

A guide to biopolymers



What are biopolymers?

Proteins are complex nitrogen-containing substances comprised of amino acids, which are the components of all living matter. Proteins are large macromolecules, also known as biopolymers, found in nature in an insoluble form, which can be processed to create ingredients that provide functional benefits from natural derivation.

Sources

Natural protein sources

Nature offers a wealth of protein sources for use in hair and skin care applications. Here are some examples of the protein sources that Croda utilise:



Wheat



Silk



Soy



Pea



Keratin



Potato



Milk



Oat

What benefit do biopolymers provide?

Croda's biopolymers are functional natural products proven to deliver multiple benefits to both hair and skin including:



Moisturising



Conditioning & detangling



Damage protection



Damage repair



Style retention



Softening



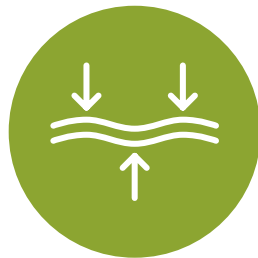
Wear resistance



Hair strength



Volume



Anti-frizz



Thickening



Anti-irritancy



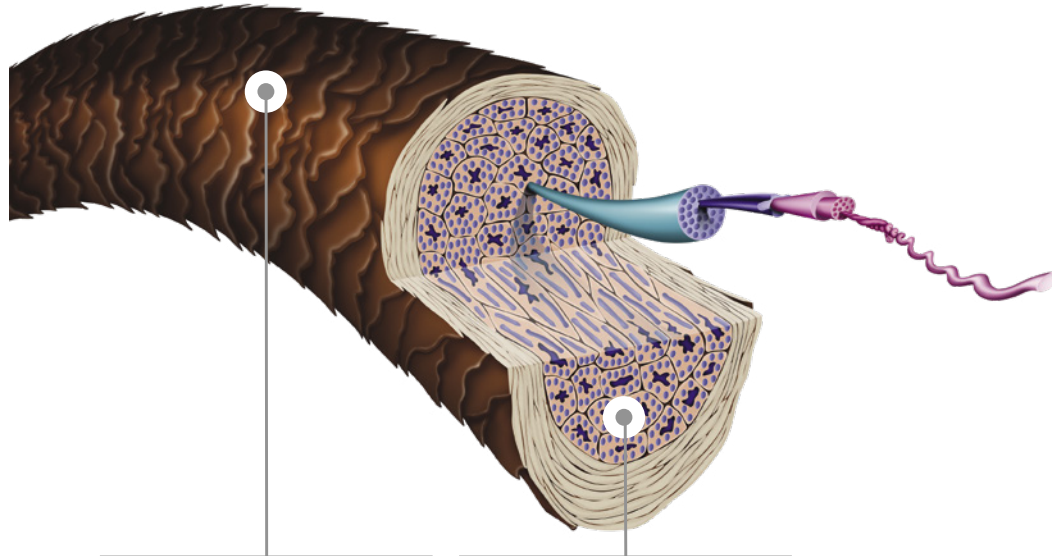
Skin firmness & tightening



Skin smoothing

How are they used?

To make proteins useful for personal care applications, they are processed via hydrolysis to make peptides or amino acids, also known as protein hydrolysates. Various methods of hydrolysis exist, and each method influences the length of the peptide chain and therefore the molecular weight. As a result, this determines the properties of the resulting protein hydrolysate.



For hair care, our protein biopolymers can impart a variety of benefits to the cuticles, the cortex or both.

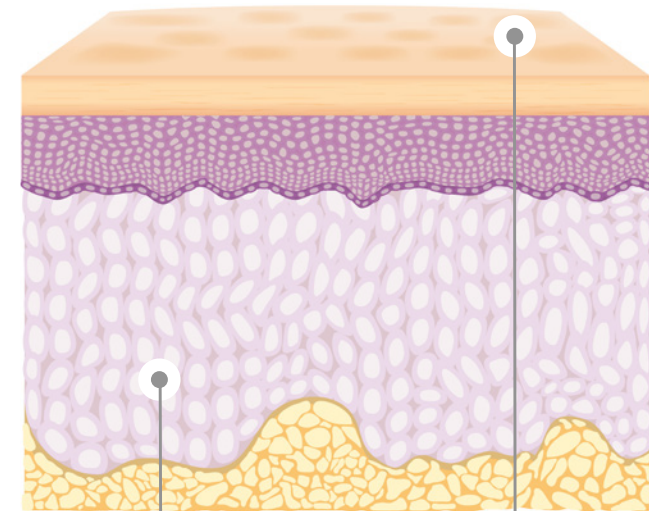
Cuticle

The hair cuticle is under constant attack from everyday styling, chemical processes, and UV exposure which all directly affect the look, feel and condition of the hair. Our high molecular weight proteins can form a shield for the hair, protecting it from aggressors, as well as providing effective conditioning to prevent rough and un-manageable hair.

