

HAIR REMOVERS

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HAIR REMOVERS



DEPILATORIES

EPILATORIES

Mechanical

Chemical

For removing unwanted hairs. Several methods like waxing threading etc...

Other various methods are electrolysis

- **Epilation:** remove the **hair bulbs** or the **hair papillae** , This may create a relatively **long pause** before the hair starts growing in the follicle and reaches the surface of the skin.

EPILATION



- epilatory preparations were based on mixtures consisting:
 - ❖ resin and beeswax
 - ❖ mineral or vegetable oil may be included
 - ❖ Camphor is often included for its cooling effect
 - ❖ A local anaesthetic, for example, benzocaine or butyl PABA, can enhance this effect, and an antibacterial compound will reduce the chance of infecting the skin after damage or exposure
- flexible backing strip: can be applied cold
- mixture of glucose and zinc oxide or a honey, sugar, and citric acid mixture



Formula 32.16 Epilating Wax

	%
Rosin	75.0
Beeswax	25.0

Formula 32.17 Epilating Wax

	%
Rosin	52.0
Beeswax	25.0
Paraffin	17.0
Petrolatum	5.0
Perfume	1.0

Procedure: Melt the rosin and waxes, mix, and add the petrolatum; when the temperature drops to about 60°C, add the perfume and pour the melted mass into suitable molds. When this wax is used it is melted and painted over the surface to be dehaired.

Epilating Wax

	Parts
Rosin	1700
Vegetable oil	900
Triethanolamine	100
Benzoin gum	10
Balsam tolu	10
Lemongrass bouquet	5
Butyl PABA	10
Alcohol	5

CHEMICAL DEPILATION

- For degradation of superficial hair chemically without **injury to the skin**
- chemical depilatories have the apparent advantage that they **discourage the regrowth of hair** if they are applied regularly
- Contain **alkaline solutions** and **reducing agents**.
- **Mechanism:**
 - Which cause **swelling of hair fiber** and **breakdown of cystine bridges** between adjacent polypeptide chains.
 - compounds break the disulfide bonds in keratin and also hydrolyze the hair so that it is easily removed.
- **The product should:**
 - 1) be nontoxic and nonirritant to the skin
 - 2) be harmless to clothing
 - 3) be stable on storage
 - 4) remove hair rapidly, preferably in 4-6 minutes
 - 5) preferably be odorless



1) Sulfides:

- based on **alkali and alkaline earth sulfides** are capable of producing **rapid depilation**, particularly if used together with a **suspension of lime**

➤ **Inorganic Sulphides :**

- a) **Sodium sulphide**: dilute **(2%) aqueous solution** of sodium sulfide will have a **pH of 12** (not used due to strong action on skin), action **within 6-7 minutes**
- b) **Barium sulphide**: highly **toxic**
- c) **Calcium sulphide**: **less toxic, less effective.**
- d) **Strontium sulphide**: much **milder** depilatory , but must be used at a **higher concentration** than sodium sulfide, **better choice.(25-50%)** action within **3 min.**

- ## ➤ **Disadv:** **unpleasant odour** (formation of hydrogen sulphide), Make **dry skin**

➤ A depilatory preparation may contain:

- a humectant such as glycerin or sorbitol
- A thickening agent (e.g., methylcellulose) may sometimes be incorporated, so as to thicken the solution sufficiently to allow it to remain in contact with the hair as long as necessary.

Formula Sulfide Depilatory

	<i>%</i>
Strontium sulfide	20.0
Talc	20.0
Methylcellulose	3.0
Glycerin	15.0
Water	42.0

2) Stannites

- **Sodium stannite** is commonly used
- **low odor**
- In presence of water it produces **strong reducing and alkaline effect**
- instable in the presence of water

3) Mercaptans

- ❖ The majority
- ❖ slowness in attacking, take 5-15 min for hair removal
- ❖ most economical and effective active agent
- ❖ nontoxic and stable
- ❖ Used in conjugation with alkali
- ❖ 2.5 – 4% of calcium thioglycolate in conjug with CaOH at pH 11-12.
- ❖ Less toxic and less odour than sulphides. but take longer to act, can therefore be used on the face
- Thioglycolates :
 - ❖ calcium thioglycolate
 - ❖ thiolactic acid, 3-mercaptopropionic acid, or thioglycerol replace thioglycolate.

