BUILDING BLOCKS FOR DIFFERENT PRODUCT FORMULATIONS OF COSMETICS

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CONTENTS

Definition, Types, Ingredients, General formula , Manufacture & Evaluation of :-

- MOISTURIZING CREAM
- VANISHING CREAM
- COLD CREAM
- SHAMPOO
- TOOTHPASTE
- SOAP
- SYNDETBAR

CREAMS

Creams are defined as a semisolid dosage form containing one or more drug substances dissolved or dispersed in a suitable base.

TYPES OF SKIN CREAMS

1) Make up creams

(a) Vanishing cream

(b) Foundation cream

2) Cleansing creams

3) Creams for winter

(a) Cold cream

4) Creams for dry skin

(a) Moisturizing cream

5) All purpose creams

6) Night creams

7) Skin protective & hand creams

INGREDIENTS USED IN SKIN CREAMS

1) Water

2) Oils,fats & waxes

(a) Mineral oil **(Light liquid paraffin , Heavy liquid paraffin)**

(b) Glyceride oil **(Almond oil , Arachis oil , Castor oil)**

(c) Fats **(Lauric , Palmitic , Stearic acids & Sesame oil , Olive oil, Coca butter , Peanut oil)**

(d) Waxes **(Carnauba wax, Beeswax)**

3) Lanolin **(Derived from wool fat)**

4) Glycol **(Ethylene glycol , Diethylene glycol & Propylene glycol)**

5) Colours **(Saffron , Chlorophyll , Cochineal)**

6) Emollients :

- Also known as Moisturizers.
- Eg :
- **Mineral oil**
- **Squalene**
- **Lanolin**

7) Emulsifying agents

(a) Inorganic solids :

Eg:**Bentonite**

Kaolin

(b) Gums & Proteins

Eg: **Gum arabic**

Gum tragacanth

Gelatin

Egg albumin

8) Wetting agent :

- Type of surface active agents & lower surface tension.

