

A Review on Formulation and Evaluation of Hydrating PH Lipstick

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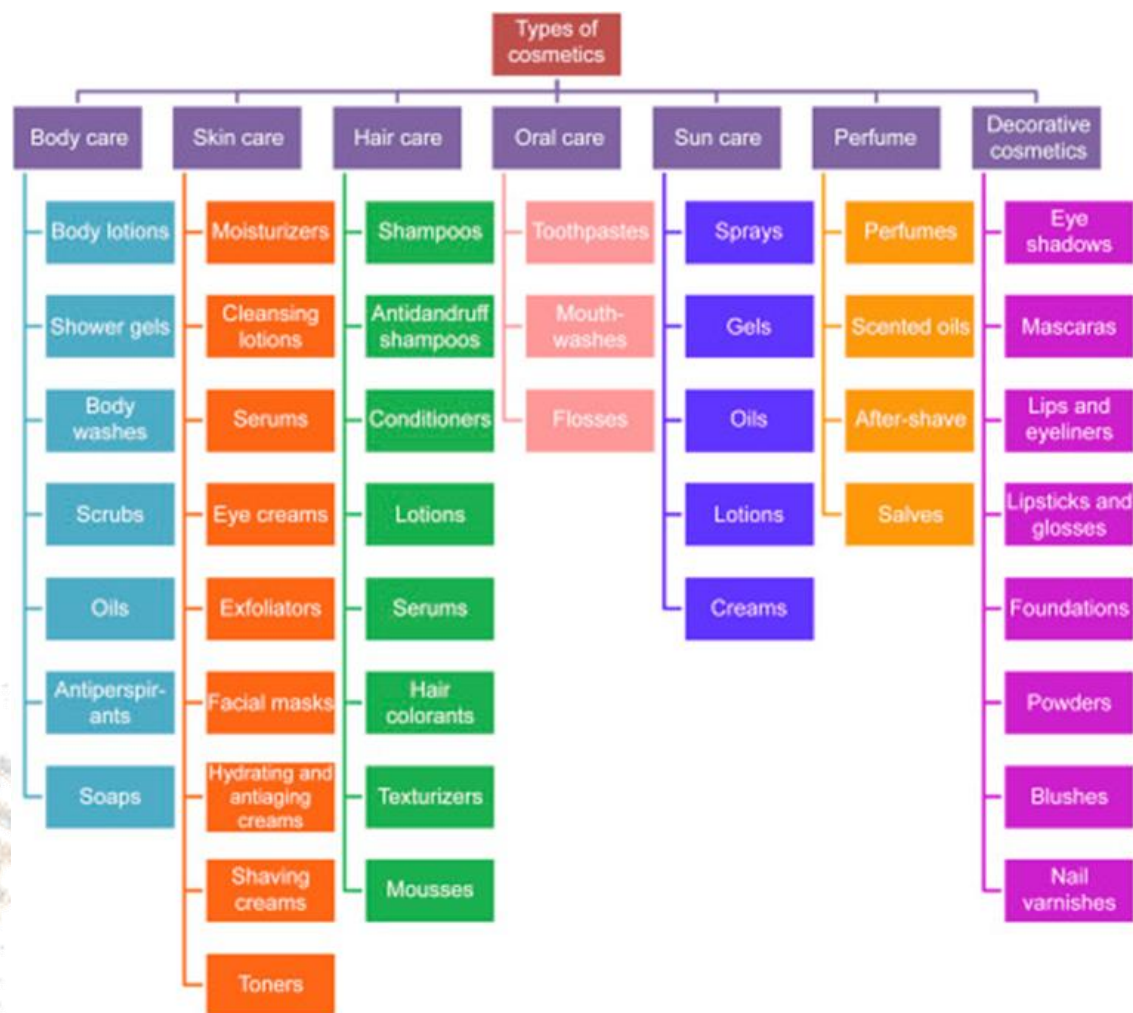
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ABSTRACT:

Hydrating PH lipstick is a lipstick that appears black but produces natural pink when applied to your lips. Hydrating PH lipstick is formulated in such a way that it looks black but slowly changes colour according to your lips pH level, higher the pH level, deeper the colour. This Hydrating pH lipstick is a dispersion of acid-base dye in a base containing castor oil, lanolin, cetyl alcohol, hyaluronic acid, charcoal, strawberry essential oil. This lipstick is highly hydrating due to the presence of hyaluronic acid and other components that are having moisturizing property. Various evaluation test such as pH determination, stability testing, Spreadability test, melting point and breaking point analysis etc can be performed. This lipstick enhances hydration, exfoliation, and reduces wrinkle lines.

