm
LEAD	< 5.0 ppm
ZINC	< 50 ppm
SULFITES (SO <sub>2</sub> )	< 10 ppm
PEROXIDES	< 10 ppm

MICROBIAL LIMITS	
TOTAL AEROBIC COUNT	< 1.000 CFU/G
E. COLI	Absence in 10 g
SALMONELLA	Absence in 25 g
ANAEROBIC SPORES	< 10 CFU/G
YEAST AND MOULD	< 100 CFU/G

## Nutritional values

BASIC NUTRIENT	TYPICAL QUANTITY FOR 100 g OF PRODUCT
CALORIES:	
from Protein	360 Kcal
from Fat	0 Kcal
from Carbs	0 Kcal
Total	360 Kcal (1507 KJ)
AMINO-ACIDS	TYPICAL BREAKDOWN AS: AA/1000AA
Alanine	79.1
Arginine	99.5
Aspartic acid	32.9
Glutamic acid	66.8
Glycine	233.01
Histidine*	9.2
Hydroxyproline	105.8
Isoleucine*	14.8
Leucine*	31.3
Lysine*	42.3
Methionine*	16
Phenylalanine*	21.3
Proline	153.3
Serine	35.7
Threonine*	28.6
Tyrosine	5.7
Valine*	24.7

\* essential amino-acids



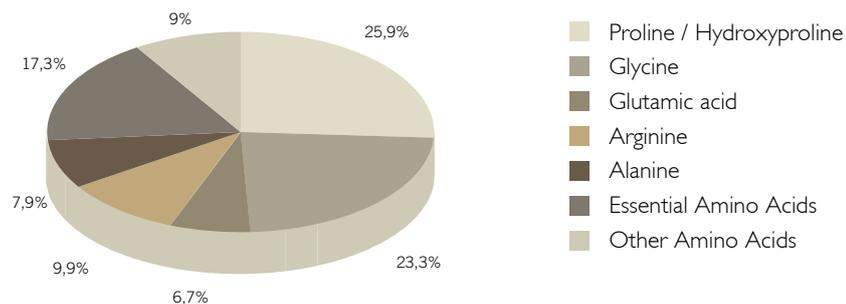
### PACKAGING

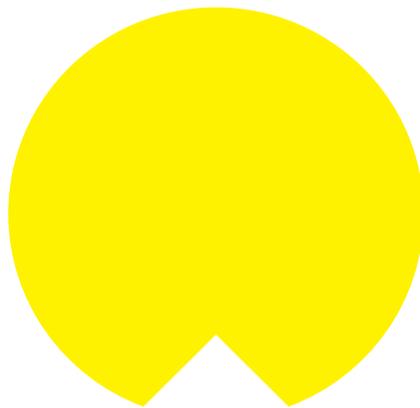
Bag weight: 15 Kg.

### STORAGE AND SHELF LIFE

Goods are better stored in their original unopened packaging, at room temperature. The initial properties of the goods remain unaltered for at least 5 years if the storage conditions are observed.

## Typical breakdown of amino-acids in the collagen fraction:





## LAPI GELATINE

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ACCREDITED



### **Certifications**

- ISO 9001-2008
- Kosher
- The production process complies with the GMP