  Eg : **Soaps**

  Sulphonated oils

  Fatty alcohol sulphates

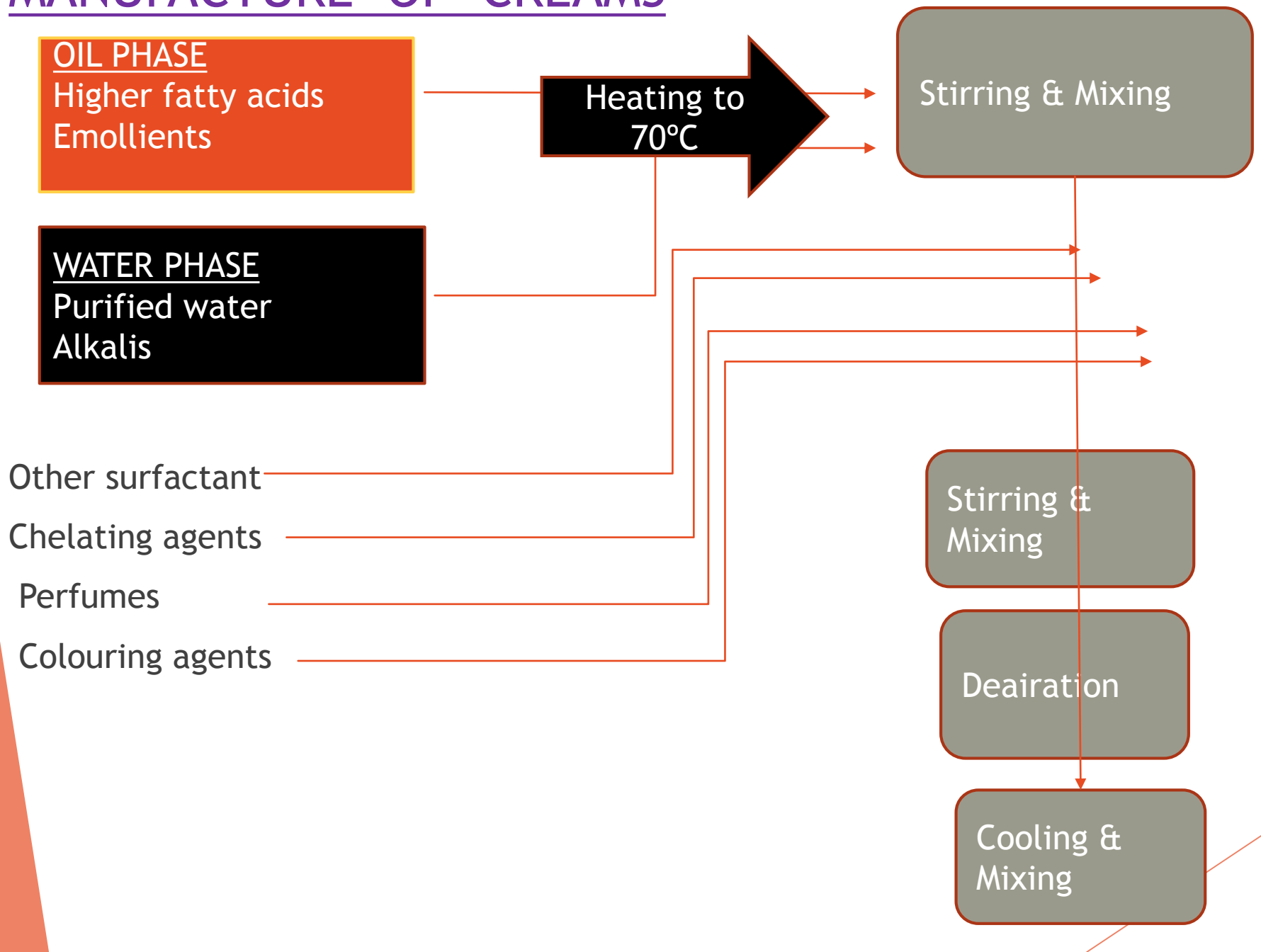
  Sulphated fatty esters & amides

9) Humectants **(Proteins , acids & Polysaccharides)**

10) Perfumes **(White blossoms , Rosy dreams , Orange blossom)**

11) Some functional raw materials like vitamins, amino acids and anti-inflammatory agents may also be incorporated in creams

MANUFACTURE OF CREAMS



(I) MOISTURIZING CREAM

- When water is lost from stratum corneum more rapidly than it is received from lower layers of skin , the skin becomes dehydrated.

- The dehydrated skin loses it's flexibility and appears rough.

- Creams which restore water or moisture & plasticizes the stratum corneum , provides it's flexibility and makes it soft.These types of cream are known as moisturizing cream.

FORMULA :-

Stearic acid	- 4%
Mineral oil	- 8%
Lanolin	- 1%
Glyceryl monostearate (self-emulsifying)	- 3%
Isopropyl myristate	- 2%
Glycerine	- 4%
Propylene Glycol	- 4%
Triethanolamine	- 0.2%
Water	- 100%
Perfume & Preservatives	- Q.S

(II) VANISHING CREAM

- Creams which spread easily & seem to disappear rapidly when rubbed on the skin are termed as vanishing creams.
- These creams are composed of emollient esters which leave little apparent film on the skin.
- Traditional formulae of vanishing creams are based on stearic acid.
- Stearic acid melts above body temperature & crystallizes in a form so as to be invisible providing a non-greasy film .It also imparts attractive appearance to the cream.

FORMULA :-

Stearic acid	-	17%
Potassium hydroxide	-	0.7%
Glycerine	-	5%
Water	-	100%
Perfumes & Preservatives	-	Q.S

Procedure for preparation of vanishing cream :-

- Melt stearic acid in a china dish on a water bath.
- In a beaker, dissolve potassium hydroxide in water & glycerine to it. Heat the aqueous solution upto 70°C on water bath.
- When both aqueous & oily phase reaches the same temperature (70°C) , add aqueous phase to melted stearic acid with constant stirring.
- Remove the china dish from heat & continue the stirring , when the temperature reaches 40°C , add perfume and mix uniformly until it becomes cool and a homogeneous cream is obtained.

