

Ointment Bases

Ointment bases are generally classified by the USP (2) into four groups: (a) oleaginous bases, (b) absorption bases, (c) water-removable bases, and (d) water-soluble bases.

Oleaginous Bases

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

When powdered substances are to be incorporated into hydrocarbon bases, liquid petrolatum (mineral oil) may be used as the levigating agent.

Petrolatum, USP, is a purified mixture of semisolid hydrocarbons obtained from petroleum. It is an unctuous mass, varying in color from yellowish to light amber. It melts at 38°C to 60°C and may be used alone or in combination with other agents as an ointment base. Petrolatum is also known as yellow petrolatum and petroleum jelly. A commercial product is Vaseline (Chesebrough-Ponds).

White Petrolatum, USP, is a purified mixture of semisolid hydrocarbons from petroleum that has been wholly or nearly decolorized. It is used for the same purpose as petrolatum, but because of its lighter color, it is considered more esthetically pleasing by some pharmacists and patients. White petrolatum is also known as white petroleum jelly. A commercial product is White Vaseline (Chesebrough-Ponds).

Yellow Ointment, USP. This ointment has the following formula for the preparation of 1,000 g:

Yellow wax:	50 g
Petrolatum:	950 g

Yellow wax is the purified wax obtained from the honeycomb of the bee *Apis mellifera*. The

ointment is prepared by melting the yellow wax on a water bath, adding the petrolatum until the mixture is uniform, then cooling and stirring until congealed. Also called simple ointment, it has a slightly greater viscosity than plain petrolatum.

White Ointment, USP. This ointment differs from yellow ointment by substitution of white wax (bleached and purified yellow wax) and white petrolatum in the formula.

Absorption Bases

Absorption bases are of two types: (a) those that *permit* the incorporation of aqueous solutions resulting in the formation of water-in-oil (W/O) emulsions (e.g., *hydrophilic petrolatum*) and (b) those that *are* W/O emulsions (syn: *emulsion bases*) that permit the incorporation of additional quantities of aqueous solutions (e.g., lanolin). These bases may be used as emollients, although they do not provide the degree of occlusion afforded by the oleaginous bases. Absorption bases are not easily removed from the skin with water washing, because the external phase of the emulsion is oleaginous. Absorption bases are useful as pharmaceutical adjuncts to incorporate small volumes of aqueous solutions into hydrocarbon bases. This is accomplished by incorporating the aqueous solution into the absorption base and then incorporating this mixture into the hydrocarbon base.

Hydrophilic Petrolatum, USP, has the following formula for the preparation of 1,000 g: It is prepared by melting the stearyl alco-

Cholesterol:	30 g
Stearyl alcohol:	30 g
White wax:	80 g
White petrolatum:	860 g

hol and white wax on a steam bath, adding the cholesterol with stirring until dissolved, adding the white petrolatum, and allowing the mixture to cool while stirring until congealed.

Commercial products, Aquaphor and Aquabase, variations of hydrophilic petrolatum, have the capacity to absorb up to three times their weight in water and are useful to help incorporate a water-soluble drug, for example, tobramycin sulfate, into