



## Review on Anti-Sunburn Preparations

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### ABSTRACT:

In response to the escalating need for skin protection, the sunscreen business is reaching amazing global significance through rapid innovation. The demand for better photo protection has grown as consumer awareness of the negative effects of sunshine has increased. The demand for broad-spectrum UVA and UVB protection has sparked innovative cosmetic formulation and delivery method research across the globe. Emollients, unique cosmetic chemicals, and more potent sunscreen actives have all been continuously introduced to the formulator's arsenal. Only global patent constraints and regulatory bodies have impeded innovation creativity. From the perspective of cosmetic formulation, enhancing a product's SPF is controlled by straightforward chemical principles.

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### OBJECTIVES:

- 1) To study the knowledge about anti-sunburn preparations.
- 2) To understand the production of sunscreen lotion.
- 3) To study the different manufacturing processes used in sunscreen lotion formulation.
- 4) To understand the advantages of sunscreen lotion.
- 5) To study about different equipments used for preparation of sunscreen lotion.

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### 1. CONTENT:

#### 1.1 Background of Cosmetics:

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 word cosmetic is originated from Greek Work "kosmetikos" it means to adorn. &preparation. In 21st century, the Winds of changes in Society are seen in all parts of word in application of the cosmetics. Cosmetic are external preparation meant for applying on external part of the body . In other words they may be applied to skin, hair and nails for the purposes of covering, colouring , softening, cleansing, nourishing, waving, setting, mollification, preservation, removal and protection. The cosmetics may be classified into 4 main groups namely; Cosmetics for Skin, Cosmetics for Hair, Cosmetics for Nails, Cosmetics for Hygiene (Dental, Bathing, etc.).[1][2] [3]

#### 1.2 Cosmetic Industry:

Innovation is one of the basic principles in this field. Over the past 20 years, the innovation in cosmetic industry is enormous, resulting in a wide range of products to protect and moisturize skin as well as to combat inflammation and age signals. Also, consumers are more concerned about their appearance, trying to accept the new society paradigms..[4]

Cosmetic industry describes the industry that manufacturer and distribute cosmetic product. Manufacturing industry is dominated by small number of Multinational Corporation. These include colour cosmetic like foundation and mascara skin care such as moisturizer and cleaners, hair care such as shampoo, conditioner and hair colour deodorant, antiperspirant. Market volume, of the cosmetics industry in Europe and the United States is about EUR 70 B per year according to 2005 publication..[5]

**1.3 Drugs and Cosmetic Act 1940 and Rule 1945:**

- 1) Drug and cosmetic act 1940 and rule 1945 have been enacted with the objective of regulating the import manufacturer distribution and of drug and cosmetic.
- 2) The act and rule have been amended from time to time the major amendment was made in 1982.
- 3) The act regulate the manufacturer and sale of drugs and cosmetic through licensing so that these are manufactured , distributed and sold only by qualified persons.
- 4) To have a check on such operation the central and State drugs control authorities are established.
- 5) Cosmetic are all through a luxury item they may contain some ingredients the constant use of which might prove to be harmful and hence need control.[6]

**1.4 Prohibition of import of certain cosmetics:**

By central Government by notification in official Gazette in this behalf number Person shall import-

- 1) Any cosmetic which is standard quality and any misbranded cosmetic
- 2) Any cosmetic for import of which a license is prescribed.
- 3) Any cosmetic ingredient which may render it unsafe or harmful or use under the direction indicated or recommended. [7]

**1.5 Prohibited from manufacture, store, sale in India:**

As per the directions of the Drugs and Cosmetics Act, the following drugs are prohibited from being manufactured for sale, distribution, exhibition or from being offered for sale:

- 1) Drugs and Cosmetics of sub-standard quality
- 2) Misbranded drugs or cosmetics
- 3) Adulterated drugs
- 4) Spurious drugs or cosmetics
- 5) Patent or proprietary medicine [8]

**1.6 Offence and penalty relating to import of Drug :**

Offence	Penalty	
	First conviction	subsequent conviction
1. Import of adulterate or spurious cosmetic or any cosmetics containing any ingredient which may render it unsafe or harmful for use under direction recommended	1. Imprisonment upto three year and fine upto Rs. 5000	1. Imprisonment upto five year or fine upto Rs. 10,000 or both
2. Import of any cosmetic other than referred above , the import of which is prohibited	2. Imprisonment upto 6 months or fine upto ₹ 500 or both	2. Imprisonment upto 1 year or fine upto Rs. 1000 or both
3. Import of any cosmetic in contravention of any notification issued under section 10A	3. Imprisonment upto 3 year or fine upto Rs. 5000 or both	