(III) COLD CREAM

- Cold cream is a w/o type emulsion which when applied to skin , a cooling effect is produced, due to slow evapouration of water present in the emulsion.
- Cold cream is an emulsion of fats and water which can be used to clean & soften the skin.
- Cold cream has been used to remove makeup gently at the end of day & it can also be used to soften tough skin on the knees and elbows or to keep skin protected from harsh winter weather.
- Cold cream is prepared by saponification reaction between beeswax & alkali borax.

FORMULA :-

White beeswax	-	10g
Liquid paraffin	-	30g
Borax	-	0.5g
Rose oil	-	0.1ml
Water	-	10ml

Procedure for preparation of cold cream :-

- Weigh the required quantity of white beeswax & liquid paraffin and melt in a china dish by heating on a water bath upto 70ºC .
- In a glass beaker, dissolve borax in water and heat upto 70ºC .
- When both oily and aqueous phases reaches the same temperature (70ºC) , gradually add borax solution to the melted beeswax drop by drop with constant stirring.
- Stir continuously until it becomes cool.When the temperature lowers to 40-45ºC , incorporate rose oil and mix uniformly , until a homogeneous semi-solid mass is obtained.

EVALUATION OF CREAMS

1) Presence of foreign particles / grittiness :

- A Small amount of cream was taken and spread on a glass slide free from grease and was observed against diffused light to check for the presence of foreign particles.

2) pH of the cream :

- About 1g of the cream was weighed & dissolved in 100ml of distilled water and stored for 2 hrs . pH of different formulations was determined by using digital pH meter.

3) Viscosity :

- Viscosity of the formulation was determined by brookfield viscometer using spindle no. S-64 at 20rpm at a temperature of 25°C & determinations were carried out in triplicate and the average of three recordings were recorded.

4) Spreadability :

- Two sets of glass slides of standard dimensions were taken.
- The cream formulation were placed over one of the slides.
- The other slides was placed on the top of formulation , such that the cream between two slides were pressed uniformly to form a thin layer.
- The spreadability was expressed in terms of time taken by 2 slides to slip off from the cream.
- Lesser the time taken for separation of 2 slides , better the spreadability.

5) Irritancy test :

- Mark an area(1 square cm) on the left hand dorsal surface. The cream was applied to the specified area and time was noted . Irritancy , erythema , edema was checked if any, for regular intervals upto 24hrs & reported.

6) Patch test :

- About 1-3g of cosmetic to be tested was applied on to the sensitive part of the skin. Control patches were also applied. The site of patch was inspected after 24 hrs.

7) Stability studies :

(a) Globule size :

1ml of cream was diluted to 10ml with glycerine. A few drops of this were transferred onto a glas slide & was focussed in a microscope. By using eyepiece micrometer, the diameters of 200 particles were determined randomly.

(b) Phase separation :

The formulated cream was kept intact in a closed container at 25-30ºC not exposed to light. Phase separation was observed carefully every 24hrs for 30 days. Any change in phase separation was recorded.

8) Partition coefficient of the cream :

- 50mg of cream was taken in a separating funnel containing 1:1 ratio of buffer 7.4 & n-hexane.

- Then, solution was shaken occasionally & both phases were separated and filtered & the amount solubilized in each phase was determined by measuring the absorbance using UV spectrophotometer.

9) Extrudability :

- The formulations were filled in a standard collapsible capped tube and sealed.
- The tube was weighed & recorded. The tube was placed between two glass slides & was clamped.
- A 500g weight was placed over the slide & cap was opened.
- The amount of cream were collected & weighed.
- The amount of cream extruded was calculated and grades were allotted.

