

FK Repair UltraTM



The Ultimate In
Natural Hair Repair

Keraplast

keraplast.com



Keratin is a natural wonder.

Keratin proteins are the building blocks of life and are vital to the biology and physiology of every animal on our planet.

Keratin is the key structural material making up hair, wool, feather, nails, horns and the outer layer of skin. It protects the surfaces of internal organs from damage or stress, and it is one of the toughest biological materials in the world.

Keratins play a physical role in maintaining cell structure as well as a biological role helping cells make a range of essential proteins for healthy skin structure.

Chinese herbalists have known about the beneficial properties of keratin for over 500 years, using a substance made from the ground ash of human hair to heal wounds and clot blood. But it wasn't until the 1930s that scientists demonstrated that there are actually many different types of keratin, with different molecular weights and different properties.

At Keraplast, we unlock the power of keratin proteins from regeneratively grown wool so that these can be redeployed as beneficial bioactive ingredients. Our proprietary Functional Keratin® technology platform has evolved from decades of scientific research, including over 20 years of fundamental and applied keratin science. We have the technological capability to accurately and skillfully recover a range of specific keratin proteins, with specific molecular weights, that have specific beneficial properties.

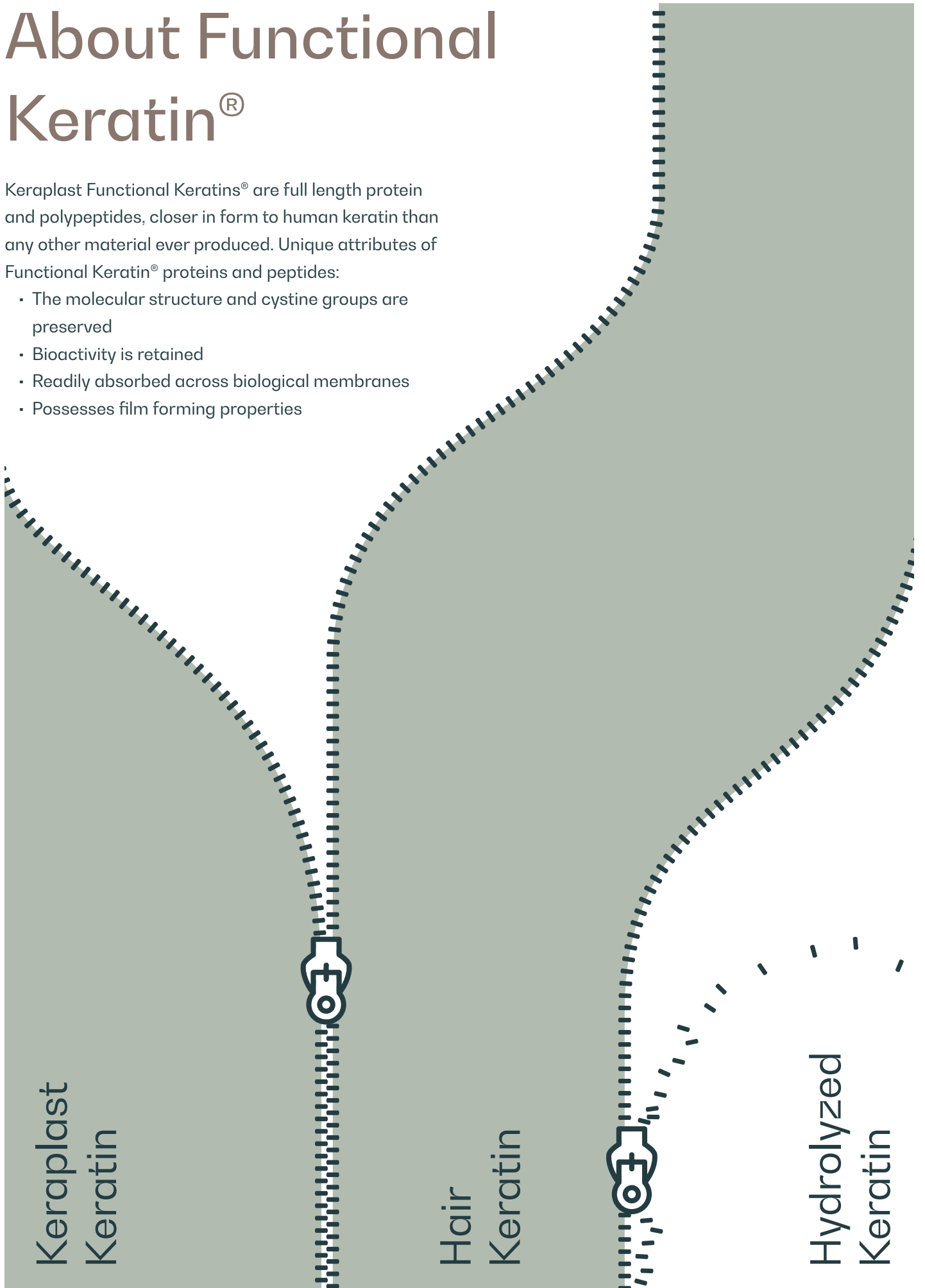
We are world experts in bioactive keratin recovery and formulation.



