



cosmetic formulation, skin care product, dental product, etc.

RITIK RAJ TIWARI¹, ADITYA GUPTA², JAYANT KUMAR MAURYA³,

1. Research Scholar, Ashok Singh Pharmacy College Maharoopur Jaunpur U.P. 222180
2. Assistant Professor, Department of Pharmacology Ashok Singh Pharmacy College Maharoopur Jaunpur U.P. 222180
3. Principal, Ashok Singh Pharmacy college Maharoopur Jaunpur U.P. 222180

Abstract: To become a cosmetic chemist, one must acquire the knowledge of formulating various cosmetic concoctions. As individuals embark on their journey in the cosmetic industry, they often specialize in a particular type of formulation, be it for the skin, hair, or color cosmetics. Nevertheless, to truly embody the essence of a consummate cosmetic chemist, one must possess a comprehensive understanding of the inner workings and formulations of ALL cosmetics. This does not necessarily entail physically creating each product (although it is highly encouraged), but rather being able to eloquently respond when queried about the functionality of a particular product. Throughout this series, we shall delve into an extensive array of cosmetics and personal care products, exploring their intended purposes, mechanisms of action, and the key ingredients that bring about their efficacy. Before delving into the intricacies of specific formulas, it is only fitting to provide a comprehensive overview of the diverse range of products that fall under the umbrella of cosmetics.

While the market is inundated with an abundance of personal care and cosmetic products, each vying for attention, we shall endeavor to explore as many of these marvels as our imagination allows.

Key word: cosmetic formulation, skin care product, dental product, etc.

Introduction: The word cosmetics finds its origins in the ancient term "COSMETIKOS," denoting the exquisite art of adorning oneself. Hence, cosmetics epitomize the refined skill of embellishing one's appearance to radiate beauty. As per the esteemed D & C Act, cosmetics encompass a wide array of articles designed to be delicately rubbed, poured, sprinkled, or sprayed onto the human body, with the intention of cleansing, enhancing allure, promoting attractiveness, or transforming one's visage. It is important to note that soap, although a remarkable product, falls outside the realm of cosmetics.

Ingredients of Cosmetics:

• Water, Oils, Fats, Waxes, Humectants, Surfactants, Preservatives, Perfumes and Colours, Herbal or Plant Materia, Functional Raw Materials, and etc.

1.Fats, oil, and Waxes: These exquisite ingredients are meticulously employed in the creation of opulent creams, lavish lotions, exquisite brilliantine, sumptuous hair oil, and alluring lipsticks. The origins of these precious substances can be traced back to two distinct sources: mineral and animal. Allow me to present to you the following examples.

1) Mineral Source: The epitome of luxury, mineral oil, paraffin, and petroleum jelly are derived from the depths of the earth, exuding a captivating allure that enhances any beauty product.

2) Animal Source: Embracing the essence of elegance, wool fat, beeswax, and Spermacti are obtained from nature's most graceful creatures, infusing each formulation with a touch of sophistication and refinement.

2.Water: It is the primary component of the formulation used in cosmetics. Therefore, the purity of the water used determines the stability and quality of the final product, so pure water should be employed in the production of cosmetics. One can produce pure water on a large scale using any of the techniques listed below. The system of distillation, ion exchange, and reverse osmosis.

3. Preservatives: used to stop spoiling, which is brought on by 1) oil oxidation 2) Microbial growth: Used cosmetics are contaminated with Staphylococci, Fungi, and Yeast, but unopened cosmetics are typically contaminated with PSEUDOMONAS.

4. Perfumes: The words "per," which means through, and "fumes," which means smoke, are the roots of the word perfume. It implies that the first perfumes were scented oils made from burning grass, wood, and other materials.

Lotions

- Cleansing lotion
- Mineral oil 38%,
- Triethanolamine stearate 8%,
- A typical formulation
- Water to make 100%
- Bees wax 2%,
- Preservative & Perfumes – q.s

Methods of Preparation.

(1) The current innovation introduces a novel formulation of calamine and zinc oxide, both finely powdered with a diameter no larger than 10 mm. This micro-sized powder exhibits significantly increased solubility, enhanced absorptivity, and remarkable penetrance. It effortlessly permeates the skin's histology, effectively enhancing its bioavailability. The results are truly remarkable, making it an exceptionally effective solution.

(2) In this inventive program, a suspension stabilizer consisting of colloidal microcrystalline cellulose, deflocculant, glycerol, and lubricant is employed. This meticulously crafted mixture not only enhances the stability of the suspension but also preserves its suspended state. Furthermore, it ensures excellent dispersion, thereby elevating the quality and efficacy of the product.