Depilatory Cream

	%
Coconut alcohol	6.5
Calcium thioglycolate	5.4
Calcium hydroxide	7.0
Sodium lauryl sulfate	0.02
Sodium silicate	3.43
Perfume	q.s.
Water	to 100

Procedure: Heat the water to 70°C. With stirring add the lauryl sulfate and fatty alcohol; continue stirring until melted and dispersed. Discontinue heating and cool, stirring until room temperature. Add the calcium hydroxide and perfume. Add the calcium thioglycolate and stir until uniform.

Powder Depilatory

	%
Calcium thioglycolate	20.0
Calcium hydroxide	23.1
Strontium hydroxide	8.9
Sodium lauryl sulfate (powder)	1.5
Hydroxyethylcellulose	1.0
Magnesium carbonate	45.2
Perfume	0.3

Procedure: Mix the calcium thioglycolate, calcium hydroxide, strontium hydroxide, sodium lauryl sulfate and hydroxyethylcellulose. Blend the perfume thoroughly with the magnesium carbonate. Add the latter to the former and blend thoroughly. (This formula contains a much higher level of thioglycolate than is currently permitted for sale within the EEC.)

4) Enzymes

- ❖ **Nonirritating and odorless**
- ❖ A **keratinase**, isolated from **Streptomyces Fradiae**
- ❖ **slow** depilatory action
- ❖ **3-4%** is used and **optimum pH is 7-8**

Other additives

❖ Humectant :

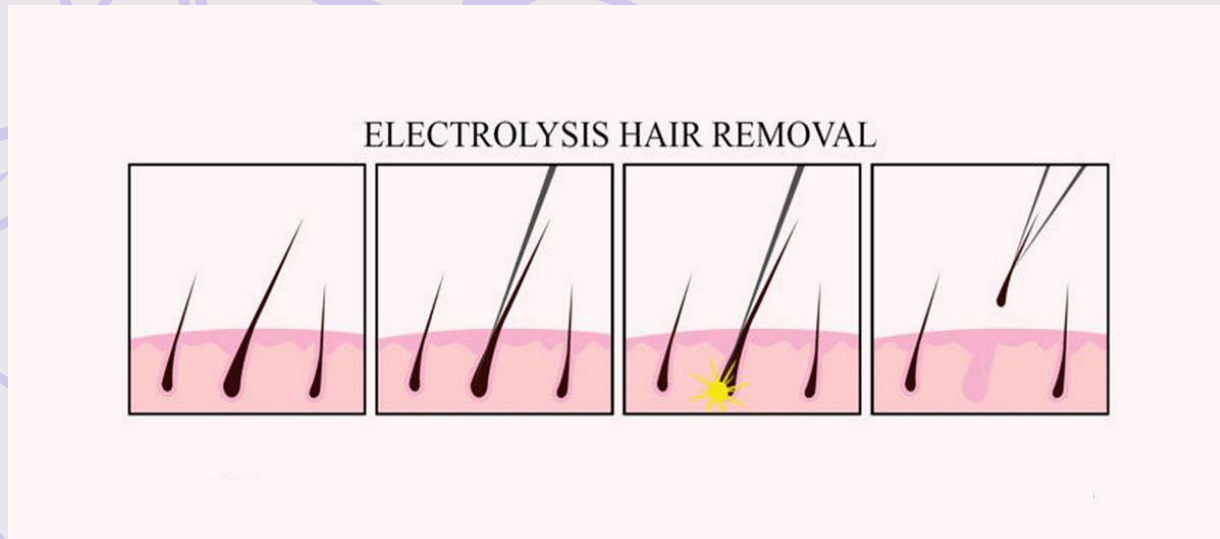
- ❖ prevent quick drying , Glycerin, Sorbitol

❖ Thickening Agent:

- ❖ Starch, Methylcellulose, Mucin.
- ❖ PEG used to form film.
- ❖ Fat used for skin protection & conditioning.