**1.7 Offence and penalties for manufacture and sale of cosmetics:**

Offence	Penalty
1. Manufacturer for sal, distribution , etc.	
a. Spurious cosmetic	Imprisonment upto 3 years and fine
b. Any other cosmetic in contravention of this chapter or rules there under	Imprisonment upto 1 year or fine upto Rs. 1000 or both

2. Not keeping the records of manufacturer and sale of cosmetic in the specified manner	Imprisonment upto 3 yaers and fine upto Rs.5,000
3. Non disclosure of name of a manufacturer or place where manufactured cosmetics are kept	Imprisonment upto 1 year or fine upto Rs. 1000 or both

[9]

### 1.8 Prohibition of manufacture of certain cosmetics:

Manufacture of following classes of cosmetics is prohibited :

- 1) Cosmetics which contain coal tar colour other than the one prescribed in schedule Q to the rule coal tar colour used in cosmetics shall not contain more than → a. 2ppm of arsenic calculated as arsenic trioxide. b. 20 ppm of lead calculated as lead c. 100 ppm of heavy metal other than lead calculated as the total of respective metal.
- 2) Cosmetic containing hexachlorophene
- 3) The use of lead and arsenic compound for purpose of colouring cosmetic is prohibited.
- 4) any patent or proprietary medicine, unless there is displayed in the prescribed manner on the label or container there of 3 the true formula or list of active ingredients contained in it together with the quantities.[10] [11]

### 1.9 Condition of obtaining license for import manufacture, and sale cosmeceuticals:

- 1.The following condition to be fulfilled by a license to manufacture cosmetic →
  - a. The manufacture of cosmetic should be conduct under supervision of competent technical staff. At least one from the competent staff should be whole time employ processing the following qualification
    - 1) D Pharmacy approved by PCI or
    - 2) Register pharmacist or
    - 3) Passed the intermediate examination with chemistry or any other equivalent examination recognised by licensing authorities.
  - B. The factory premises shall comply with the requirements and conditions specified in schedule M-II.
  - c. The applicant should provide and maintain the adequate facilities for a testing the manufacture cosmetics and the raw material used in the manufacture or should make arrangement with some approval institution and shall keep record as specific in schedule U.
2. License for sale of the cosmetics is not required. The dealers should sell only such cosmetics which do not Contravene any of the provisions drug and cosmetic act & the Rule.
3. No license is required for import of cosmetic but the importer should satisfy all other necessary requirements as in case of drug which are imported without license. [12]

## 2. DOCUMENTATION:

### 2.1 Master Formula Record: (MFR)

The Master formula should be available upon request. This document should contain the following information:

- (a) Product name and product code/number.
- (b) Intended packaging materials, and storage conditions.
- (c) List of raw materials used, whether they remain unchanged or become altered.
- (d) List of raw materials used.
- (e) List of equipment used.
- (f) In-process controls with their limits in processing and packaging, where applicable.[13]

## 2.2 Batch Manufacturing Record (BMR):

- 1) Batch manufacturing record is a written document from the batch that is prepared during the pharmaceutical manufacturing process. It contains actual data of the batch manufacturing and whole manufacturing process step by step.
- 2) Every batch has separate BMR a having the batch history of batch production. Documents and the proofs are attached to the BMR during the manufacturing process.
- 3) MFR (Master formula record) :
- 4) Master Formula Record (MFR) is a master document for any pharmaceutical product.
- 5) MFR contains all information about the manufacturing process for the product.
- 6) MFR is prepared by the research and development team of the company.
- 7) MFR is used as reference standard for preparing batchmanufacturing record (BMR) by manufacturing units.
- 8) MFR is also called Master Manufacturing Record, Master production record.

## 2.3 Good Manufacturing Practices :

FDA ensures the quality of drug products by carefully monitoring drug manufacturers' compliance with its Current Good Manufacturing Practice (CGMP) regulations. The CGMP regulations for drugs contain minimum requirements for the methods, facilities, and controls used in manufacturing, processing, and packing of a drug product. The regulations make sure that a product is safe for use, and that it has the ingredients and strength it claims to have.

Cosmetic Good Manufacturing Practices (GMP) relate to a set of comprehensive guidelines that help cosmetic businesses consistently manufacture products that are safe and of high quality. The word 'cosmetic' here refers to goods or materials intended to alter, enhance, cleanse, or groom one's face or body. They can range from makeup and fragrances to products such as soap, lip balms, shower gels, creams, lotions, Shampoos, body powders. Apart from cosmetics, Good Manufacturing Practices also exist for other consumer products including food, drugs, and supplements.