Cortex

Providing integrity, strength and flexibility to the hair, the hair cortex can easily become dehydrated through everyday stress and strain. Our low molecular weight proteins can penetrate the hair fibre to provide moisture and impart plasticity and manageability.

For skin care, our protein biopolymers provide moisture and counteract age related loss of skin suppleness.



Low MW

Lower molecular weight proteins have the ability to penetrate the epidermis to bind moisture and hydrate from within.

High MW

Higher molecular weight proteins form films on the surface of the skin to prevent trans-epidermal water loss.

What do Croda offer?

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At Croda, our expertise is in processing natural protein sources into functional ingredients which provide impressive benefits for products used in hair and skin care applications.

We offer a wide range of protein hydrolysates, including acid, alkaline, enzyme, as well as their derivatives including quaternised and acylated proteins and protein co-polymers.

Find out more about our biopolymer range on the next page.

Source	Product name	INCI	Application	Benefits	Technical information						
					Average molecular weight (Da)	Preservative system	Other additives	Typical active level (%)	Vegan suitability*	Natural origin content (%) (ISO 16128)	IECIC approval**
Cashmere	Crotein™ Cashmere PE	Aqua (and) Hydrolyzed Keratin		Moisturising / conditioning & detangling	150	Potassium Sorbate, Phenoxyethanol		20		97	✓
Collagen	Collasurge™	Aqua (and) Collagen Amino Acids		Moisturising / conditioning & detangling	150	Phenoxyethanol, Potassium Sorbate	Ethylhexylglycerin	15		99	✓
Corn	Mirustyle™ MFP PE	Aqua (and) Hydroxypropyl Trimonium Hydrolyzed Corn Starch		Style retention / anti-frizz	250,000	Phenoxyethanol	Disodium EDTA	20	✓	90	
Cotton	Prolevium™	Aqua (and) Hydrolyzed Cottonseed Protein		Moisturising	800	Potassium Sorbate, Phenoxyethanol	Disodium EDTA	20	✓	96	✓
Cystine	Crodasone™ Cystine	Aqua (and) Cystine Bis-PG-Propyl Silanetriol		Damage protection / damage repair / conditioning & detangling / style retention	20,000	Phenoxyethanol	Ethylhexylglycerin	15	✓	N/A	✓
Milk	Hydrolactin™ 2500	Hydrolyzed Milk Protein		Moisturising / conditioning & detangling / softening	1400	None - powder		100		100	✓
Oat	Hydroavena™ HpO	Aqua (and) Hydrolyzed Oats		Moisturising / conditioning & detangling	1000	Sodium Benzoate, Potassium Sorbate		25	✓	98	✓
Oat	Cromoist™ O Powder	Hydrolyzed Oats		Moisturising / conditioning & detangling	1000	None - powder		100	✓	100	✓
Pea	Hydrosativum™ P	Aqua (and) Hydrolyzed Pea Protein		Moisturising / damage protection / skin firmness & tightening / anti-irritancy	1500	Phenoxyethanol, Potassium Sorbate		20	✓	98	✓
Pea	Crodasone™ P	Aqua (and) Hydrolyzed Pea Protein PG-Propyl Silanetriol		Damage protection	50,000	Phenoxyethanol		20	✓	90	
Silk	Crosilk™ Liquid	Aqua (and) Silk Amino Acids		Moisturising / conditioning & detangling / softening	150	Imidazolidinyl Urea, Sodium Benzoate		16		99	✓
Silk	Crosilk™ Powder	Serica Powder [EU]/Silk Powder [US]		Moisturising / conditioning & detangling / softening	500,000	None - powder		92		100	✓
Silk	Crosilk™ Protein Complex NSP	Aqua (and) Hydrolyzed Silk		Moisturising / conditioning & detangling / softening / wear resistance	300	Sodium Benzoate		13		100	✓
Soy	Hydrososy™ 2000	Aqua (and) Hydrolyzed Soy Protein		Moisturising / conditioning & detangling	2000	Phenoxyethanol, Potassium Sorbate		20	✓	97	✓
