



Pharmaceutical technology

Ointment

Ointments

Ointments are semisolid preparations intended for external application to the skin or mucous membranes. Ointments may be medicated or non medicated, non medicated ointments are used for the physical effects that they provide as protectants , emollients or lubricants



Ointment Bases

Ointment bases may be used for their physical effects or as vehicles in the preparation of medicated ointments. Ointment bases are classified into four general groups:

1. Hydrocarbon bases (oleaginous bases)
2. Absorption bases
3. Water-removable bases
4. Water-soluble bases



Hydrocarbon.Bases

Hydrocarbon bases are also termed oleaginous bases, on application to the skin they have an emollient effect, protect against the escape of moisture , effective as occlusive dressing and can remain on the skin for prolonged periods of time without drying out and because of their immiscibility with water are difficult to wash off. Water and aqueous preparations may be incorporated in to them but only in small amounts and with some difficulty. Petrolatum , white petrolatum , white ointment and yellow ointment are examples of hydrocarbon ointment bases



Absorption Bases

Absorption bases are of two types:
aqueous 1. Those that permit the incorporation of solutions resulting in the formation of w/o emulsions e.g. Hydrophilic petrolatum.

2. Those that are w/o emulsions (emulsion bases) permit the incorporation of additional quantities of aqueous solutions. e.g. Lanolin

These bases may be used as emollients although they don't provide the degree of occlusion afforded by the hydrocarbon bases. Absorption bases are not easily removed from the skin, since the external phase of the emulsion is oleaginous



Water-removable.Bases

Water-removable bases are o/w emulsions resembling creams in appearance and because the external phase of the emulsion is aqueous , they are easily washed from the skin and are often called 'water-washable bases'. They may be diluted with water or aqueous solutions. Hydrophilic ointment USP , is an example of this type of base.



Water-soluble.Bases

Water soluble bases don't contain oleaginous components, they are completely water-washable and often referred to as 'greaseless '. Since they soften greatly with the addition of water, large amounts of aqueous solutions are not effectively incorporated into these bases Polyethylene glycol ointment, NF is an example of water-soluble base.



Selection of appropriate base

The selection of the base to be used in the formula of an ointment depends on a number of factors:

1.Desired release rate of the drug substance from the ointment.base.

2.Desirability of occlusion of moisture from the skin.

3.Stability of the drug in the ointment base.

4.Effect of the drug on the consistency of the ointment base.

5.The desire for a base that is easily removed by washing with water.

6.Characteristics of the skin surface to which it is applied.



Preparation of ointments

Ointments are prepared by two general methods:

1. Incorporation
2. Fusion

The method used depends primarily on the nature of the ingredients.



Incorporation

When preparing an ointment by speculation, If the components of an ointment are reactive with the metal of the spatula hard rubber spatula may be used. The ointment base is placed on one side and the powdered components previously reduced to fine powders on the other side. A small portion of the powder is mixed with a portion of the base until uniform mixture is obtained. The process is continued until all portions of the powder and the base are combined and thoroughly and uniformly blended.



Fusion

By the fusion method, all or some of the components of an ointment are combined by being melted together and cooled with constant stirring until congealed. Components not melted are added to the congealing mixture as it is being cooled and stirred. Naturally, heat labile substances and any volatile components are added last when the temperature of the mixture is low enough not to cause composition or volatilization of the components. Substances may be added to the congealing mixture as solutions or as insoluble powders levigated with a portion of the base



Rx

Simple ointment

wool fat 50 gm

50 gm celostearyl alcohole

gm yellow or white soft paraffin 850

hard paraffin 50 gm

Ft. oint.

Mitt. 50gm

Sig. for external use

method of preparation is fusion method



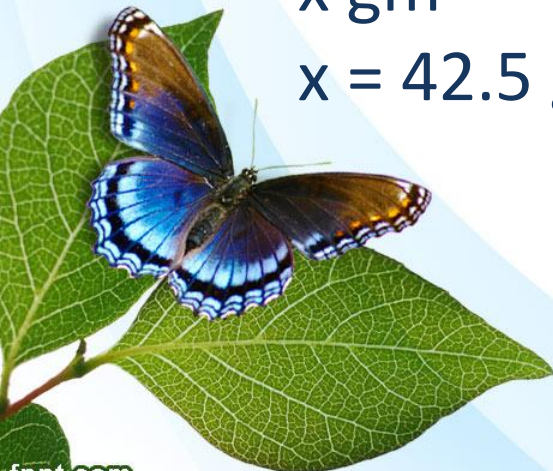
50 gm+ 50 gm + 50 gm + 850 gm = 1000gm the total weight of formula

50g 1000g
x gm 50gm

x = 2.5 gm for each wool fat, cole. Alcohol, hard paraffin

850gm 1000gm
x gm 50 gm

x = 42.5 gm of soft paraffin



Rx

sulphur ointment

precipitated sulphur 100gm

simple ointment 900gm

Ft. oint.

Mitt. 25gm

sig. apply to affected area

the method of preparation is incorporation

since the base is solid at room temperature



900 gm + 100gm = 1000gm the total of formula

$$\begin{array}{r} \text{ppt sulfur} \quad 100 \quad 1000 \\ \quad \quad \quad \times \quad \quad 25 \end{array}$$

x = 2.5 gm ppt. sulfur

25- (2.5 ppt. + levigating agent 2gm of liquid paraffin) = 20.5 g vasaline (simple oint.)



Thank You For
Listening