(3) The present invention advocates for the dry grinding method to blend calamine and zinc oxide. This streamlined process not only simplifies the flow but also eliminates the extensive post-processing required by wet methods. As a result, it significantly reduces power consumption and production costs, making it an economically viable choice.

(4) The calamine lotion prepared using this innovative program boasts a luxurious texture that feels exquisite to the touch. Its application is smooth and velvety, leaving no trace of coarseness or grittiness even after extended use.

Manifestation After preparing 1 kg of calamine and 500 kg of zinc oxide using a jet mill to create a 3 μm diameter micropowder, the two are mixed through dry grinding and cleaned multiphases using isopropyl alcohol (10 L) and glycerol (30 L). Next, potassium citrate, colloidal microcrystalline cellulose, and sodium tartrate mixture (mass ratio:1:1), glycerol, and magnesium stearate = 1:0.2:0.9:0.01 mix suspending stabilizing agent is added and mixed with the suspension that has a 30%–50% concentration. Finally, the product is obtained by filling.

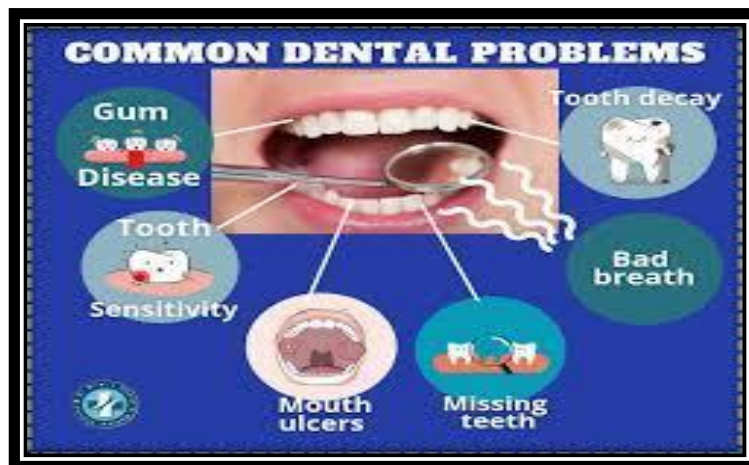


Figure1.1 skin care product.

Dental Products:

Overview Dentifrice is a tooth-cleaning and tooth-polishing solution that may also include a medication, like fluoride, to prevent dental cavities. a dental cleaning agent, like toothpaste or powder. Etymology: L. dens + fiacre, to rub a pharmaceutical substance on teeth while using a toothbrush to clean and polish them. It usually includes fluoride, detergent, flavoring, mild abrasive, and binder. humectants, deodorants, Desensitizers, , and different dental caries-prevention medications are additional common ingredients. Likewise known as toothpaste. Dentifrice, also known as toothpaste, is a medicated substance that is used to clean and polish teeth in addition to a toothbrush. includes a mild

abrasive, detergent, binder, flavoring agent, and occasionally deodorants and different medications (like antiseptics) intended to prevent dental caries.



Two type of Dentifrice

1. Simple cleansing dentifrices.
2. Therapeutics dentifrices.

Toothpaste Components and Production Process

The principal prerequisites for oral preparations, particularly toothpastes, are as follows:

have previously been summed up numerous times.

These standards for a toothpaste were:

1. When utilized correctly, with a sophisticated toothbrush, it ought to sufficiently cleanse the teeth, effectively eliminating any remnants of food, plaque, and unsightly stains.
2. It should impart a refreshing and immaculate sensation to the oral cavity, leaving it invigorated and revitalized.
3. The price of this remarkable toothbrush should be set at a level that encourages regular and frequent usage by individuals from all walks of life.
4. It must possess the qualities of harmlessness, pleasantness, and convenience, adhering strictly to the EC Cosmetics Directive, ensuring that it poses no threat to human health when used under normal circumstances.
5. This extraordinary toothbrush should possess the ability to be economically packaged and maintain its stability throughout its commercial shelf-life, ensuring its longevity and effectiveness.
6. It should conform impeccably to universally accepted standards in terms of its impact on enamel and dentine, ensuring that it maintains the highest level of care and protection for the teeth.
7. Claims made regarding this exceptional toothbrush should be supported by meticulously conducted clinical trials, providing irrefutable evidence of its efficacy. These requirements remain as relevant today as they were in the past, with only slight adjustments in priority and emphasis on each individual aspect. To achieve this, it is imperative to incorporate high solid suspension in a stable and viscous form, necessitating the inclusion of gelling agents or thickening polymers.

The majority of ingredients used in toothpastes are either approved for use in food products according to certain specifications or are

specific grades—particularly abrasives—are offered for dental preparations.