GMP is sometimes also called 'cGMP'. This refers to current Good Manufacturing Practices, which emphasizes the need for companies to adopt tools and technologies that are consistent with today's standards.

As its name implies, GMPs are concerned with the manufacturing or production processes that impact the safety, consistency, quality of the end product. Every cosmetic business has a responsibility to ensure that product created and ultimately sold are safe, effective, and of consistently high quality. The regulations enable a common understanding of the regulatory process by describing the requirements to be followed by drug manufacturers, applicants, and FDA.

- 1) 21 CFR Part 314 For FDA approval to market a new drug.
- 2) 21 CFR Part 210. Current Good Manufacturing Practice in Manufacturing Processing, packing, or Holding of Drugs.
- 3) 21 CFR Part 211. Current Good Manufacturing Practice for Finished Pharmaceuticals.
- 4) 21 CFR Part 212. Current Good Manufacturing Practice for Positron Emission Tomography Drugs.
- 5) 21 CFR Part 600. Biological Products: General.
- 6) The following pages provide more information with respect to regulations for particular product types and manufacturing considerations:
- 7) Compressed Medical Gases
- 8) Positron Emission Tomography (PET)
- 9) Field Alert Reports (for NDAs and ANDAs) and Biological Product Deviation Reports (for BLAs)

[<https://www.fda.gov/drugs/pharmaceutical-quality-resources/current-good-manufacturing-practice-cgmp-regulations>]

[New Directions – Everything you should know about Cosmetics GMP Google 13 march 2020]

## 3. Review of list of ingredients:

- 1) Purified water.
- 2) Preservatives.
- 3) Oil fats and wax: vegetable oils , mineral oils , fatty acid ester,fatty acid , Fatty alcohol, lanolin and its derivative ,soft paraffin.
- 4) Fragrance or perfumes.

- 5) Colourants.
- 6) Surfactants.
- 7) Humectants or moisturizer.
- 8) Herbal products.

### 3.1. Formulation Considerations for ethnic needs of cosmeceuticals:

- 1) Moisturising Cream :- The preparation (such as a lotion or cream) applied to the skin or hair to prevent or relieve dryness Use a lightweight moisturizer that isn't heavy or sticky in balmy weather.
- 2) Vanishing Cream:- a cream or ointment that leaves no visible trace when rubbed into the skin.
- 3) Cold Cream:- a cosmetic preparation used for cleansing and softening the skin.
- 4) Cleansing Cream:- cream for removing grease, dirt, and make-up from the skin.
- 5) Shaving Cream:- a frothy cosmetic cream applied to the skin before shaving with a razor. "his face was covered in shaving cream"
- 6) Shampoo:- a liquid preparation for washing the hair.
- 7) Dentifrices :- a paste or powder for cleaning the teeth.
- 8) Perfumes:- a fragrant liquid typically made from essential oils extracted from flowers and spices, used to give a pleasant smell to one's body.
- 9) Prickly Heat Powder:- a noncontagious cutaneous eruption of red pimples with intense itching and tingling caused by inflammation around the sweat ducts.
- 10) Aerosols:- a substance enclosed under pressure and released as a fine spray by means of a propellant gas.
- 11) Ointment:- a smooth oily substance that is rubbed on the skin for medicinal purposes or as a cosmetic.
- 12) Lotion:- a thick, smooth liquid preparation designed to be applied to the skin for medicinal or cosmetic purposes.
- 13) Tablet:- a flat slab of stone, clay, or wood, used especially for an inscription.
- 14) Capsule:- a small case or container, especially a round or cylindrical one.