ELECTROLYSIS

- The **most effective** method of hair removal is undoubtedly **electrolysis**
- **expensive** and **time-consuming** since every hair must be treated individually
- **inserting a needle** into the hair follicle and completely **destroying the hair root** by means of a weak DC current



EVALUATION

- Estimation of hair removing agent.
- Instrumental analysis

CHEMICAL
ANALYSIS

TOXICITY
TEST

STABILITY
TEST

RHEOLOGY

Accelerated stability
study

Viscometer

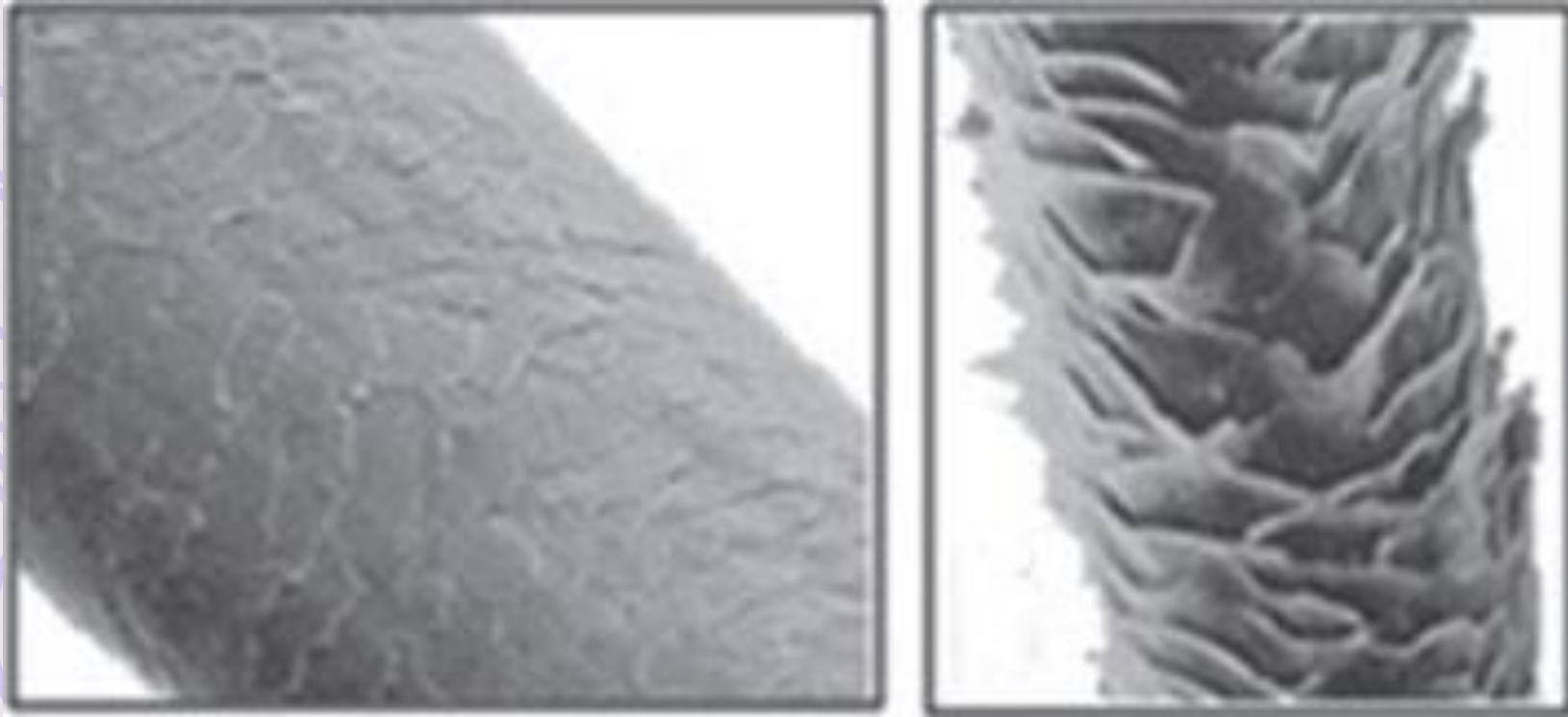
- Rabbit test.
- Microscopical study



Hair Straighteners

Hair

The hair appearance importantly depends on the health of the cuticle. When the cuticle is strong and healthy, hair appears to be strong and healthy. Intact and closed cuticle act as a protective shield against harmful environmental elements.

