Pure Keratin™

Pure Keratin™ : polypeptide obtained by the hydrolysis of keratin protein which composed of 20 amino acids

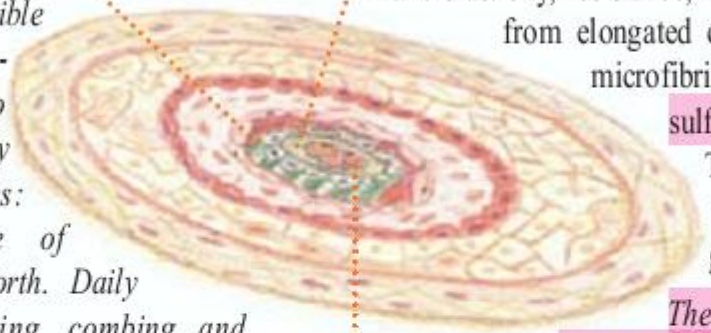
Apperance : clear light amber color

Unique features , display splendid effects in hair care products *protection and restoration*

HAIR STRUCTURE

The cuticle: it is the most external layer, consisting of cornified cells known as scales. Polyhedral, flat, non-pigmented and without nuclei, they overlap each other from the root to the tip.

The cuticle is responsible for mechanical protection of the hair. It also contributes to many cosmetic qualities: shine, feel, ease of combing, and so forth. Daily grooming, shampooing, combing and drying, as well as environmental stress (e.g., UV radiation, salt, chlorine from swimming pools, pollution) continuously alter the hair cuticle. It looses protein matter and the scales dissociate, resulting in increased porosity.



The cortex: it is the inner body of the fiber, responsible for the mechanical properties of the hair: elasticity, resistance, waving… It is formed from elongated cells made of keratin microfibrils held together by a sulfur-rich protein matrix. These cells contain the melanin pigments that give hair its color.

The cortex is damaged by capillary treatments; bleaching and permanent waving processes involve degradation of the melanin and/or the keratin. In such operations, loss of disulfur bonds and increase in negative charges are multiplied (creation of SH and SO_3H functions), deeply destabilizing the keratin tridimensional structure.

The medulla: located in the center of the hair, it is made of lightly pigmented cells without nuclei. It is present in discontinuous form along the fiber, and sometimes is completely absent in fragile hair.

References :http://www.gattefosse.com/Haircare

KERATIN PROTEIN

Keratin : fine structure and metabolism later than other protein

*Compose Mostly of **"Cystine"***

Cystines tie the chaines though di-sulfide bond

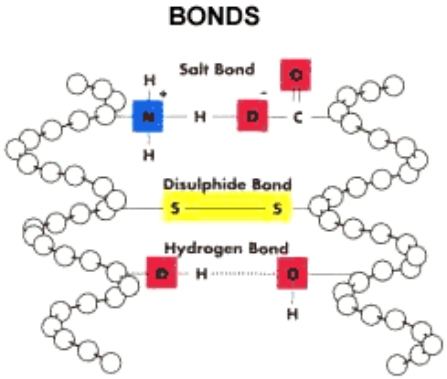
Firmly maintain stable structure by 3 powers

-hydrogen bond : oxygen and hydrogen

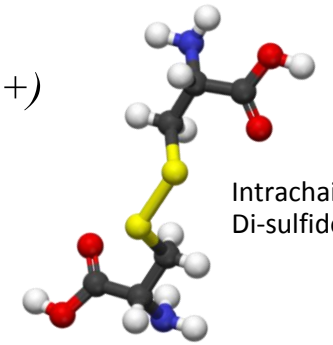
-ion bond : acid side chain (-CO2)

and basic side chains (-NH3+, NH2+)