10) Thermal stability :

- The formulated cream was inserted into glass bottle with the help of a spatula , and tapped to settle to the bottom, filled upto 2/3rd capacity of bottle & insert plug and tighten the cap.
- Filled bottle was kept erect inside the incubator at 45± 1°C for 48hrs.
- The sample will pass the test , if on removal from the incubator shows no oil separation or any other phase separation.

(IV) SHAMPOO

A Shampoo is a preparation of a surfactant in a suitable form – liquid,solid or powder which when used under the specialized conditions will remove surface grease,dirt and skin debris from the hair shaft and scalp without adversely affecting the user.

INGREDIENTS FOR SHAMPOO

1) Surfactants :

(a) Anionic surfactants :

- Alkyl benzene sulphonates
- Alpha oleffin sulphonates
- Sulphosuccinates

(b) Non-ionic surfactants :

- Fatty acid alkanolamides
- Polyalkoxylated derivatives
- Amine oxides

(c) Amphoteric surfactants :

- N-alkyl aminoacids
- Betains
- Alkyl imidazolines

2) Conditioning agents :

- Lanolin
- Mineral oil
- Polypeptides
- Egg derivatives
- Herbal extracts

3) Viscosity modifiers :

(a) Electrolytes :

- Ammonium chloride
- Sodium chloride

(b) Natural gums :

- Gum tragacanth
- Gum karaya
- Alginates

(c) Cellulose derivatives :

- Hydroxyethyl cellulose
- Hydroxypropyl cellulose
- Carboxymethyl cellulose

(d) Carboxyvinyl polymers :

- Polymer of acrylic acid cross-linked with polyfunctional agent

(e) Others :

- Ethoxylated fatty acid diesters
- Phosphate esters
- Polyvinyl pyrrolidones

4) Opacifying & Clarifying agents :

- Stearyl alcohol
- Cetyl alcohol
- Propylene glycol
- Phosphates
- Finely dispersed zinc oxide
- Milky emulsions of vinyl polymers

5) Preservatives : (Formaldehyde , Esters of para hydroxy benzoic acid)

6) Perfumes

FORMULA :-

Coconut oil	-	14% v/v
Olive oil	-	3% v/v
Castor oil	-	3% v/v
Potassium hydroxide	-	8% v/v
Glycerol	-	8% v/v
Sodium hexamethyl cellulose	-	0.8% v/v
Perfume	-	0.3% v/v
Sodium carboxymethyl cellulose	-	2.5% v/v
Water	-	53% v/v

Procedure for preparation of shampoo :-

- Measure the quantity of coconut oil, olive oil , castor oil & take it in a round bottom flask.
- Potassium hydroxide dissolved in 3/4th quantity of water was added to it , heat it in a water bath for 70-80°C with constant shaking for 1hr.
- Take remaining quantity of water and add sodium hexamethyl cellulose , glycerine , perfume & other ingredients.
- Then mix both the solution to form a uniform shampoo.

TYPES OF SHAMPOO

1) Powder shampoo :

FORMULA :-

Henna powder	-	5%
Soap powder	-	50%
Sodium carbonate	-	22.5%
Potassium carbonate	-	7.5%
Borax	-	15%
Perfume	-	Q.S

2) Lotion shampoo :

FORMULA :-

Sodium lauryl sulphate	-	35%
Glyceryl monostearate	-	2%
Magnesium monostearate	-	1%
Water	-	upto 100%
Colour, Perfume & Preservatives	-	Q.S

3) Liquid shampoo :

FORMULA :-

Sodium lauryl sulphate	-	40%
Sodium chloride	-	2-4%
Water	-	upto 100%
Perfume, Colour & Preservatives	-	Q.S

4) Anti-Dandruff Shampoo :

FORMULA :-

Selenium sulphide	-	2.5%
Bentonite	-	5%
Sodium lauryl sulphate	-	35%
Water	-	Upto 100%
Colour , Perfume , Preservatives	-	Q.S

5) Conditioning shampoo :