About Functional Keratin®

Keraplast Functional Keratins® are full length protein and polypeptides, closer in form to human keratin than any other material ever produced. Unique attributes of Functional Keratin® proteins and peptides:

- The molecular structure and cystine groups are preserved
- Bioactivity is retained
- Readily absorbed across biological membranes
- Possesses film forming properties



Keraplast
Keratin

Hair
Keratin

Hydrolyzed
Keratin



How Functional Keratin[®] Works

Functional Keratin[®] has high cystine content

- Strong homology with human keratin, a core component of skin
- Maintains structure of hair, nails and skin
- Repairs damage

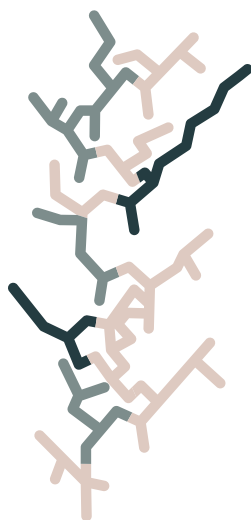
Functional Keratin[®] has specific amino acid sequences binding to hair strongly

- Similar to a zip structure
- Electrostatic bonding
- Hydrophilic and hydrophobic bonding

Superior to poorly functioning hydrolyzed keratin in the market Molecular Weight 1,000 Da (Peptide) to 60,000 Da (Film Former)

- Biological activity well established
- Anti-aging, anti-pollution activity well established
- Collagen production demonstrated
- Protects and controls the amino acid cystine

Functional Keratin

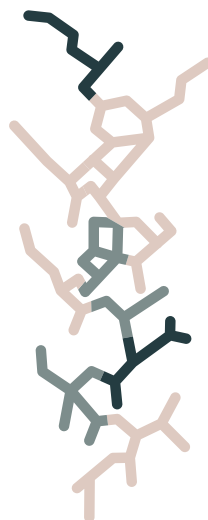


+ve to -ve

hydrophobic

+ve to δ -ve

Hair Keratin

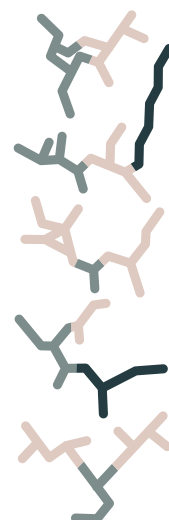


+ve to -ve
disrupted

weakened
hydrophobic

+ve to δ -ve
disrupted

Hydrolyzed Keratin





Functional Keratin® Vs Hydrolyzed Keratin Fragments

	Functional Keratin®	INCI Hydrolyzed Keratins
Functional Protein	Y	N
Proprietary amino acid sequences matched to skin structure	Y	N
Full length protein and peptides that form a sacrificial shield to prevent skin damage	Y	N
Stimulates mTOR pathway within cells, increasing synthesis of structural proteins	Y	N
Reduces redness associated with inflammation of sensitive skin	Y	N
Contains highly potent anti-oxidants to protect against pollutants and UV induced free radical damage	Y	N
Data showing quantitative and qualitative improvements in hair and skin	Y	N
Guaranteed sourced from pure NZ Wool, no harm to animals	Y	N
Patent protected	Y	N



FK Repair Ultra™

The ultimate
in natural hair
repair

Introducing the ultimate natural repair ingredient to improve the strength and appearance of damaged hair, and at the same time offset more damage. All while holding onto color longer.