## 4. ICH Guidelines for stability study :

- 1) ICH has produced a comprehensive set of safety Guidelines to uncover potential risks like carcinogenicity, genotoxicity and reprotoxicity. A recent breakthrough has been a non-clinical testing strategy for assessing the QT interval prolongation liability: the single most important cause of drug withdrawals in recent years.
- 2) SIA - SIC Carcinogenicity Studies
  - a) SIA - Need for Carcinogenicity Studies of Pharmaceuticals
  - b) SIB - Testing for Carcinogenicity of Pharmaceuticals
  - c) SIB(R1) EWG - Rodent Carcinogenicity Studies for Human Pharmaceuticals
  - d) SIC (R2) - Dose Selection for Carcinogenicity Studies of Pharmaceuticals
- 3) S2 Genotoxicity Studies
- 4) S2(R1) - Guidance on Genotoxicity Testing and Data Interpretation for Pharmaceuticals Intended for Human Use.
- 5) S3A - S3B Toxicokinetics and Pharmacokinetics
  - a) S3A - Note for Guidance on Toxicokinetics: The Assessment of Systemic Exposure in Toxicity Studies
  - b) S3A Q&As - Questions and Answers: Note for Guidance on Toxicokinetics: The Assessment of Systemic Exposure Focus on Micro-sampling.
  - c) S3B - Pharmacokinetics: Guidance for Repeated Dose Tissue Distribution Studies.
- 6) S4 Toxicity Testing
  - a) S4 - Duration of Chronic Toxicity Testing in Animals (Rodent and Non Rodent Toxicity Testing).

[Source (internet)<https://www.ich.org/page/safety-guidelines>]

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## 5. Knowledge about skin, oral cavity, hair, nail and body cavity.

### 5.1 Common Skin Disorders:-

Skin disorders vary greatly in symptoms and severity. They can be temporary or permanent, and may be painless or painful. Some have situational causes, while others may be genetic. Some skin conditions are minor, and others can be life-threatening. While most skin disorders are minor, others can indicate a more serious issue. List of skin disorder:- 1)Acne 2)Cold sore 3) Blister 4) Ringworm etc.

### 5.2 Oral cavity related problems:-

Some of the most common diseases that impact our oral health include cavities (tooth decay), gum (periodontal) disease, and oral cancer. More than 40% of adults report having felt pain in their mouth within the last year, and more than 80% of people will have had at least one cavity by age 34. Any problem that affects your mouth can make it hard to eat, drink, or even smile.

### 5.3 Hair related problems:-

Common problems affecting the hair and scalp include hair loss, infections, and disorders causing itching and scaling. Hair loss (alopecia) is a frequent concern for both men and women, although it is normal to shed some hair each day.

### 5.4 Nail related problems:-

There are number of conditions that can affect our nails, with different causes and treatments. a)Nail discolouration b)Bacterial infection of the nail c)Inflammation of the skin alongside the nail – paronychia. d)Trauma to the nail.

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## 6. Cleansing and care need:-

1. **Face:-** Cleanser's are facial care product that is used to remove make-up, dead skin cells, oil, dirt, and other types of pollutants from the skin of the face. This helps to unclog pores and prevent skin conditions such as acne. » Different types of cleansers have been developed for people with different skin types. active cleansers are more suitable for oily skins to prevent breakouts. Very dry skin may require a creamy lotion-type cleanser. dry skin requires much less cleansing power. It may be a good idea to select a cleanser that is alcohol-free for use on dry, sensitive, or dehydrated skin.

2. **Eye lids:-** After washing your hands, moisten a washcloth with a mild cleaning solution. Gently rub the washcloth over the edges of your eyelids, taking care not to press too hard, before opening your eyes. Rinse using warm water. Repeat the same process for the other eye using a different washcloth.

3. **Gums :-** Gently brush your teeth on all sides with a soft-bristle brush and fluoride toothpaste. Replace your toothbrush every 3 to 4 months.

4. **Lips:-** 1. Exfoliate. Remove dry, dead skin flakes by gently brushing your lips with a wet, soft toothbrush or washcloth.

5. **Hairs:-** Hair care is an overall term for hygiene and cosmetology involving the hair which grows from the human scalp, and to a lesser extent facial, pubic and other body hair. Hair care routines differ according to an individual's culture and the physical characteristics of one's hair.

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## 7. EQUIPMENT / INSTRUMENT USED IN COSMETIC FORMULATION:-

### 7.1 Cosmetic Industry Laboratory Equipment List:

- Water bath
- ph Meter
- Reflux Condenser
- Round Bottom Flask
- Weighing Balance
- Measuring cylinder
- Stirrer

Different instruments are used for preparation of Sunscreen lotion . Lets see the SOP of instruments.

## 7.2 Standard Operating Procedure of Different Equipment, Instruments And Machineries.

### • Water bath:

A water bath is laboratory equipment made from a container filled with heated water. It is used to incubate samples in water at a constant temperature over a long period of time. Most water baths have a digital or an analogue interface to allow users to set a desired temperature, but some water baths have their temperature controlled by a current passing through a reader. Utilisations include warming of reagents, melting of substrates or incubation of cell cultures. It is also used to enable certain chemical reactions to occur at high temperature. Water baths are preferred heat sources for heating flammable chemicals, as their lack of open flame prevents ignition.