INTRODUCTION:

The word cosmetics is defined as 'any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to, the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance'. The word cosmetae was first used to describe Roman slaves whose function was to bathe men and women in perfume. In Egypt, as early as 10,000 BC, men and women used scented oils and ointments to clean and soften their skin and mask body odor. Dyes and paints were used to color the skin, body and hair. They rough their lips and cheeks, stained their nails with henna and lined their eyes and eyebrows heavily with kohl ^[1]. Cosmetic include skincare creams, lotions, powders, perfumes, lipsticks, fingernail toe nail polish, eye and facial makeup, colored contact lenses, hair colors, hair sprays and many more products ^[2].



[3]

LIPSTICK:

Lipsticks are basically dispersions of coloring matter in a base containing a suitable blend of oils, fats, and waxes suitably perfume, flavoured and moulded in the form of stick and enclosed in a case base for emollient action. It is a cosmetic product to enhance women beauty. It is a cosmetic product containing waxes, oils, pigments and dyes, alcohol and fragrance, preservatives and antioxidants, colors, surfactants. Lipsticks are used to impart an attractive colour, texture and protect lips ^[4].

Lipsticks are classified under skin colorants which are referred as beauty aids for the purpose of alteration of appearance of skin and enhancing the appearance. as most other types of makeup, lipstick is typically, but not exclusively, worn by women. Some lipsticks are also lip balms, to add colour and hydration. These preparations do not damage the skin and are non-tacky. They typically involve a color change but also increases shine and smooth out appearance of wrinkles and folds on lips. They are a solid product housed in moulded packaging ^[5].

CHARACTERISTICS OF LIPSTICKS

- ❖ Should cover lips adequately
- ❖ Long last effect
- ❖ Completely free from grittiness

- ❖ Must adhere firmly to lips without being brittle and tacky
- ❖ Non irritating to skin of lips
- ❖ Non-drying
- ❖ Good degree of quality
- ❖ Make lips soft
- ❖ Shiny and smooth appearance
- ❖ Pleasant odour and flavour

HYDRATING PH LIPSTICK:

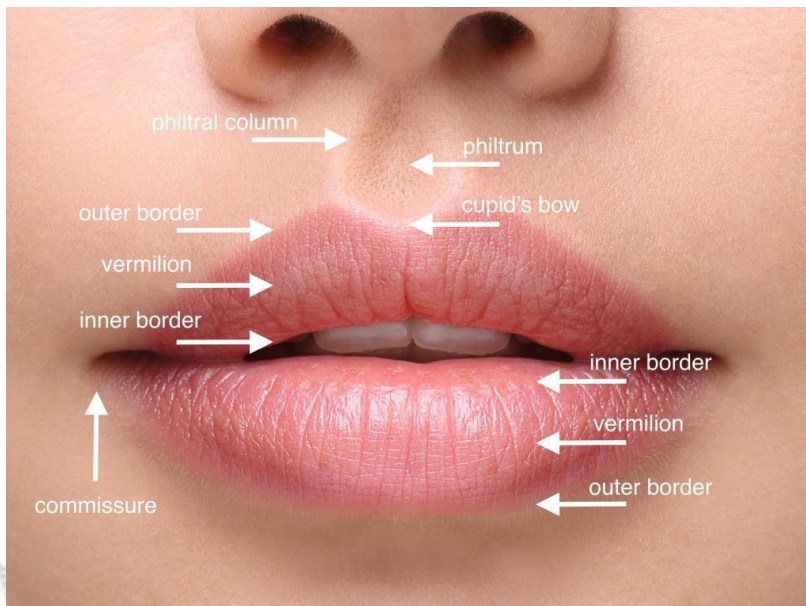
Hydrating PH lipstick is a lipstick of absolute magic with a bullet that appears black but magically blooms into a sheer, natural pink when applied to your lips. PH lipstick is formulated in such a way that it looks black but slowly changes colour according to your lip pH level, higher the pH level, deeper the colour. It soothes, repair and keep lips from chapping and its ideal for any season for dry lips. Inside the lipstick, the dyes are colorless and weak acids. But lips have a higher pH than the lipstick, which triggers a chemical reaction that converts the acids into a strongly coloured compound.

