

An Analysis of Cosmetic Creams Through Chemistry

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Introduction:

Cosmetics have been in use for thousands of years. The absence of regulation of the manufacture and use of cosmetics has led to negative side effects, deformities, blindness, and even death through the ages. Cosmetic is a drug which beautifies, cleanses and alter the appearance of human body when used. Cosmetics are products used to enhance or change the appearance of the face, fragrance or the texture of the body. Many cosmetics are designed for use of applying to the face and body. They are generally mixtures of chemical compounds derived from natural sources (such as coconut oil), or may be synthetic or artificial. Creams are at key position in field of cosmetics. Creams are the emulsion form of cosmetic having two liquid phases. Cosmetics have a deep relation to natural products. It is true that there are many cosmetic products that have catchphrases or selling points claiming 100% pure natural ingredients; however, it is impossible to make cosmetics without natural products, regardless of such catchphrases. Hence, as regards natural products, no one is in doubt about the notion that they are something that cannot be done away with in cosmetics.

The role of natural products in medicines is as one of the sources of lead compounds in the research and development of modern medicines, but in cosmetics natural products themselves are combined as ingredients, although there may be similar cases in medical research process too. In general the categories of cosmetics are limited only by people's imagination. The main constituents are water, waxes, fats and oil derivatives. A simple manufacturing procedure along with formulas for preparing the cream practically in laboratory is given in this article.

Objectives of the study: The main objectives are

- To provide knowledge of various ingredients in commonly used creams.
- To inspire the readers to prepare products of industrial utility and to fill their leisure with activities of scientific nature.

Significance of the study:

- The study will be very significant in making awareness of the use of chemistry in cosmetic Industry and its contribution to human welfare. It will also help in developing skill in beginners by taking small scale projects in their own laboratories.

Ingredients of Cold Creams:

Cold CreamIngredients	% w/w
Spermaceti	6.5
White beeswax	12
Colorless mineral oil	58
Distilled water	23
Borax	0.5
Perfume (Jasmine/Rose oil)	qs

Procedure:

1. Heat water to about 70⁰c and dissolve borax in it.
2. Melt the wax on water bath and add it to oil dropwise and with constant stirring. Keep temperature 70⁰c
3. Add the borax solution to mixture of (wax and oil) with constant stirring.
4. A few drops of perfume are added when cool.

Ingredient	Chemical Name:
Beeswax	Myricylpalmitate $C_{15}H_{31}COOC_{31}H_{63}$
Spermaceti wax	Cetylpalmitate $C_{15}H_{31}COOC_{16}H_{33}$

Beeswax and spermaceti wax is an animal wax

Ingredients of Vanishing Creams:

Vanishing CreamIngredients	% w/w
Stearic acid (Triple pressed)	21
Zinc oxide	2.5
Distilled water	65
Glycerin	10
Potassium hydroxide	1

Perfume (Sandal Wood Oil)	0.5
Preservative	qs

Procedure:

1. Dissolve Borax and zinc oxide in some water also add .1% preservative to it.
2. Melt the stearic acid on water bath add to it glycerin with constant stirring also add borax and zinc oxide solution to it and go on stirring.
3. Dissolve potassium hydroxide in rest of water with constant stirring.
4. Add this potash solution drop wise and with continuous stirring to the above mixture of stearic acid and glycerin.
5. When a paste like substance is formed then churn it in a churning machine for about 1 hour.
6. When cooled to nearly 35⁰c, add few drops of perfume and pack it in a air tight container.

Note: preservative used are generally parabens such as Methyl parahydroxy benzoate.

Ingredients of Hair Creams:

Hair creamIngredients	% w/w
Propylene glycol mono stearate	8
Cetyl alcohol	2
Mineral oil	24
White beeswax	1
Glycerol	5
Water	60
Perfume and preservatives (Cologne perfume)	qs

Procedure

1. Add small amount of preservative in water.
2. Mix all the ingredients together and let them heated to melt stir this mixture continuously until cool and cream form is obtained
3. Add cologne type of perfume after cooling and pack it in wide mouthed container.

Ingredients of Bleaching Creams:**Bleaching Cream**

All the ingredients used in cold cream are same in addition to it following are added:

Ingredients	% w/w
Hydrogen peroxide (35%)	14
Phosphoric acid (10%)	qs
Preservative	qs

Procedure

1. Cold wax cream :- prepared by the above procedure
2. Add Hydrogen peroxide 35% with slow stirring (using stainless steel stirrer) only after cooling the cream to 40⁰c.
3. Also add phosphoric acid 10%(qs)(Phosphoric acid is added to adjust the pH between 3.5 to 4)
4. As the cream cannot release Hydrogen peroxide at pH3.5-4. So an activator is added to release Hydrogen peroxides which cause bleaching. Generally the activator used is **Ammonium bicarbonate** and is provided with the cream itself. Activator is mixed with cream just before use in the Ratio of 1:5

Note: Avoid using glass container for the storage.

Note: Desired skill is developed by training and practice using scientific temper. The more one practices the more skilful one becomes in making standard preparations but careful manipulations are to be executed for desired products.

References:

- Aggarwal P.K 2009,Pharmaceutical Chemistry (iv)
- Guard-Sharma 2012, Text book of cosmetics
- Gupta and Gupta 2010, Pharmaceutics and Cosmetics.
- Mathur R.C 2002 science projects.
- Riordan, Teresa 2004, Inventing beauty a history of the innovations that have made us beautiful, New York, Broad way book.
- Singh Jagdamba, LDS Yadav 2008, Pharmaceutical organic Chemistry.
- Tatra E, Gottscholck and Gerald E 2004, “International cosmetic ingredient dictionary and hand book 10th edition”, McEwen Washington, cosmetic, Toiletry and fragrance association.