Diagram of water bath

### • SOP of Water bath:

- 1) Ensure that the instrument is clean and calibration of temperature indicator is within due date of calibration.
- 2) Fill and check the water level, if required fill purified water to the acceptance level. The minimum water level is indicated by a black line on the water level indicator on left.
- 3) Switch "ON" the ring both by pressing
- 4) "ON/OFF" switch.
- 5) The digital temperature controller cum indicator will indicate the actual temperature of water.
- 6) Set the desired temperature by pressing the PRESS to SET switch and adjusting the
- 7) SET pot.
- 8) Approximately 1°C before the set temperature, the heater will start going on and off Heater action is indicated by the LED on the DTC. Allow a few minute for the temperature to stabilize.

If the indicate temperature is less than desired, turn the fine tuning pot on the DTC clockwise or vice versa.

### 2) Brookfield viscometer:-

- 1) Operate the instrument as per SOP
- 2) Calibrate the instrument with standard viscosity solution of 10, 100, 500, 5000 & 12,500 cps using respective spindles and record the results in Annexure-I.
- 3) The performance of the instrument is satisfactory, if the measured viscosity is within the given tolerance limit, otherwise follow the S.O.P.

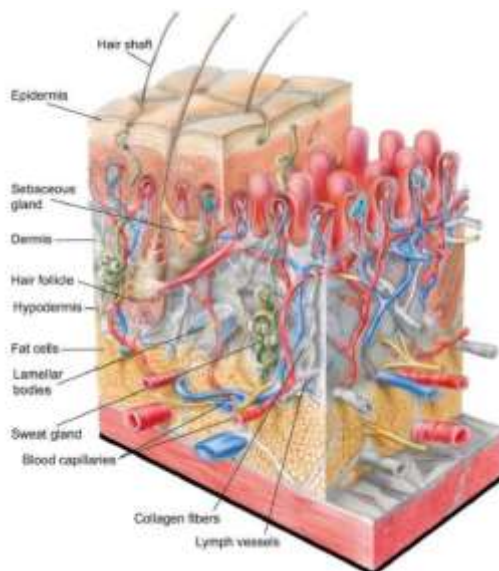
## BACKGROUND OF PRESENT INVESTIGATION

## 8. FORMULA AND EVALUATION OF ANTIPERSPIRANT STICK

### 8.1 Information About Skin:

- 1) The skin (word derived from Greek derma, and Latin cutis) completely covers the body and is continuous with the membranes lining the body orifices.

- 2) It is body's largest organ and account for 16% of total body weight and approximately 17.5 square feet or 1.5-2 m<sup>2</sup> body surface area and weighs about 2100 gm in adults and it contains glands, hair and nails. Skin varies in thickness average being 1-2 mm but it is 0.5 m on the eyelids and up to 6 mm on palms and soles.
- 3) Since most of the cosmetic preparations are meant to be applied on skin for beautification, protection or other purposes, basic knowledge of the skin and its functions is very much important for designing cosmetics meant for specific purpose of the skin.



[15] [16] [17]

### 8.3 Anti-sunburn preparations:

- 1) Depending upon length and frequency of exposure to sun light, the human body may exhibit beneficial or harmful effects.
- 2) A moderate exposure to sun light particularly in winter pleases human beings, stimulates blood circulation and increases the formation of haemoglobin. Sun light also activates 7-dehydrocholesterol (pro vitamin D.) present in the epidermis to form vitamin D which is important for absorption of calcium from intestines.
- 3) Immediate symptoms of sunburn are hot, red, tender skin; pain when the skin is touched or rubbed; and dehydration; several days after exposure the skin may swell, blister, and peel.
- 4) Most sunburns are mild and can be treated with home remedies such as applying damp cloths or compresses to reduce the pain, soaking in a tepid bath (with no soap), gently patting the skin dry, applying soothing creams or lotions, OTC pain relievers such as Tylenol or others, and moisturizing the skin.
- 5) Sunburn may cause permanent skin damage and skin cancer (malignant melanoma, basal cell carcinoma, squamous cell carcinoma). Persons with certain pigment disorders and individuals with fair skin are at most risk of sunburn.[18] [19] [20]

### 8.4 Symptoms of Sunburn:

- 1) Damage or destruction of cells in the prickle cell layer of epidermis Histamine is released
- 2) Dilation of blood vessels Erythema (redness of skin, caused by hyperaemia of the blood vessels near the surface)
- 3) Swelling of skin and pro
- 4) liferation of basal cells.