1. Cleaning and polishing agents (abrasives) The primary objective of the cleaning and polishing agent is to eliminate any stubborn residue on the teeth, and the materials typically considered for this purpose are as follows.

(a) Dental grade silicas (SiO_2) Silica has swiftly emerged as the preferred abrasive due to its remarkable versatility. It can be refined to an exceptional level of purity, ensuring impeccable compatibility with therapeutic additives and flavors. By adjusting the particle size, the final abrasive properties of the product can be modified. By meticulously aligning the refractive indices of the silica with the liquid phase of the toothpaste, transparent gels can be formulated. Moreover, when utilizing extremely fine particle sizes (silica thickeners), silica can bestow additional thickening properties to the dental cream. In toothpastes, silica is typically incorporated at levels ranging from 10% to 30%.

(b) Dicalcium phosphate dihydrate (DCPD) $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$. DCPD is a widely employed dental cream abrasive, primarily due to its ability to maintain flavor stability. It possesses a characteristic white hue, resulting in toothpaste formulations that generally do not necessitate supplementary whitening agents. However, it is important to note that DCPD is fully compatible only with sodium monofluorophosphate as the fluoride source, owing to the presence of free calcium ions. Attempts to formulate with alternative therapeutic fluoride sources have not yielded successful outcomes.

2. Humectants play a crucial role in maintaining the optimal texture and moisture level of toothpaste, ensuring that it does not dry out or harden excessively. In addition to their functional benefits, humectants also contribute to the overall luxurious appearance of the paste, providing a lustrous shine and a touch of flexibility. Among the various humectants available, two prominent ones are commonly employed in toothpaste formulations, often in conjunction with smaller quantities of minor humectants.

(a) Glycerine, with its chemical formula $\text{CH}_2\text{OHCHOHCH}_2\text{OH}$, remains the humectant of choice in terms of sheer volume. Renowned for its exceptional humectant properties, glycerine imparts a glossy finish to the toothpaste, elevating its visual appeal. Notably, glycerine boasts stability, non-toxicity, and versatility, as it can be derived from both synthetic and natural sources. Furthermore, it serves the additional purpose of lending a pleasant sweetness to the paste, enhancing the overall sensory experience.

(b) Another widely utilized humectant is sorbitol, characterized by its chemical composition $\text{CH}_2\text{OH}(\text{CHOH})_4\text{CH}_2\text{OH}$. Often employed in the form of a syrup containing approximately 70% sorbitol, it is highly regarded within the industry and is occasionally deemed superior to glycerine, depending on the specific formulation. Alongside its humectant properties, sorbitol imparts a subtle sweetness to the toothpaste, contributing to its palatability. Moreover, sorbitol exhibits remarkable stability, ensuring the longevity of the product's desired consistency.

Conclusion:

The utilization of cosmeceuticals has experienced a remarkable surge in recent years, leading to an expansion of the physician's repertoire in terms of products aimed at enhancing the beauty of patients afflicted with dermal issues. However, in an era where individuals are increasingly preoccupied with their aesthetic appeal, numerous manufacturing companies are engaged in fierce competition, striving diligently to deliver compelling outcomes that

meet the exacting demands of their clientele. Regrettably, claims of efficacy often lack the persuasive substantiation necessary to instill confidence, thereby presenting a challenge to the industry in terms of providing irrefutable evidence regarding the effectiveness of these compounds. Cosmeceuticals, such as sunscreens, vitamins, hydroxyl acids, and a plethora of others, have undeniably demonstrated their efficacy in treating skin ailments, thereby augmenting the overall texture of the skin. Consequently, conducting clinical trials on cosmeceuticals assumes paramount importance, as they enable a deeper understanding of the intricate interplay between the skin and these specialized compounds, which can even be influenced by environmental factors.

References:

1. Harry's Cosmetic ology, by Ralph. Harry, and Leonard Hill books and intertext publisher. 6th edition. 2.
2. Cosmetics: Science and Technology: Edward Sagarin 3.
3. Cosmetic Science and Technology Series: Volume 19: Novel Cosmetic Delivery System: Shlomo Magdassi, Elke Touitou.
4. Cosmetics: formulation, Manufacturing, Q. C:P.P Sharma
5. A Handbook of cosmetics: BM Mittal, RN Saha.
6. Cosmetics & Toiletries Journal
7. www.health.howstuffworks.com
8. Encyclopaedia of pharmaceutical sciences Vol.3.
9. Hand book of cosmetics by Mittal Cosmetics – Formulations, manufacturing & quality control P.P. Sharma.
10. Cosmetics – formulation by Poacher.
11. Chemical abstract vol-147.No 23 2007. 14. Chemical abstract vol-147.No 5 2007. 15. Chemical abstract vol-151, No 20