FORMULA :-

Stearyl dimethyl benzyl ammonium chloride	-	5.5%
Ethylene glycol monostearate	-	2%
Cetyl alcohol	-	2.5%
Water	-	upto 100%
Colour, Perfume & Preservatives	-	Q.S

EVALUATION OF SHAMPOO

1) Determination of percent of solid contents :

- A clean dry evaporating dish was weighed and added 4g of shampoo to it.
- Evapourating dish with the shampoo was weighed.
- The exact weight of shampoo was calculated & the evapourating dish with the shampoo was placed on a hot plate until the liquid portion evapourates.
- The weight of shampoo only (solids) after drying was calculated.

2) Determination of pH :

- The pH of 10% shampoo solution in distilled water was determined at room temperature using a digital pH meter.

3) Determination of viscosity :

- It is determined using Brookfield viscometer .
- 100ml of shampoo is taken in a beaker & spindle is dipped in it for about 5 minutes and then reading is taken.

4) Foaming ability & Foam stability :

- 50ml of 1% shampoo solution was put into a 250ml graduated cylinder and covered the cylinder with hand and shaken for 10 times.
- The total volume of the foam contents after 1 minute shaking were recorded.
- The foam volume was calculated after shaking the volume of the foam at 1 minute interval for 4 minutes were recorded.

5) Skin irritation test :

- Patch test technique is used here.
- A set of 6 rabbits were used for testing each material.
- The shampoo preparations are diluted between concentrations of 8-10%.
- Patches containing the shampoo preparations were applied & then removed , the skin sites were noted for any changes on the surface of skin like edema,erythema formation.
- These products are then classified as mild irritant, moderate & severe.

6) Cleaning action :

- 5g of wool yarn were placed in grease , after that it was placed in 200ml of water containing 1g of shampoo in a flask .
- Temperature was maintained at 35ºC .
- The flask was shaked for 4 minutes at the rate of 50 times a minute.
- The solution was removed and sample was taken out, dried and weighed & calculated the amount of grease removed.

7) Dirt dispersion :

- Two drops of shampoo were added in a large test tube containing 10ml of distilled water.
- 1 drop of ink was added ; the test tube was stoppered and shaked it 10 times.
- The amount of ink in the foam was estimated as none, light , moderate or heavy.

8) Surface tension measurement :

- Measurements were carried out with a 10% shampoo solution in distilled water at room temperature.
- Thoroughly clean the stalagmometer with purified water because surface tension is highly affected with grease or other lubricants.
- Surface tension measurement is done by the following equation :-

$$R_2 = \frac{(W_3 - W_1)\, n_1}{(W_2 - W_1)\, n_2} * R_1$$

9) Eye irritation test :

- About 1% shampoo solution was dripped into the eyes of 6 albino rats with their eyes held open with the clips at the lid.
- The progressive damage to the rabbit's eyes was recorded at specific intervals over an average period of 4 seconds.
- Reaction to the irritants can include swelling of the eyelid , inflammation of the iris , ulceration , haemorrhaging and blindness.

(V) TOOTHPASTE

Toothpaste is a paste or gel dentrifrice used with a toothbrush as an accessory to clean & maintain the aesthetics and health of the teeth.

INGREDIENTS OF TOOTHPASTE

1) Abrasives :

- These are used to remove food debris and residual stains of the teeth & to polish the teeth surface.

- Eg :

- Precipitated calcium carbonate
- Dibasic calcium phosphate
- Tricalcium phosphate
- Calcium pyrophosphate
- Insoluble sodium metaphosphate
- Anhydrous dibasic calcium phosphate
- Hydrated alumina

2) Detergents & other foaming materials :

- These are used in toothpaste for their cleansing action
- These materials lower surface tension, thereby promoting penetration of paste & helps in removal of deposits & debris .
- Eg :

- Sodium lauryl sulphate
- Magnesium lauryl sulphate
- Sodium lauryl sarcosinate
- Sodium lauryl sulphoacetate
- Dioctyl –sodium sulphosuccinate
- Monoglycerides
- Sulphates
- Sulphonates

3) Humectants :

- Humectants in toothpastes are used to prevent their drying out
- They also impart some plasticity to toothpastes.
- Eg :

- Glycerin
- Propylene glycol
- Sorbitol solution

4) Binding agents :

- Solid & liquid phases of toothpaste tends to separate in the absence of binding agents particularly during storage.