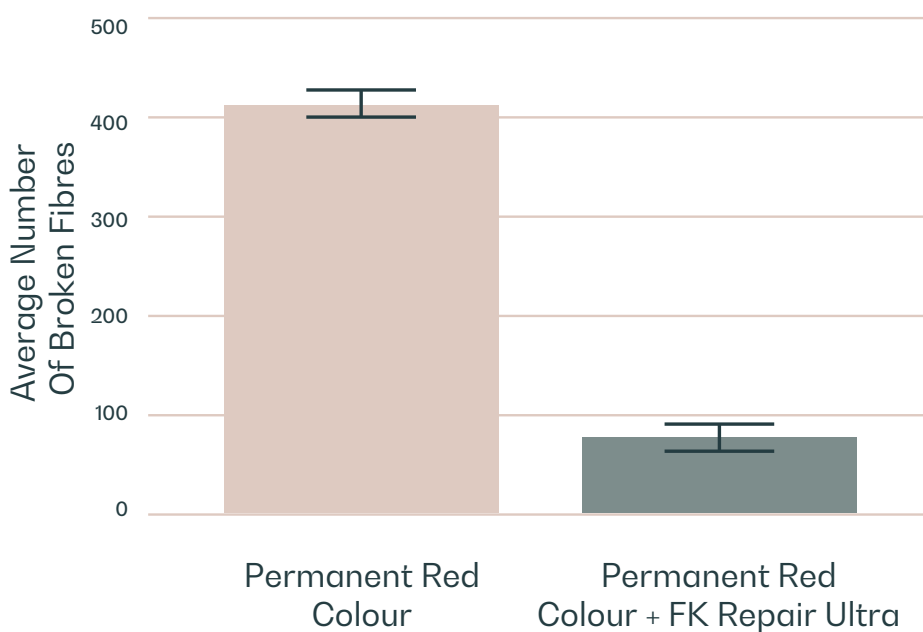
Use of FK Repair Ultra™ as part of bleach, color or perm

- Reduces color fade
- Improves strength
- Increases moisturization



Use in a permanent color process

Decreases breakage of colored hair by 82%



Combing breakage (dry*)

*From 1600 combing strokes

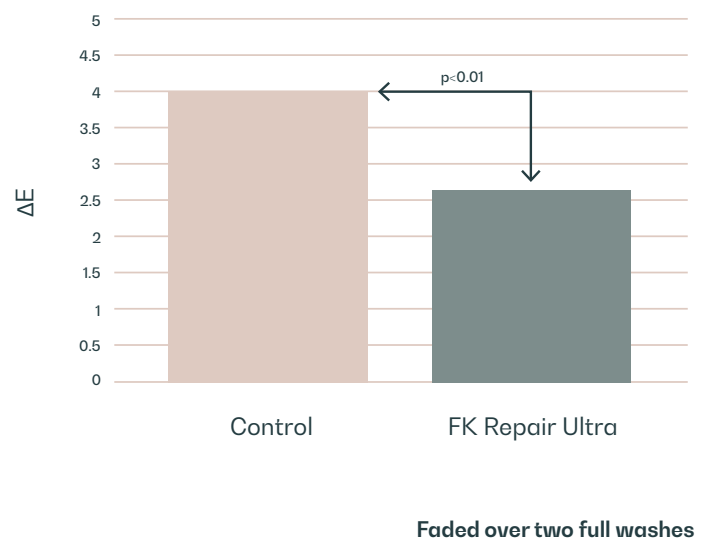
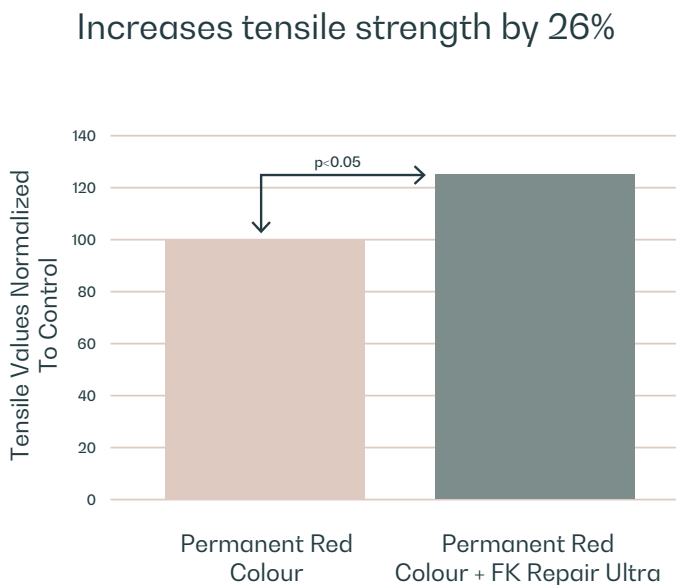


Mechanism Of Action

- Hair structure is disrupted during damaging hair treatments such as bleach, color or perm, creating “gaps” in the structure allowing for ingress of higher molecular weight active ingredients.
- Oxidized keratin homology to hair allows multiple forms of bonding within damaged fibers that mimic natural interactions.
- Increased flexibility and extensibility leads to better sensorial properties and a more natural feel while holding color for longer.

Use in a permanent color process

Decrease color fade by 55%





FK Repair Ultra™

A 20 person sensorial panel reported that FK Repair Ultra™ creates hair that is:

- Better nourished
- Stronger
- Shinier
- Softer

Anti-Aging

FK Repair Ultra™ brings more than just the repair of damaged hair to your formulations. With the ability to significantly reduce color fade your products will lead to hair that feels better and looks better for longer. Retain flexibility of the hair fibre, decreasing brittleness caused by color and bleaching. Improve color hold by developing formulations that work within the fibre and produce a natural feel.