ADVANTAGES OF HYDRATING PH LIPSTICK OVER OTHER LIPSTICK

- ❖ pH compatible with lips
- ❖ Highly hydrating
- ❖ Long lasting stain
- ❖ Cost effective
- ❖ Add a natural pink tint
- ❖ Moisturizes dry lips
- ❖ Paraben free
- ❖ Repairs chapped lips
- ❖ Non-sticky
- ❖ Enhances wrinkle reduction

ANATOMY OF LIPS:

Lips are soft, movable body part at the mouth of humans. Lips are an essential aspect of the human face and play a critical role in facial expression, food intake, phonation, and food intake^[6]. The upper and lower lips are known as, respectively, labium superius oris and labium inferius oris. Both the upper and lower lip contains mucosal membrane, vermilion, and cutaneous surfaces. The meeting point where the lips joint the surrounding smooth skin of smooth area is the vermilion border and reddish area within the border is called the vermilion zone. The fleshy protuberance located in the center of the upper lip is tubercle. The cosmetic product with a pH range between 4 and 6.5 is considered as safe for lip products^[7].



GENERAL INGREDIENTS USED FOR LIPSTICK FORMULATION:-

- ❖ Waxes
- ❖ Oils
- ❖ Fatty alcohols
- ❖ Colorants
- ❖ Perfumes

WAXES^[8]

SL.NO	WAXES	FUNCTIONS
1.	Paraffin wax	Glossy, hardness, stiffening agent
2.	Beeswax	Oil base in the formulation, emulsifying agent
3.	Ozokerite wax	Lipstick base
4.	Micro crystalline wax	Lipstick base
5.	Carnauba wax	Provides rigidity to the stick
6.	Candelilla wax	Increase the hardness and melting point of the product
7.	Anhydrous lanolin	Blending agent

BEESWAX^[9]

- Biological source: Beeswax (Cera alba) is a purified natural wax obtained from honey comb of hive bee, *Apis mellifera* Linn and other species of *Apis*, belongs to family Apidae.
- Chemically, beeswax consists mainly of esters of fatty acids and various long chain alcohols.
- Color : Yellowish-white
- Melting point : 35-65°C
- Solubility : insoluble in water, soluble in chloroform, ether, fixed oil and volatile oils and sparingly soluble in alcohol



- Uses :
 - Beeswax is used as an emulsifying agent in cosmetics to provide elasticity, plasticity and to increase skin adhesiveness.
 - Beeswax helps to retain moisture in lips.
 - It is used as thickening agent.

OILS^[8]

SL.NO	OILS	FUNCTIONS
1.	Castor oil	Blending agent, emollient, oleaginous vehicle, solvent
2.	Olive oil	Blending agent and lipstick base
3.	Coconut oil	Lipstick base and moisturizer
4.	Almond oil	Reduce pigmentation

CASTOR OIL^{[10][11]}



- Biological source : Castor oil is the fixed oil obtained by cold expression of the seeds of *Ricinus communis* Linn, belongs to family Euphorbiaceae
- Castor oil consists of glycerides of ricinoleic acid, isoricinoleic, stearic and dihydroxy stearic acid. It contain vitamin F.
- Color : Pale yellow or colorless liquid
- Melting point : -2 to -5°C
- Solubility : Soluble in alcohol; miscible in chloroform, solvent ether, glacial acetic acid and petroleum ether; insoluble in mineral oil
- Uses :
 - Castor oil loaded with fatty acids and ricinoleic acid retains moisture and prevents drying of lips.
 - Castor oil acts as a natural barrier for lips which prevent flaking and chapping.
 - Castor oil is extremely inexpensive ultra-hydrating oil for lips.