- Binding agents disperse, swell or absorb water to form viscous liquid phases.

- Eg :

- Natural gums (Gum Arabic , Gum tragacanth)
- Cellulose derivatives (Carboxy methylcellulose, Sodium carboxymethylcellulose , Hydroxyethyl cellulose)
- Starch ethers
- Synthetic resins

5) Sweetening & flavouring agents :

- These are the most important ingredients in toothpaste as they have great influence on the acceptance of the product.

- Eg :

- Saccharin sodium (0.05-0.3%)
- Chloroform
- Peppermint
- Spearmint
- Coriander
- Caraway
- Anise
- Eucalyptus

6) Minor ingredients :

- Titanium dioxide
- pH regulators
- Cellulose ethers
- Carragheen

FORMULA :-

Calcium carbonate	-	60g
Glycerin	-	20g
Tragacanth powder	-	2g
Sodium lauryl sulphate	-	2g
Saccharine	-	0.5g
Peppermint oil	-	0.5ml
Methyl paraben	-	1g
Propyl paraben	-	1g
Water	-	15ml

Procedure for preparation of toothpaste :-

- Take half the quantity of water, add tragacanth powder & heat it in a water bath to get a gel .
- To the remaining quantity of water, add glycerine, sodium lauryl sulphate , preservative & mix it thoroughly to get a clear solution.
- Weigh the required quantity of saccharin and calcium carbonate solution & mix it with the help of mortar and pestle.
- To this powder, add gum tragacanth & mix well.
- Add glycerine, preservative & sodium lauryl mixture to it and triturate uniformly to get a paste.
- Finally add flavouring agent & triturate well.
- Transfer to a narrow mouthed plastic tube , seal & label.

DIFFERENT TOOTHPASTE FORMULATIONS

1) Anti-cavity formulation :-

FORMULA :-

Sorbitol (70%)	-	54.1%w/w
Silica (Abrasive)	-	18%w/w
Xylitol	-	10%w/w
Silica (Thickener)	-	5.5%w/w
Polyethylene glycol 600	-	3%w/w
Sodium lauryl sulphate	-	1.2%w/w
Flavour	-	0.9%w/w
Tetrasodium pyrophosphate	-	0.5%w/w
Titanium dioxide	-	0.5%w/w
Sodium benzoate	-	0.5%w/w
Carboxymethyl cellulose	-	0.35%w/w
Sodium fluoride	-	0.243%w/w
Sodium saccharin	-	0.2%w/w
Colour water	-	100%w/w

2) Toothpaste offering whitening :

FORMULA :-

Glycerin	-	25%w/w
Silica abrasive	-	20%w/w
Propylene glycol	-	17.6%w/w
Sodium bicarbonate	-	12%w/w
Water	-	6%w/w
Propylene glycol 600	-	3%w/w
Sodium carbonate	-	2%w/w
Silica thickener	-	2%w/w
Sodium lauryl sulphate	-	1.7%w/w
Colour	-	100%w/w

3) Toothpaste for sensitivity :

FORMULA :-

Potassium nitrate	-	10%w/w
Glycerin	-	25%w/w
Polyoxyethylene sorbitan monolaurate	-	2%w/w
Silica	-	24%w/w
Flavour	-	1%w/w
Sodium saccharin	-	0.2%w/w
Water	-	100%w/w

EVALUATION OF TOOTHPASTE :

1) Determination of hard & sharp edged abrasive particles :

- The paste was extruded about 15 to 20cm length from collapsible tube of each sample on a butter paper.
- Then all the samples were tested by pressing it along it's entire length by a finger for the presence of hard & sharp edged abrasive particles.