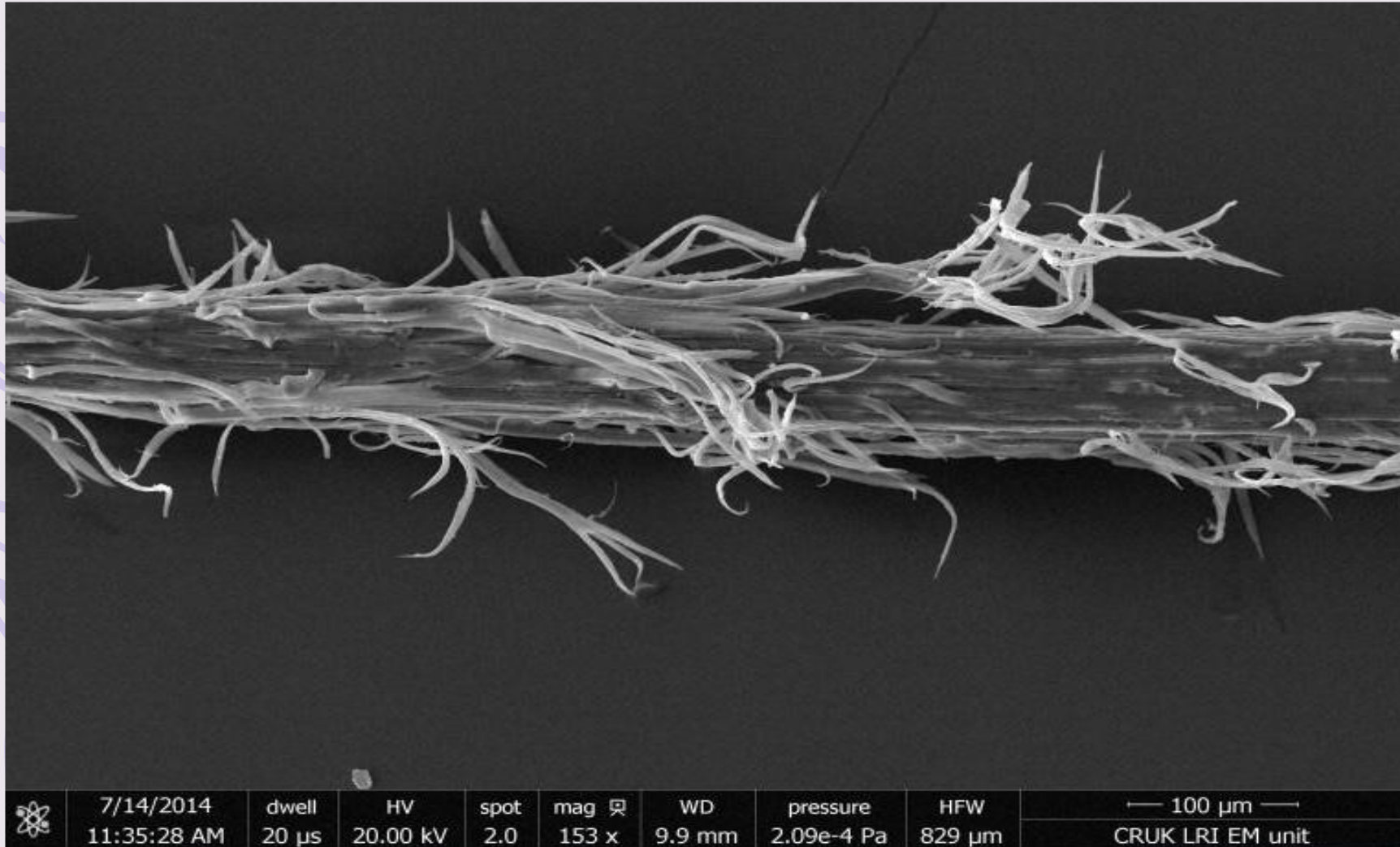


A

B

Cuticles scales closed (A) and open (B).

