KOKEN

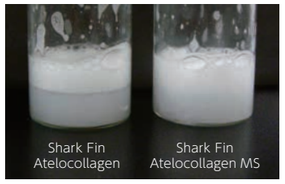
Domestically produced collagen similar to baby collagen

Shark Fin Atelocollagen

(soluble collagen, succinoyl atelocollagen, and myristoyl succinoyl atelocollagen)

Amphipathicity of Shark Fin Atelocollagen MS

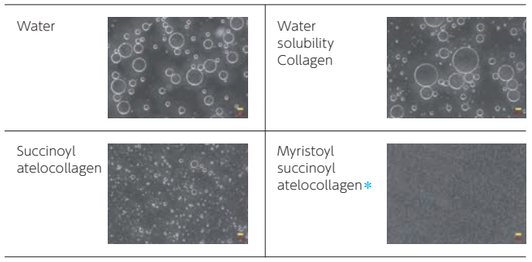
Ten grams of 0.1% collagen solution was added to 0.1 g of face wash foam. A vial was shaken 100 times and left to stand. In five minutes, the outer appearance was observed.



Based on in-house data

Microscopic observation Bar:50μm

A 0.8% collagen solution, PEG 400, and olive oil were mixed at a 1:1:1 ratio. Then, the mixture was stored for four days at 25℃.



The emulsion stability was only recognized with Shark Fin Atelocollagen MS.

*Oil droplets with a diameter of a few micromillimeters were only observed with Shark Fin Atelocollagen MS.

Based on in-house data

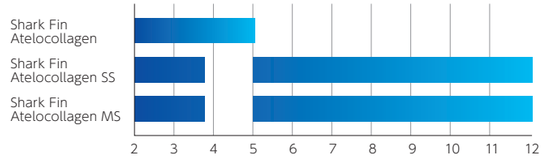
Compatibility of Shark Fin Atelocollagen MS

The compatibility was checked when 0.2% Shark Fin Atelocollagen MS and each cosmetic raw material were mixed at a 1:1 ratio and stored at room temperature.

Raw material (final concentration)	Immediately after mixing	1 mo. later
0.01% sodium hyaluronate	○	○
10% glycerin	○	○
0.1% sodium alginate	○	○
0.1% xanthan gum	○	×
5% ethanol	○	○
30% butylene glycol	○	○
5% pentylene glycol	○	○
5% propanediol	○	○

Based on in-house data

Relationship between pH and solubility



Based on in-house data

Recommended formulation ratio: 1%　　Safety evaluation　Human Repeat Insult Patch Test (HRIPT): Negative

Product number	Product name	INCI name ／中文名称	Other ingredients	Package
AFN-221	Shark Fin Atelocollagen 1% PE	SOLUBLE COLLAGEN 可溶性胶原	Citric acid, sodium citrate, phenoxyethanol, water	1kg
AFS-121	Shark Fin Atelocollagen SS 0.3% PE	SUCCINOYL ATELOCOLLAGEN 琥珀酰缺端胶原	Disodium phosphate, potassium phosphate, phenoxyethanol, water	
AFS-221	Shark Fin Atelocollagen SS 1% PE			
AFV-121	Shark Fin Atelocollagen SS-V 0.3% PE		Disodium phosphate, potassium phosphate, phenoxyethanol, cellulose gum, water	
AFM-521	Shark Fin Atelocollagen MS 0.8% PE	MYRISTOYL SUCCINOYL ATELOCOLLAGEN 肉豆蔻酰琥珀酰/端胶原	Disodium phosphate, potassium phosphate, phenoxyethanol, water	

The Country of origin: Japan　The place of Origin: Miyagi Pref.

Commitment to material procurement

Domestically produced raw materials

We use fins of blue sharks landed at Kesennuma, Miyagi. Traceability has been established for the raw material to ensure reassurance and safety.

Effective use of materials (sustainability)

We use inedible shark fins. We give consideration to the environment in the procurement of cosmetic raw materials.

Ethical consumption

Kesennuma boasts the largest landings of sharks in Japan. In cooperation with local food product companies, we will support the creation of a recycling-based society and future-oriented production of cosmetics.

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Domestically produced collagen similar to baby collagen

Shark Fin Atelocollagen

Atelocollagen is a hydrophilic protein with a high moisture-retaining property. Shark-fin-derived atelocollagen is natural marine atelocollagen that contains rare homotrimer collagen (elastoidin). We offer three types of atelocollagen for different uses in cosmetic products. Choose the appropriate one according to its type.

