

Experiment 6

Semisolid dosage forms: Dispersed Systems Creams

Creams:

Are semi-solid or highly viscous liquid emulsions intended for application to the skin.

- Creams can be used as:

- Emollients
- Cleansers, → مثقف للبشرة → مثل مزيج المكياج
- Skin protectant
- And to deliver drugs to the skin (acting as vehicles into which the drug is incorporated) or other body sites

- They are divided into two types:

- (1) Oil-in-water (O/W) creams which are composed of small droplets of oil dispersed in a continuous aqueous phase e.g. Vanishing creams.
- (2) Water-in-oil (W/O) creams which are composed of small droplets of water dispersed in a continuous oily phase e.g. Cold cream

↓ Oil-in-water creams: e.g. Vanishing creams.

1. More comfortable and cosmetically acceptable as they are less greasy and more easily washed off using water.
2. Non-occlusive

↓ Water-in-oil creams: e.g. Cold cream

1. Drugs which are incorporated into w/o creams are hydrophobic and will be released more readily from a water-in-oil cream than an oil-in-water cream. $w/o > o/w$
2. More effective in skin cleansing
3. Have the advantage of being more occlusive since, having oil as the external phase reduce water evaporation from the skin thus increasing its hydration. Those creams are useful in conditions involving dry skin.
4. Increased skin hydration may raise the permeability of the skin and enhance drug penetration.

نفس لتقسيم
ar emulsions
emulsions
شكلاً وعصراً

2. ما يعمل طبقة عازلة

يتم دمجها

Formula (1):

Rx 20 gm cold cream USP

Ingredients	Master formula	Scaled formula
Spermaceti (Cetyl esters wax)	125gm	2.5 gm
White wax (Bees Wax)	120gm	2.4 gm
Mineral oil	560gm	11.2 gm
Sodium borate	5gm	0.1 gm
Purified water to make	q.s. 1000gm (add 190 ml)	q.s. 20gm (add ---ml)

$F = 0.02$

Cold cream: is W/O type of emulsion

- It is an oily and greasy type of creams to which both the cleansing and lubricating creams belong to.
- In cold cream the emulsifying agent is formed by reaction between the alkaline sodium borate and the free fatty acids in Bees wax.
- Why is it called cold cream? - Cooling sensation after application
- Cooling effect is produced due to slow evaporation of water

Procedure:

1. Weight the solid ingredients.
2. If necessary, reduce the size of cetyl esters wax and the white wax in the beaker to small pieces by using glass rod.
3. Melt the cetyl esters wax and the white wax in the beaker using hot plate.
4. Add the mineral oil and continue heating the mixture until it reaches 70°C.] oil phase
5. Dissolve the sodium borate in the calculated amount of purified water and warm the mixture to 75°C using hot plate.] aqueous phase
لأنها تتفجر الحرارة بسرعة
6. Add the warm aqueous mixture to the melted oleaginous mixture. Stir rapidly and continuously until the mixture has congealed.
7. Package in a jar. Provide a professional finish.
8. Perform dilution test using drops of oil and drops of water

Use of Ingredients:

- (1) **Spermaceti:** Emollient, stiffening agent.
- (2) **Mineral oil:** Emollient, Oleogenous vehicle.
- (3) **Sodium borate:** part of emulsifying agent.
- (4) **White wax (Bees wax):** part of emulsifying agent.

Description of Finished Product:

Uniform, luminescent white cream with no visible particles; spreads easily without a gritty texture.

Quality Control Procedures:

- Observations for uniform consistency
- Weight of final product.

Beyond-Use Date Assignment:

Thirtydays or intended duration of therapy, whichever is less.

Labeling:

- Main Label:
- Auxiliary label:
For external use only.

Storage:

Store at room temperature.

Thirty days use

Store in appropriate size plastic with wide-mouthed jar or in proper tube.

Use of preparation:

Skin Moisturizer and face cleanser.

Formula 2:

Rx 20 gm Vanishing Cream B.P.C.

Ingredients	Master formula	Scaled formula
Stearic acid	150gm	3 gm
White wax	20gm	0.4 gm
White petrolatum	80gm	6.4 gm
Triethanolamine	15ml	0.3ml (7drops)
Propylene glycol	80gm	1.6 gm
Purified water to make	q.s. 1000gm (655gm)	q.s. 20gm (13.1 gm)

Vanishing cream

Is semisolid emulsion of o/w type that is used topically.

- *Earned its name due to rapid water evaporation leading to rapid vanishment of the cream after application.*
- *Drugs can easily be incorporated into it as aqueous solutions.*
- *Vanishing creams sometimes called stearic acid creams and contain only 15% internal phase volume.*
- *Stearate/Vanishing creams were known for their smooth, dry feel on the skin and their pearly sheen. Chemically they are oil-in-water emulsions consisting of stearic acid, an alkali, a polyol and water. The alkali reacts with some of the stearic acid to form the emulsifier.*

Procedure

1. Melt the first 3 ingredients (oily phase) in a beaker using hotplate.
2. Mix triethanolamine, propylene glycol and water and heat the mixture to 75°C.
3. Pour the aqueous phase (step 2) into the oily phase (Step1) while they are both hot with mixing
4. Mix constantly till congealed
5. Place in a jar

Use of ingredients.

- (1) **Stearic acid:** part of the emulsifying agent.
- (2) **White wax:** stiffening agent.
- (3) **White petrolatum:** emollient.
- (4) **Propylene glycol:** Humectant, moisturizing agent.
- (5) **Triethanolamine:** part of the emulsifying agent

Labeling:

- Main Label:
- Auxiliary label:
For external use only.

Storage:

*Store in a cool place.
Store in a wide-mouthed jar.*