2) Determination of spreadability :

- About 1g of each sample was weighed and placed at the centre of glass plate & another glass plate was placed over it carefully.
- Above the glass plates, 2kg weight was placed at the centre of plate , avoid sliding of plate.
- The diameter of the paste in cm was measured after 30 minutes.
- The experiment was repeated 3 times & the averages was reported for all the samples.

3) Determination of fineness :

- A sample of 10g was accurately weighed and placed in a 100ml beaker.
- To this, 50ml of water was added & allowed to stand for 30minutes with occasional stirring until the toothpaste was completely dispersed.
- This solution was passed through 150micron standard sieve & sieve was washed with water.
- After washing , the residue remained on sieve was collected & dried in an oven at 105°C.
- After drying, the sample was collected carefully & weighed
- Fineness was calculated by using the following formula ;

$$\text{Percentage by mass} = \frac{M_1}{M_2} * 100$$

4) Determination of pH :

- Take 10g of toothpaste in 150ml beaker.
- Add 10ml freshly boiled & cooled water and stir well to make a thorough suspension.
- Determine the pH of suspension using pH meter.

5) Determination of foaming power :

- To 5g of sample , 10ml of water was added & covered with a watch glass , allowed to stand for 30 min to disperse toothpaste in water
- The contents of the beaker was stirred & slurry was transferred to a 250ml graduated measuring cylinder , ensure that no foam was produced & no lump went into the cylinder.
- The content of the cylinder was adjusted to 50ml by adding sufficient water & temperature was maintained at 30°C
- Then the cylinder was stoppered & shaken it 12 times and the cylinder was allowed to stand for 5 min and the volume of foam was noted for all samples.

$$\text{Foaming power} = V_1 - V_2$$

6) Moisture content :

- 10g of toothpaste was weighed & dried it in an oven at 105°C , then it was cooled.
- The loss of weight is recorded as percentage moisture content and calculated by given formula ;

$$\% \text{ moisture} = \frac{\text{Original sample wt} - \text{Dry sample wt}}{\text{Original sample wt}} * 100$$

7) Determination of heavy metals :

- Accurately weigh 2g of the sample in kjeldahl flask
- An acid mixture of HNO_3 : $HCLO_4$ (4:1) was added in the flask & heated continuously till the solution become colourless.
- The sample was then transferred to a 25ml volumetric flask & volume was made up with distilled water.
- A reagent blank was prepared according to the above procedure.
- The standard of lead was prepared as per the protocol & the sample was visually analysed & compared with the standard solution of lead.

(VI) SOAPS & SYNDETBARS

- Soaps are sodium or potassium salts of long chain fatty acids.When triglycerides in fat/oil react with aqueous NaOH or KOH , they are converted into soap & glycerol.This is called alkaline hydrolysis of esters.
- Since this reaction leads to the formation of soap , it is called saponification process.

- The word “Syndet” is derived from ‘synthetic’ combined with ‘detergent’.Technically, it refers to the binding that occurs between different detergents , also called surfactants.
- Syndet soap surfactants are derived from oils, fats or petroleum products that are processed from a wide range of chemical processes other than traditional saponification.

INGREDIENTS FOR MAKING SOAP :

1) Fats & oils :

- A Fat mixture containing saturated & unsaturated , long & short chain fatty acids in proportion are used in manufacture of soap
- Eg :
- A very common mixture for manufacture of soap is 75% tallow & 25% coconut oil.
- Saturated fatty acids with 12 to 18 carbon atoms include lauric,myristic,palmitic,stearic & oleic acids are used.