Basic type
Soluble collagen

Atelocollagen has the original triple helix structure of collagen while the telopeptides, which are responsible for allergic reactions, are removed.

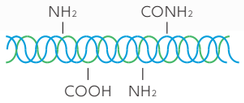
SS type
Succinoyl atelocollagen

The collagen features increased solubility by bonding moisturizing ingredients. It protects the skin from irritants such as surfactants.

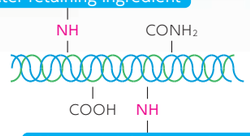
MS type
Myristoyl succinoyl atelocollagen

The novel collagen is produced by combining lipophilic ingredients and moisturizing ingredients with collagen using our unique technology. Recommended for cleansing items because it maintains a moisturizing effect even after being washed away.

Basic structure of atelocollagen

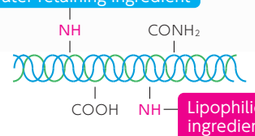


Water-retaining ingredient



Water-retaining ingredient
-CO-CH_2-CH_2-COOH Succinoyl group

Water-retaining ingredient



Lipophilic ingredient
-CO-$(CH_2)_{12}$-CH_3
Myristoyl group

Contains the rare ingredient elastoidin

Elastoidin is a type of rare collagen that can be only found in shark fins. It has a homotrimer structure with functions similar to Type III collagen. Shark fin atelocollagen contains collagen ingredients, about 50% of which is elastoidin.

General atelocollagen

Contains a single type of collagen

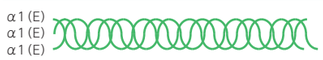
Type Ⅰ collagen

Shark Fin Atelocollagen

Contains two types of collagen

Type Ⅰ collagen

Collagen similar to Type Ⅲ collagen (Elastoidin)



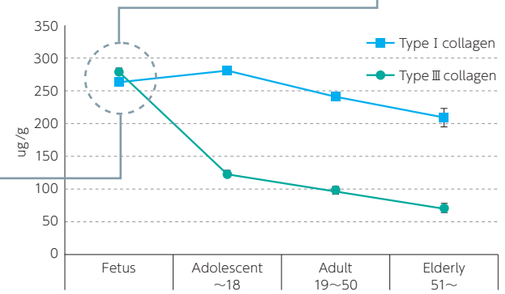
about 50% : about 50%

■ Type Ⅲ collagen

It is generally called baby collagen because it is generated in a large quantity during the fetal period. In a baby's skin,

Type Ⅰ collagen and Type Ⅲ collagen exist in a 50:50 ratio.

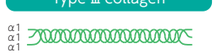
They form the base for finely textured, elastic skin.



Type Ⅰ collagen

Comprises two kinds of protein (heterotrimer)

Type Ⅲ collagen



Comprises a single kind of protein (homotrimer)

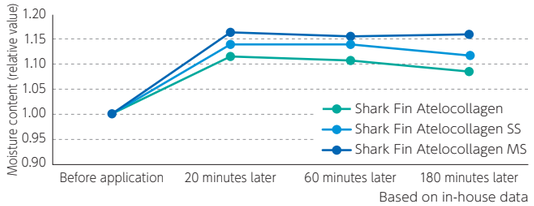
Measured values cited from African Journal of Biotechnology Vol. 10(13), pp. 2524-2529, 28 March 2011

Moisturizing effects on the skin and results of sensory evaluation (human testing)

Each test article of shark fin atelocollagen showed moisturizing effects. In particular, Shark Fin Atelocollagen MS was found to continuously retain a higher amount of moisture in the horny layer (the long-term effect). Select Shark Fin Atelocollagen for toning, Shark Fin Atelocollagen SS for softness and springiness, or Shark Fin Atelocollagen MS for softness.

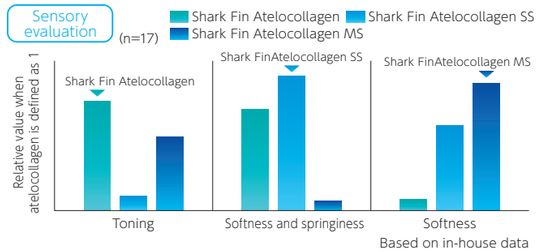
Testing methods: After washing the face with soap, 50 μL of each sample was applied to the entire face. Then, the moisture content in the horny layer was determined. Chronological relative changes were calculated while the moisture content in the horny layer before use was set to 1.