Damaged hair fibres



Hair straightening: is a hair styling technique used since the 1890s involving the flattening and straightening of hair in order to give it a smooth, streamlined, and sleek appearance.

It is accomplished using a hair iron or hot comb, chemical relaxers, Japanese hair straightening, Brazilian hair straightening, or roller styling. In addition, some shampoos, conditioners, and hair gels can help to make hair temporarily straight.



Marcel Grateau



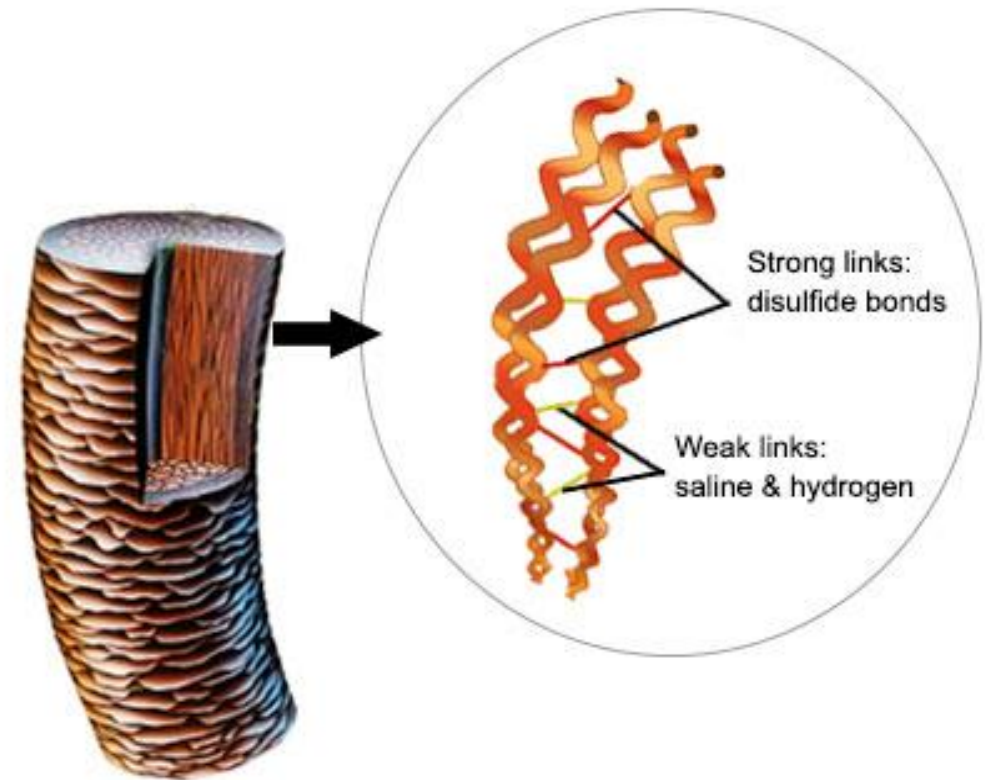
THE FIRST STRAIGHTENERS



Hair Straighteners

- Temporary hair straighteners: Hot combing, Hair iron
- Permanent hair straighteners:
 - **Brazilian straitening** (keratin treatment)
 - **Japanese straitening** (thermal recondition)

Hair structure, strong links and weak links



Temporary Hair Straighteners

[Hair irons](#) and [hot combs](#) are designed to temporarily modify the shape/texture of hair. The straightened effect will usually be reversed by environmental factors, mainly contact with water from washing, rain, humidity, etc. This includes water in styling products such as gels applied after straightening, although careful use of such treatments can still produce usable results not much different from if the user had naturally straight hair before applying the product.