FATTY ALCOHOLS

- ❖ Cetyl alcohol
- ❖ Cetearyl alcohol
- ❖ Oleyl alcohol
- ❖ Lanolin alcohol

CETYL ALCOHOL



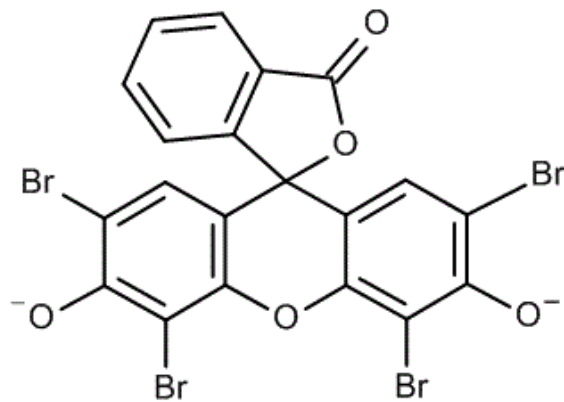
- Cetyl alcohol is also known as hexadecane-1-ol and palmityl alcohol.
- Cetyl alcohol exists as waxy white solid or flakes at room temperature.
- Appearance : White crystals or flakes
- Melting point : 49.3°C
- Solubility : Insoluble in water; very soluble in ether, benzene and chloroform; soluble in acetone; slightly soluble in alcohol.
- Uses :
 - Cetyl alcohol is used as a thickener and emulsifier which help to maintain a desirable consistency smooth texture.
 - It is used in lipsticks to adhere the color to lips.
 - Cetyl alcohol melts at temperature higher than that of human body, so it is useful in preparing cosmetic creams (eg: lipstick) that are easily moulded and softened when warmed by skin.^[12]

COMMON DYES USED FOR HYDRATING PH LIPSTICK

- ❖ Eosin dye
- ❖ D&C Red 27
- ❖ D&C Red 21
- ❖ D&C Orange 5
- ❖ D&C Orange 10

EOSIN DYE

- Dyes are natural or synthetic colored organic substances which have the affinity to impart color to various substrates by absorbing into the substrate.
- Eosin yellowish or Eosin Y is a fluorescein bromine derivative.
- Eosin Y is chemically known as disodium 2-[2, 4, 5, 7-tetrabromo-6-oxido-3-oxo-3H-xanthen-9-yl] benzoate.^[13]
- Eosin is effectively an acid-base indicator.



- Eosin dye changes color and stains the lips pink as it is converted into the alkaline form by neutralization with lip tissue. Thus chemistry forms the basis of color changing lipsticks



- Appearance : Red crystalline powder
- Eosin Y exists as bivalent or univalent anions between pH 3 and 13
- Eosin used lipsticks provide long-lasting stain.

PERFUMES:

- It is used as fragrance.
- It is used to create a more natural aroma.
- It is used to give the pleasant scent.
- Some common perfumes used in lipstick formulations are:
 - ❖ Strawberry essential oil
 - ❖ Lemon oil
 - ❖ Rose oil
 - ❖ Tea tree oil
 - ❖ Rosemary oil

STRAWBERRY ESSENTIAL OIL



- Strawberry essential oil have a sweet and pleasant smell
- Use:
 - Strawberry essential oil helps to enhance the elasticity of lips
 - It restores lips suppleness and smoothness
 - It effectively cures chapped, dry, sensitive, cracked and flaky skin

METHOD OF PREPARATION:

Steps involved in lipstick are:

1. Melting
2. Mixing
3. Moulding
4. Labeling
5. Packing^[6]

Combined beeswax and lanolin in china dish



Place the china dish in the water bath, stir the mixture until it melts



Color mixture was placed in small beaker and dissolved with a part of castor oil



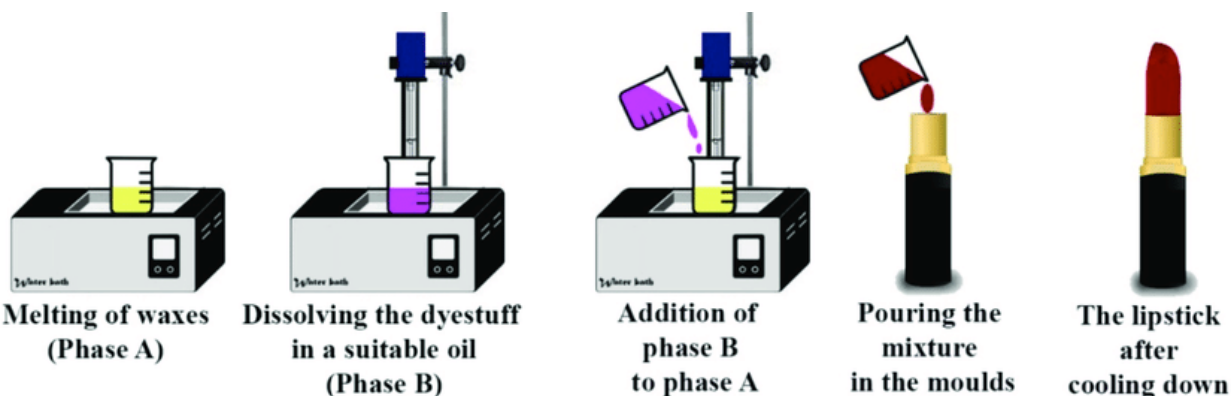
Castor oil and cetyl alcohol were melted in the beaker



Both mixtures were mixed together and stirred well until required consistency is obtained



Poured the mixture in to mold and allowed to cool completely



EVALUATION OF GENERAL LIPSTICK¹:

1. Physical examination^[14]:-

The lipstick was studied for organoleptic character such as colour, and odour and texture.

2. Skin irritation test:-

The test was carried out by applying the product on back of palm and leave for 15 minutes

3. Perfume stability^[15]:-

The formulated lipstick was tested after 30 days, to record fragrance.

4. Determination of pH^[14]:-

The pH of the formulated lipstick was analyzed by using PH meter.

5. Melting point:-

Determination of melting point was done by taking a melted lipstick sample and filled it into glass capillary tube. The capillary tube is then subjected to cooling in ice for about 2hrs and is then tied to a beaker containing water which was subjected to continuous stirring. A temperature at which the material starts moving along the capillary tube is considered as melting point.

6. Aging stability:-

The formulated lipstick was stored in hot air oven (45⁰C) and room temperature (37⁰C) and withdrawn weekly to analyze the physical stability.

7. Grease test:-

Greasiness test was examined to identify the amount of oil in the formulation. Lipstick was placed on the filter paper and the sample was left at room temperature for 24 hours. The diameter of produced oily ring was measured.

8. Spreadability test^[16]:-

Spreadability is the ease with which a product can be spread. Excess lipstick sample is placed between the two glass slides and 100g weight was placed on the glass slide for 5 min to compress the sample to a uniform thickness. Weigh (250 g) was added to the pan. The time in seconds required to separate the two slides was taken as a measure of Spreadability.

9. Softening point^[17]

Lipstick was placed with protruded salve in the 50 ml beaker. Thermometer was fixed through a cork in such a way that the bulb of the thermometer just touched the lipstick salve. The arrangement was inserted into a 200ml beaker filled with water to a level one centimeter above the upper tip of the stick slave. Slowly water bath was heated while stirring so that temperature rises at a rate not exceeding 2°C/min. When the temperature reached about 45°C, the temperature was raised at the rate of 1°C/min. The temperature, the salve starts blending and losing its shape was recorded as the softening point.

10. Breaking point^[18]

This test is performed to determine the strength of the lipstick. The lipstick is placed in a horizontal position in a socket away from the edge of the support. The lipstick was then subjected to number of weights hanging from the support. This weight was gradually increased at time interval of 15secs and the weights at which the lipstick breaks is considered as the breaking point

11. Microbial testing

Contamination from raw materials, moulds, storage kettles or lipstick container can lead to microbial growth. The test consist of plating a known mas of the sample on two selected culture media specifically suitable for the growth of bacteria fungi incubating them for a specified period to permit the development of visual colonies for counting.

CONCLUSION:

This review provides information on overview of hydrating pH lipstick, its formulation and evaluation. The hydrating pH lipstick turns out to change color from black to pink due to acid base reaction. Hydrating pH lipstick provides ultra-hydration and prevents flaking and chapping of dry lips. It eliminates wrinkles, cracking, dryness and folds on lips. Hydrating PH lipstick exfoliates the lips and do not show any skin irritation.

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