Moisture content (test sample: a general emulsion formulation containing 1% of each raw material) (n=2)



Based on in-house data

Sensory evaluation (n=17)



Based on in-house data

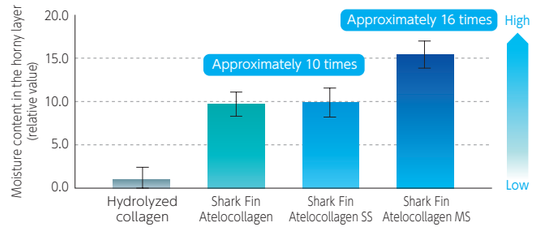
Adhesiveness to the skin and moisturizing effects (human testing)

■ Moisturizing effects after cleansing

Each shark fin atelocollagen presented moisturizing effects about 10 to 16 times higher than hydrolyzed collagen and suggested high adhesiveness to the skin. In particular, Shark Fin Atelocollagen MS is expected to maintain moisture longer because it is difficult to wash away completely.

Testing methods: Each sample was applied on the inner part of the forearm and washed away with water. Then, the forearm was wiped dry. After 15 minutes, moisture content in the horny layer was measured to check changes. Relative values were calculated while moisture content in the horny layer with hydrolyzed collagen was set to 1.

Relative changes in moisture content in the horny layer 15 minutes after cleansing (concentration of collagen: 0.01%)



Based on in-house data

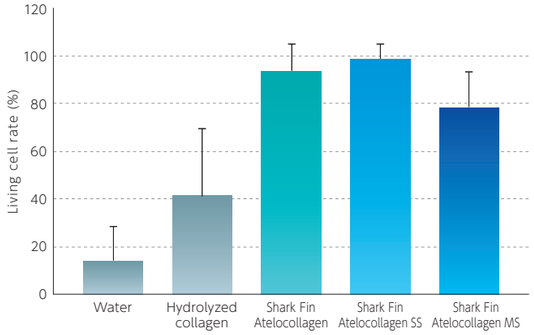
Skin protecting effects (cell testing)

■ The effect of alleviating stimuli on activators

All types of shark fin atelocollagen were shown to protect the skin from external stimuli.

Testing methods: SDS, a stimulant, was applied on the artificial skin that was cultured after the application of each sample. The cultivation continued after cleansing. The living cell rate was determined using an MTT assay.

Comparison of living cell rates (concentration of collagen: 0.05%)



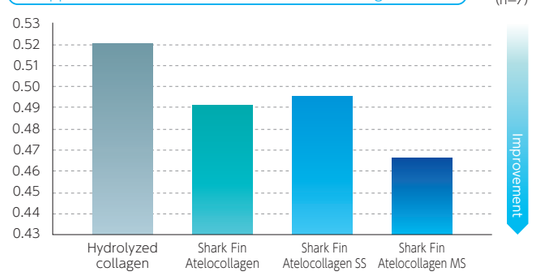
Based on in-house data

Skin barrier and skin recovering effects (human testing)

Each shark fin atelocollagen will suppress transepidermal water loss when applied to the skin. It is expected to improve the skin barrier function. The skin recovered more obviously from chapping after application of Shark Fin Atelocollagen MS.

Testing methods: The chapped skin was prepared, each sample was continuously applied at least once a day, then TEWL was measured on day 7.

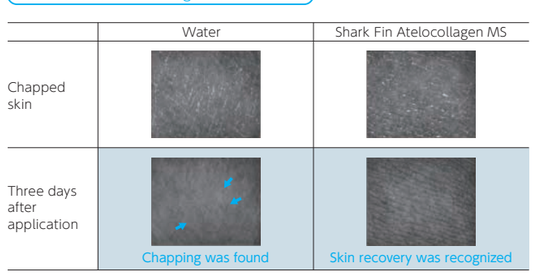
Relative value after seven days of continued application with chapped skin defined as 1 (concentration of collagen: 0.01%) (n=7)



Based on in-house data

Testing methods: The chapped skin was prepared and Shark Fin Atelocollagen MS was continuously applied at least once a day. Three days later, the skin was visually checked and compared on VISIOSCAN images.

Visually checked on VISIOSCAN images (concentration of collagen: 0.01%)



Based on in-house data