Permanent Hair Straighteners

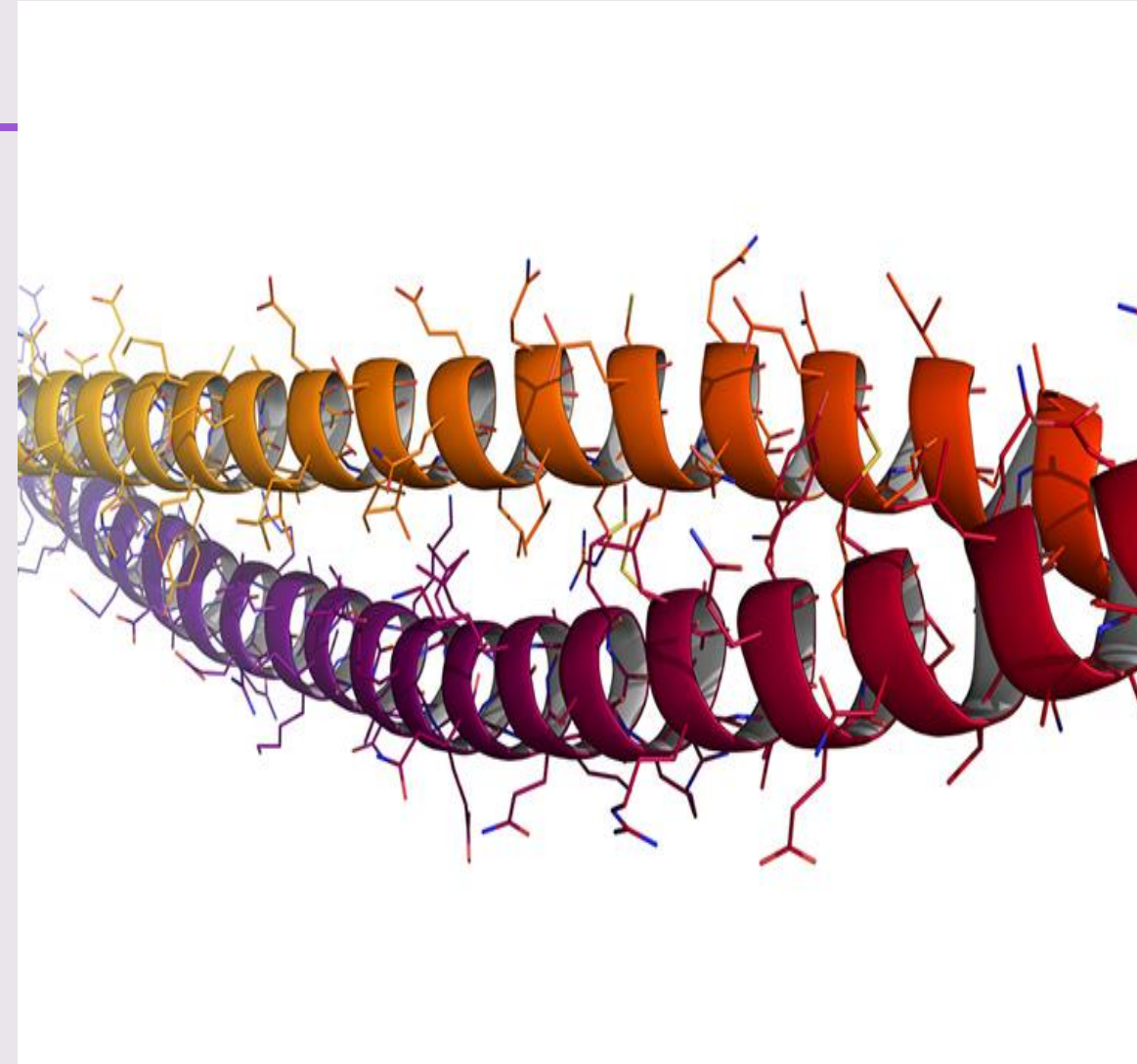
Thioglycollates , Bisulfites , Guanidine, KOH , NaOH

Oxidizing neutralizers: H_2O_2 , Bromates, Perborates

Brazilian Straitening (Keratin Treatment)

What is Keratin?

It is a protein that is present naturally in your hair. It works in a way that a stylist applies keratin hair straightening product on your hair and then makes use of the heat of a flat iron to seal it. The process completely takes around 90 minutes or maybe longer depending on the length of your hair. The Salon Keratin products take into account Keratin complex smoothing therapy, Brazilian blowout and Brazilian hair straightening.



