

Formulation and Evaluation of Hair Conditioner

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ABSTRACT: Hair conditioner is a hair care product used to improve the feel appearance and manageability of hair. Its main purpose is to reduce friction between strands of hair to allow smoother brushing or combing which might otherwise cause damage to the scalp. Conditioner is usually the second step to hair washing. While shampoo is formulated specifically to clean of sweat, dead skin cells and hair products. Conditioner makes hair softer and easier to manage. It also protects hair shafts from space damage. Most shampoos use chemicals that are rough on hair follicles. The truth is conditioning after shampoo is essential to having healthy, shiny hair. Conditioner smoothes the hair cuticle and adds body. Avoiding conditioner makes yours hair more prone to breakage, which can lead to the appearance of thinning hair. Conditioning helps restore hair and protect it from damage. Unlike shampoo, you can condition your hair more than once a week and not worry about dryness or damage.

I. INTRODUCTION:

Hair conditioner is often a viscous liquid that is applied and massaged into the hair. Conditioner contain a variety of conditioning and moisturizing ingredients that are left behind on the hair after rinsing and affect the hair characteristics. The primary conditioning agents include quaternized surfactants (quats), cationic polymers, silicones, emollients, and humectants. Hair conditioners may contain moisturizers, oils and sunscreen, among other ingredients. Conditioners are frequently acidic, as low pH protonates the keratins amino acids. The hydrogen ions give the hair a positive charge and creates more hydrogen bonds among the keratin scales, giving the hair more compact structure. Organic acids such as citric acid are usually used to maintain acidity. They will act basically on shaft of the hair. The conditioner functions to impart manageability, gloss and antistatic properties to hair. Conditioners also attempt to recondition hair that has been damaged by chemical/mechanical trauma common

sources of trauma. Include excessive brushing, hot blowing, drying, permanent hair waves, bleaching etc.

CLASSES OF CONDITIONER:

- ❖ Regular rinse off conditioner
- ❖ Intensive treatment conditioner
- ❖ Leave-in products
- ❖ Ordinary conditioner
- ❖ Hold conditioners

REGULAR RINSE-OFF CONDITIONER:

- i. Normally applied after shampoo.
- ii. Followed by a rinsing step.
- iii. This is the most common form of conditioner sold.

INTENSIVE TREATMENT CONDITIONER:

- i. Not for daily application.
- ii. They are used for intensive treatment.
- iii. Contain a higher level of active ingredients that are kept on the hair for a longer period of time.
- iv. Sold as thicker creams to provide the perception of higher conditioning.

LEAVE-IN PRODUCTS:

- i. Lighter and can potentially provide more significant benefits than rins-off products.
- ii. Everything applied stays on the hair until the next shampoo.
- iii. Come in various forms, such as detanglers, leave-in lotions, and sprays.
- iv. They are marketed either for single application or multiple applications during the day.

ORDINARY CONDITIONER:

- It combines some aspects of both packs and leave in conditioners.
- These are generally applied directly after using shampoo, and manufactures usually produce a conditioner counterpart for different types of shampoos for this purpose.

HOLD CONDITIONERS:

- Hold conditioners are based on cationic polyelectrolyte polymers, hold the hair in a desired shape.
- These have a function and composition similar to diluted hair gels.

Ingredients:

There are several types of hair conditioner ingredients, differing in composition and functionality:

- ❖ Moisturizers that hold the moisture in the hair. Usually these contain high proportions of humectants. These could also be provided by natural oils such as almond oil.
- ❖ Reconstructors, usually containing hydrolyzed protein. Their role is supposedly to penetrate the hair and strengthen its structure through polymer cross linking.
- ❖ Acidifiers, acidity regulators which maintain the conditioner's pH at about 3.5. In contact with acidic environment, the hair's somewhat scaly surface tightens up, as the hydrogen bonds between the keratin molecules are strengthened.
- ❖ Detangles, which modify the hair surface by pH as acidifiers, or by coating it with polymers, as glossers.
- ❖ Thermal protectors, usually heat-absorbing polymers, shielding the hair against excessive heat, caused by, e.g. blow drying, curling irons or hot rollers.
- ❖ Glossers, light-reflecting chemicals which bind to the hair surface. Usually polymers, silicones, e.g. dimethicone or cyclomethicone.
- ❖ Oils (EFAs- essential fatty acids), which can help dry/porous hair become more soft and pliable. The scalp produces sebum and EFAs are the closest thing to natural sebum.
- ❖ Surfactants - Approximately 97% of hair consists of a protein called keratin.