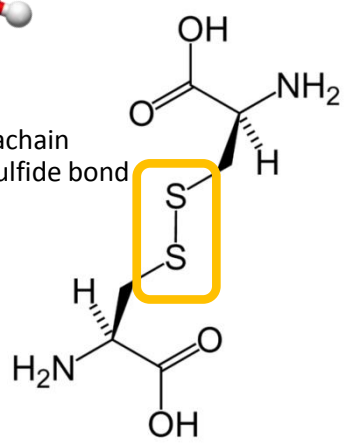
-Van der Waals



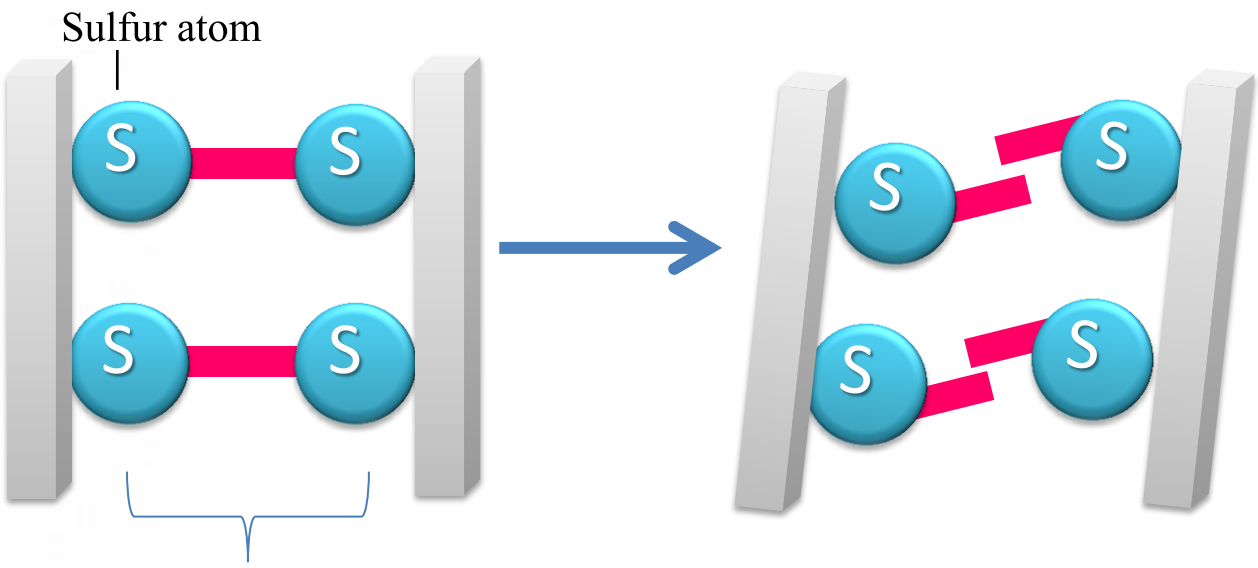
Interchain
Di-sulfide bond



Intrachain
Di-sulfide bond



Di-sulfide Bonds



Normal Hair Bond

Damaged Hair

Pure Keratin™

Cystine Damaged >>> the oxidizer in the bleach lotion and neutralizer, cold wave treatment >>> cystain, cysteic acid (irreversible)

Amino acid composition

Amino acid	mol %	Amino acid	mol %
Alanine	5.97	Methionine	···
Glycine	8.82	Arginine	9.79
Valine	6.15	Histidine	0.66
Leucine	7.63	Lysine	3.30
Isoleucine	2.80	Aspartic acid	3.62
Proline	8.36	Glutamic acid	9.46
Phenylalanine	1.70	Hydroxyproline	···
Tyrosine	1.47	Hydroxylsine	···
Serine	10.76	Half-cystine	10.22
Threonine	8.97	Cysteic acid	0.32

USE & EFFECT

Pure Keratin™ protect and restore human hair from permanent wave treatment or bleaching or dyeing treatment

(1) Polypeptide in the Pure Keratin™ combine with hair the cystine included in the polypeptide.

(2) Polypeptide in the Pure Keratin™ is absorbed by and stick to hair firmly. *Recommended to be used in*

Permanent wave treatment

Hair bleach treatment

Hair dye treatment

Hair shampoo

All around of hair treatment

And protect damaged hair them restore it to glossy and lusty hair