2) Alkali :

- An important raw material in soap making is caustic soda.
- Eg :
- Soda ash can saponify fatty acids & used as a builder in laundry soaps.
- Caustic potash (KOH) is also used in making soft soaps.
- Potassium carbonate can be also used to saponify fatty acids

3) Other additives :

- Water
- Salt (Sodium chloride)
- Anti-oxidants
- Whiteners
- Perfumes
- Pigments & Colours

INGREDIENTS FOR MAKING SYNDETBARS

- Sodium cocoyl isethionate
- Sulphosuccinates
- Alpha oleffin sulphonates
- Alkyl glyceryl ether sulphonate
- Sodium cocoyl monoglyceride sulphate
- Betaines

MANUFACTURE OF SOAPS & SYNDETBARS

Soap is manufactured by 3 types of processes :

1) Semi-boiled & cold process :-

- In these processes, fat is reacted with strong alkali. After reaction is complete, the entire mass is saponified without the separation of free glycerine.
- Here, the fat charge is simply heated with required amount of caustic soda.
- After saponification , other ingredients like soap builders are added.
- If the batch is made in a kettle, it may be actually boiled but if the batch is made in a crutcher , the temperature must be kept little below the boiling point.

2) Full-boiled process :-

- Here, large cylindrical kettles with cone bottoms equipped with open & sometimes with closed coils for steam are used.

It includes :

Saponification reaction:-

- ✓ This is carried out by boiling fat with aqueous alkali together with open steam.

Graining out & washing :-

- ✓ After saponification , the soap is grained out by the addition of salt to the boiling mass.
- ✓ Dry salt as well as brine may be used.
- ✓ The soap rises to the top of kettle in form of rough mass as soap which is called ‘kettle wax’
- ✓ The washings are carried out by adding water to the kettle mass .

Finishing or Fitting operation :-

- ✓ The final operation in soap boiling is fitting operation.
- ✓ Here, the soap is boiled with water & upon standing , the batch will separate into upper layers consisting of neat soap and lower layer consisting of niger which retains most of the colouring materials, metallic salts & other impurities.

3) Continuous saponification :-

- Here, fats are first converted into fatty acids & glycerine using high pressure at 500°C in continuous fat splitting process and fatty acids are reacted with alkali to form soap.

- This method is suitable for large scale production.

FORMULA FOR SOAP FORMULATION :

Soap base	-	99.3-98.6%
Titanium dioxide	-	0.2-0.4%
Perfume	-	0.5-1%
Colour	-	Q.S

FORMULA FOR SYNDETBAR FORMULATION :-

Sodium glyceryl monolaurate sulphate	-	78%
Glyceryl monostearate	-	10%
Cetyl alcohol	-	9%
Lanolin derivative	-	1%
Corn starch	-	2%
Perfume,colour,Anti-oxidant	-	Q.S

EVALUATION OF SOAPS & SYNDETBARS

1) Determination of clarity, colour & odour :-

- Clarity & colour was checked by naked eyes against white background , odour was smelled.

2) Determination of pH :-

- The formulation were dissolved in 100ml of distilled water & stored for 2hrs.
- The measurement of pH of the formulation was done in previously calibrated pH meter.

3) Determination of foam height :-

- 0.5g of sample of soap was taken, dispersed in 25ml distilled water.
- Then transferred it into 100ml measuring cylinder.Volume was adjusted to 50ml with water.
- Shaken the above sample solution 25 times and measured the foam height .

4) Determination of percentage of free alkali :-

- About 5g of sample was taken in a conical flask and added it into 50ml of neutralized alcohol.
- It was boiled under reflux on a water bath for 30min ,cooled & 1ml of phenolphthalein solution was added.
- It was then titrated immediately with 0.1N Hcl.

5) Determination of alcohol insoluble matter :-

- 5g of sample was taken in a conical flask, added it to 50ml of warm ethanol & shaken vigorously to dissolve .
- The solution was filtered through a filter paper with 20ml warm ethanol and dried it at 105°c for 1hr.

$$\% \text{ Alcohol insoluble matter} = \frac{\text{wt of residue}}{\text{wt of sample}} * 100$$

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THANKYOU…