The surface of keratin contains negatively charged amino acids. Hair conditioners, therefore, usually contain cationic surfactants, which do not wash out completely. Because their hydrophilic ends strongly bind to keratin. The hydrophobic ends of the surfactant molecules then act as the new hair surface.

- ❖ Lubricants, such as fatty alcohols, panthenol, dimethicone, etc.
- ❖ Sequestrants for better function in hard water.
- ❖ Antistatic agents.
- ❖ Preservatives.
- ❖ Sunscreen, for protection against protein degradation and colour loss. Currently benzophenone-4 and ethylhexyl methoxycinnamate are the two sunscreens most commonly used in hair products.

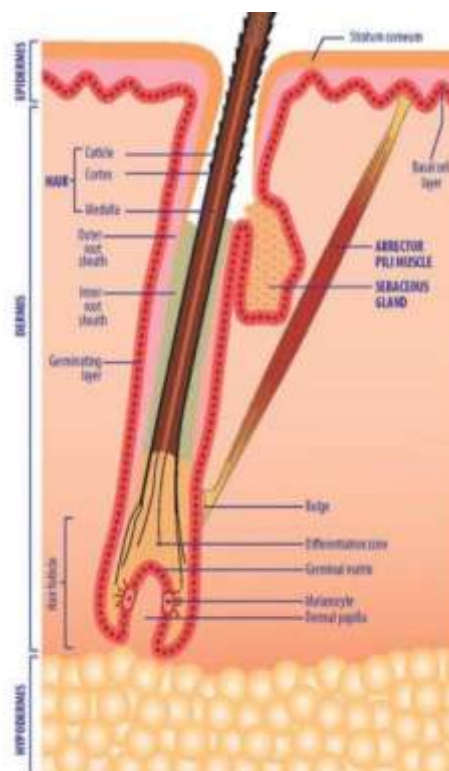
Cinnamidopyltrimonium chloride and a few others are used to a much lesser degree. The common sunscreens used on skin are rarely used for hair products due to their texture and weight effects.

HAIR FIBER: CENTRAL CORTEX:

- Responsible for the tensile properties of the hair.

CUTICLE:

- 8 to 10 layers of over lapping cells.
- Hair feel.
- Shine.
- Comb ability.



BENEFITS OF HAIR CONDITIONER:

- ✓ Reduce the forces associated with brushing of the hair.
- ✓ Provides colour retention benefits for colour-treated hair.
- ✓ The reduction or prevention of fly away hair.
- ✓ Increasing the ease of brushing.
- ✓ Repair of damaged hair.
- ✓ Strengthening of hair
- ✓ Repair of split ends.
- ✓ Increasing in hair shine.
- ✓ Feel softer.

✓ Vitamin.

PURPOSE OF CONDITIONERS:

- ❖ Restoring moisture is one of the main important purpose.
- ❖ Hair should be manageable after wash.
- ❖ Its vital role is to be smoothing the hair follicles.
- ❖ Should maintain the pH of the hair.

FUNCTIONS OF HAIR CONDITIONER:

- i. Non- irritant.
- ii. Smooth and soften the hair.
- iii. Texture.
- iv. Protective sheath.
- v. Tighten the cuticle scales.
- vi. Provide bounce.

II. CONCLUSION:

Hair conditioner is one of the cosmetics which is widely used in daily life. They will act basically on shaft of the hair. The conditioner functions to impart manageability, gloss and antistatic properties to hair. Conditioners also attempt to recondition hair that has been damaged by chemical/mechanical trauma common sources of trauma. Include excessive brushing, hot blowing, drying, permanent hair waves, bleaching etc. This article gives an idea about hair parts, types , benefits, purpose, functions of conditioner and some commonly used ingredients in formulation of hair conditioner.

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