Vegetable (pea and potato)	KeraMatch™ V	Aqua (and) Hydrolyzed Pea Protein (and) Hydrolyzed Vegetable Protein		Hair strength	900	Sodium Benzoate, Potassium Sorbate		20	✓	99	✓
Vegetable (potato)	Prolevis™	Aqua (and) Hydrolyzed Vegetable Protein		Skin smoothing / skin firmness & tightening	10,000	Phenoxyethanol, Sodium Benzoate, Potassium Sorbate	Ethylhexylglycerin	12	✓	73	✓
Vegetable (potato)	Hydrosolanum™ PE	Aqua (and) Hydrolyzed Vegetable Protein		Moisturising / conditioning & detangling / damage protection	750	Potassium Sorbate, Phenoxyethanol	Disodium EDTA	20	✓	98	✓
Vegetable (potato)	Keravis™ PE	Aqua (and) Hydrolyzed Vegetable Protein PG-Propyl Silanetriol		Hair strength / damage protection	1800	Phenoxyethanol, Potassium Sorbate	Disodium EDTA	15	✓	98	✓
Wheat	Crodasone™ W PE	Aqua (and) Hydrolyzed Wheat Protein PG-Propyl Silanetriol		Moisturising / conditioning & detangling / damage protection / damage repair	50,000	Phenoxyethanol		25	✓	90	✓
Wheat	Cropeptide™ W PE	Aqua (and) Hydrolyzed Wheat Protein (and) Hydrolyzed Wheat Starch		Moisturising / conditioning & detangling / hair strength	1500	Phenoxyethanol, Potassium Sorbate		20	✓	94	✓
Wheat	Hydrotritricum™ WAA	Aqua (and) Wheat Amino Acids		Moisturising / softening	150	Potassium Sorbate, Phenoxyethanol	Disodium EDTA	16	✓	96	✓
Wheat	Voluminis™	Aqua (and) Ethyltrimonium Chloride Methacrylate/Hydrolyzed Wheat Protein Copolymer		Volume / anti-frizz / softening	250,000	Phenoxyethanol, Potassium Sorbate	Disodium EDTA	20	✓	<50	
Wheat	Hydrotritricum™ PVP PE	Aqua (and) Hydrolyzed Wheat Protein/PVP Crosspolymer		Moisturising / conditioning & detangling / skin firmness & tightening	40,000	Potassium Sorbate, Phenoxyethanol	Disodium EDTA, Ethylhexylglycerin	22	✓	<50	✓
Wool	Crotein™ WKP PE	Aqua (and) Hydrolyzed Keratin		Moisturising / conditioning & detangling / softening	600	Phenoxyethanol, Potassium Sorbate		23		93	✓
Wool	Kerestore™ 2.0	Aqua (and) Laurdimonium Hydroxypropyl Hydrolyzed Keratin		Conditioning & detangling / damage repair / hair strength / thickening	1200	Phenoxyethanol		20		86	✓
Wool	Kereffect™ SD	Aqua (and) Hydrolyzed Keratin		Damage protection / style retention	300	Phenoxyethanol, Potassium Sorbate	Sodium Metabisulfite	23		94	✓
Wool	ProSina™	Aqua (and) Hydrolyzed Keratin		Hair strength / moisturising	3000	Phenoxyethanol, Potassium Sorbate, Sodium Benzoate		10		81	✓

Key: Hair Skin Hand & Nails

*Can be considered generally suitable for vegan, however, as there is no single definition nor a global standard certification, if you are interested in making a vegan claim, please request our Vegan Suitability statement for specifics on this product, and compare with the certification(s) you are seeking to meet.
 ** Compliant with IECIC (Inventory of Existing Cosmetic Ingredients in China). All cosmetic products sold in China must comply with both IECIC and IECSC, further information regarding IECSC chemical inventory compliance can be provided upon request.

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Further information

Croda sales and distribution are coordinated through an extensive worldwide network of associates and agents. If you would like product samples, formulation advice, or technical assistance, please contact your nearest Croda regional office, visit www.crodapersonalcare.com or email pc-europe@croda.com

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