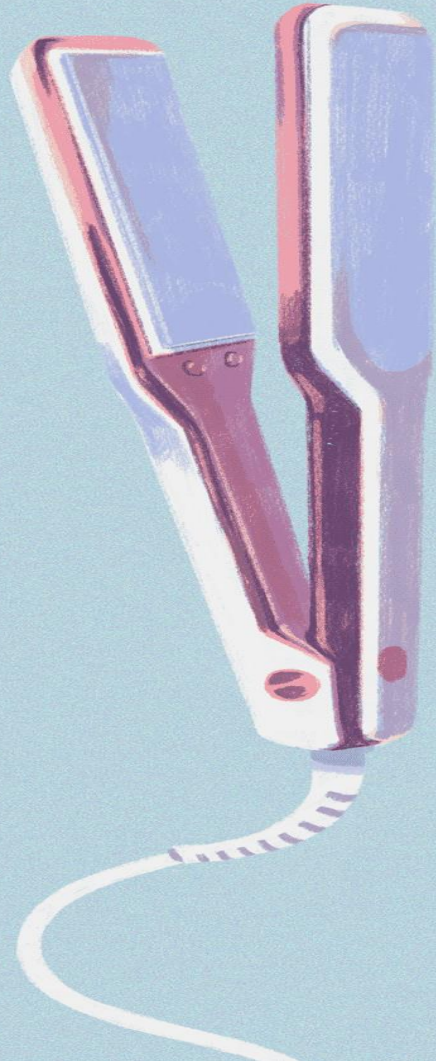
Brazilian Straitening Steps (Keratin treatment)

- Washing the hair and drying
- Use Keratin containing Formaldehyde
- Let it set in
- Rinse it off
- Dry, straiten with flat iron

Japanese Straitening Steps

- Hair Analysis and consultation
- Shampooing
- Applying the Straightener
- Rinse
- Ironing
- Applying the Neutralizer
- Rinsing the Neutralizer

Japanese Hair Straightening



- It lasts up to six months
- It's irreversible and will stay straightened until it's grown out
- The process can take several hours
- Colored or other chemically processed hair risks being damaged
- Costs vary between \$400 to \$800



Yuko
Japanese
Straightening



VS

روش ژاپنی (یوکو)	روش برزیلی (کراتینه)
ماندگاری نتایج: ۶ تا ۱۲ ماه	ماندگاری نتایج: ۳ تا ۴ ماه
انجام واکنش شیمیایی	بدون واکنش شیمیایی
ماده موثر: تیوگلیکولات	ماده موثر: کراتین
مکانیسم اثر: تغییر ساختار اسکلت مو با مواد شیمیایی و حرارت	مکانیسم اثر: پوشش تارهای مو با کراتین
خطر آسیب دائمی به موها در اثر استفاده بیش از حد از حرارت و مواد شیمیایی	خطر مواجهه پوست با فرمالدهید (ماده شیمیایی سرطانزا) در صورت مناسب نبودن تکنیک و مرغوب نبودن مواد

Comparison of the permanent hair straightening treatments:

	Keratin/Brazilian treatment	Japanese/Thermal treatment	Chemical straightening/ hair relaxing treatment
method	keratin layer + flat ironing	bond breaking chemical + heat + neutralising chemical	hydroxide substance to break the disulfide bonds,
texture & appearance	soft, silky, shiny, easy to manage. Lasts 2-6 months.	silky straight hair. Permanent.	
suitable for	all hair types, damaged and previously treated	hair that has not been treated with chemicals before; loose to medium curls	coarse, tight curls
safety concerns	<ul style="list-style-type: none"> • emits gases, not recommended while pregnant • protection for skin and eyes is required 	<ul style="list-style-type: none"> • damage from long exposure to heat • might cause scalp irritation and hair loss 	<ul style="list-style-type: none"> • chemical burns • hair breakage
duration of treatment	2-4 hours	4-8 hours	varies
recommended hair care	<ul style="list-style-type: none"> • no washing for 3 days • using Sodium chloride free shampoo and conditioner • Keratin shampoo 	<ul style="list-style-type: none"> • no washing for 3 days • use moisturizer and sun protection • wait 1-2 months until dying the hair 	deep conditioning

T H A N K

Y O U