Function Hair Repair and Color Longevity.

Composition Oxidized Keratin.

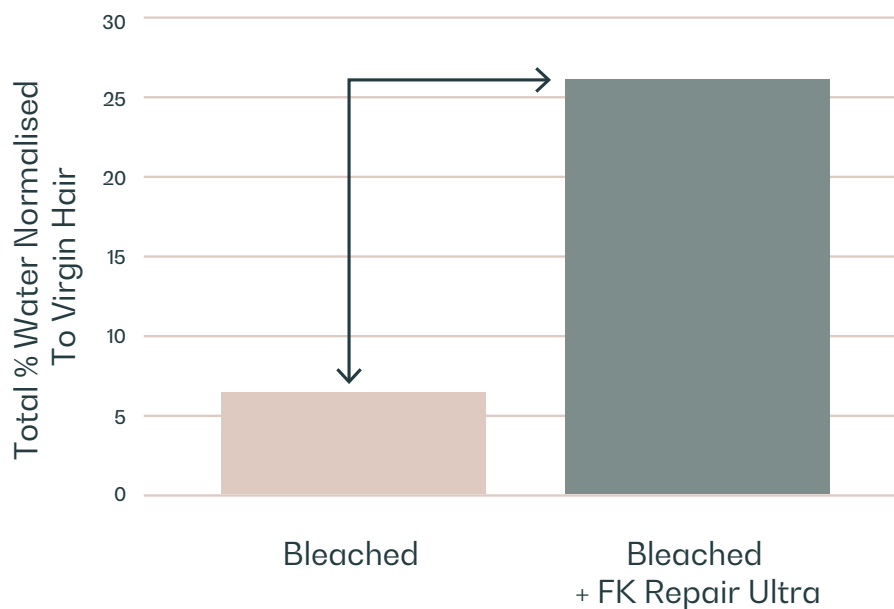
Physical Form Brown hazy solution. Low odor.

Inci Name Oxidized Keratin.

Applications Repair, Bonding Treatments, In-Color products, Shampoo, Conditioner, Masks.

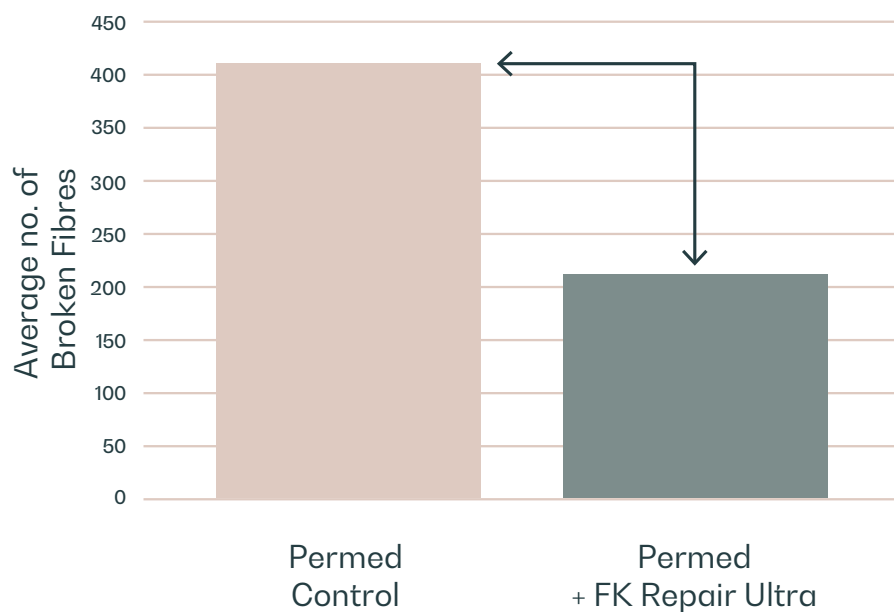
Formulations Can be formulated into a broad range of hair care systems. Some care required in combination with cationic species, and higher pH is preferred at high inclusion levels.

Typical Usage Levels 1% - 3%



Use in a bleach process - increases moisture by

20%



Use in a permanent treatment process - decreases breakage by

50%

About Keraplast

Keraplast is a world-leading biotechnology company. We recover bioactive keratin proteins from regeneratively farmed New Zealand wool and blend these bioactive proteins together to create unique, branded ingredients that are used in the world's leading beauty and personal care products.

We approach the future curiously, pushing ourselves forward whilst contributing to something larger than ourselves. Something that truly matters. Enhancing the future of food and wellness.

We have a long-term vision to be a regenerative business, giving back more than we take. Our ambition is to propel the company beyond sustainability and into regeneration: shifting from a business that “does less harm” into a business that “does more good”.

We know that this will be hard, but we also know that this is right. We are up for the challenge



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