### 8.5 Uses of Sunscreen Lotion:

#### 1) Lowers Skin Cancer Risks

If exposed to UV rays, your skin can start losing its protective layer, which leaves your skin vulnerable to skin disorders like cancer, especially melanoma. Wearing sunscreen regularly can help your skin retain its sheen and safeguard it from cancer.

#### 2) Shields From Harmful UV Ray



Due to ozone layer depletion, harmful UV rays infiltrate our environment. While sun rays are the source of vitamin D needed by the body, over-exposure without sunscreen lotions can put you at a health risk. If you use sunscreen lotion, you can block the damage done by the harmful UV rays that may also trigger skin disorders.

### 3) Lowers Blotchiness on Face

If you apply a generous amount of sunscreen, there are chances of keeping skin irritation and eruption of red veins at bay. These skin disorders often occur due to harmful sun rays.

### 4) Prevents Sunburn

We all love hanging out in the sun, especially during winters. However, being out in the sun without sunscreen may cause sunburns, which can lead to skin peeling, redness, blotchiness, itching, and even hives in cases of sensitive skin.

## EXPERIMENTAL WORK

### Material And Methods:

	Ingredients	Quantity wt% (gm)	Uses
Fatty phase	Lanoline	4.5	moisturise the skin.
	Cocoa butter	2.0	Protective barrier
	Glyceryl stearate	3.0	Emollient
	Stearic acid	2.0	Lubricant and emulsifier
Aqueous phase	Water	72.0	Aq.Base
	Sorbitol	5.0	Humectant
	Triethanolamine	1.0	Stabilizer
	Benzyl alcohol	0.5	Preservative
UV Filter	Zinc oxide	10.0	Block uv rays
	Perfume	q.s	Fragrance

### Formulation of sunscreen lotion:

- 1) Take two 100 ml beakers A and B add fatty phase ingredients and zinc oxide in beaker A.
- 2) Add aqueous phase ingredients in beaker B. Heat them both at 80°C. until they became liquid.
- 3) Then slowly add ingredients in beaker B into A with continuous stirring.
- 4) Add perfume when the temperature of lotion comes at room temperature and fill into container.

### Evaluation parameters :

#### PH:

pH measurement 1 g of cream was dispersed in 9 ml of distilled water to determine the pH at 27°C using the pH meter. The PH observed is 6.1 which is suitable for skin.

#### Determination of viscosity

Procedure: Viscosity of the formulation was determined by Brookfield Viscometer at 25 rpm, using spindle L3.

#### Spreadability:

The parallel plate method is most widely used method for determining the spreadability of semisolid preparations. A modified laboratory apparatus was used to evaluate spreadability. The setup consists of two glass slides placed on a tripod stand on which excess of Lotion (3g) was applied in between two glass slides. The upper slide is movable and the lower slide was firmly incubator.

#### Determination of thermal stability :

The lotion was transferred into glass bottle with the help of spatula and tapped it to settle to the bottom. Filled up to two third capacity of bottle, plug was inserted and tightened the cap. The filled bottle was kept in the incubator at 45°C for 48 hr.

#### Irritation on Skin:

The lotion is applied on the skin to check its effect on skin. If it does not show adverse effect on skin then it is ideal preparation for skin.

Test	Specification	Result
Appearance	Clear, colourless	Colourless

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Thermal stability	Stable ,unstable	Stable
pH	5.5-7.5	6
Homogenicity	Homogeneous or consistent	Homogeneous
Texture	Smooth	Smooth
Washability	Washable	Washable

**Outcomes:**

- 1) Understood the knowledge about anti sunburn preparations.
- 2) Understood about the production of sunscreen lotion.
- 3) Studied the different manufacturing processes used in Sunscreen lotion.
- 4) Understood the knowledge about different methods of preparation of Sunscreen lotion.
- 5) Understood the advantages of sunscreen lotion.

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**Conclusion:**

The aim of sunscreen lotion is to protect skin from harmful ultraviolet rays. The ultra violet rays are very harmful for skin as they causes skin cancer. sunscreen lotion protects skin from uv rays. Zinc oxide present in sunscreen lotion forms protective layer on skin and blocks ultraviolet radiations. Sunscreen lotion protects against skin damage and skin cancers. Protection against both UVB and UVA radiation is advocated. Sunscreen lotion is easy to prepare ,easy to evaluate, simple to apply and economically affordable.