

GENERAL PHARMACY

UNIT 5

General Pharmacy

Semisolid Dosage Forms



SEMISOLID DOSAGE FORMS

DEFINITION

Semisolid dosage forms have a consistency between solid and liquid and are formulated for application to skin or a specified mucosal surface.

PRINCIPAL TYPES

Ointments — greasy or occlusive depending on the base

Creams — oil-in-water or water-in-oil emulsions

Gels — liquids structured by a three-dimensional network

Pastes — stiff systems with a high proportion of fine solids

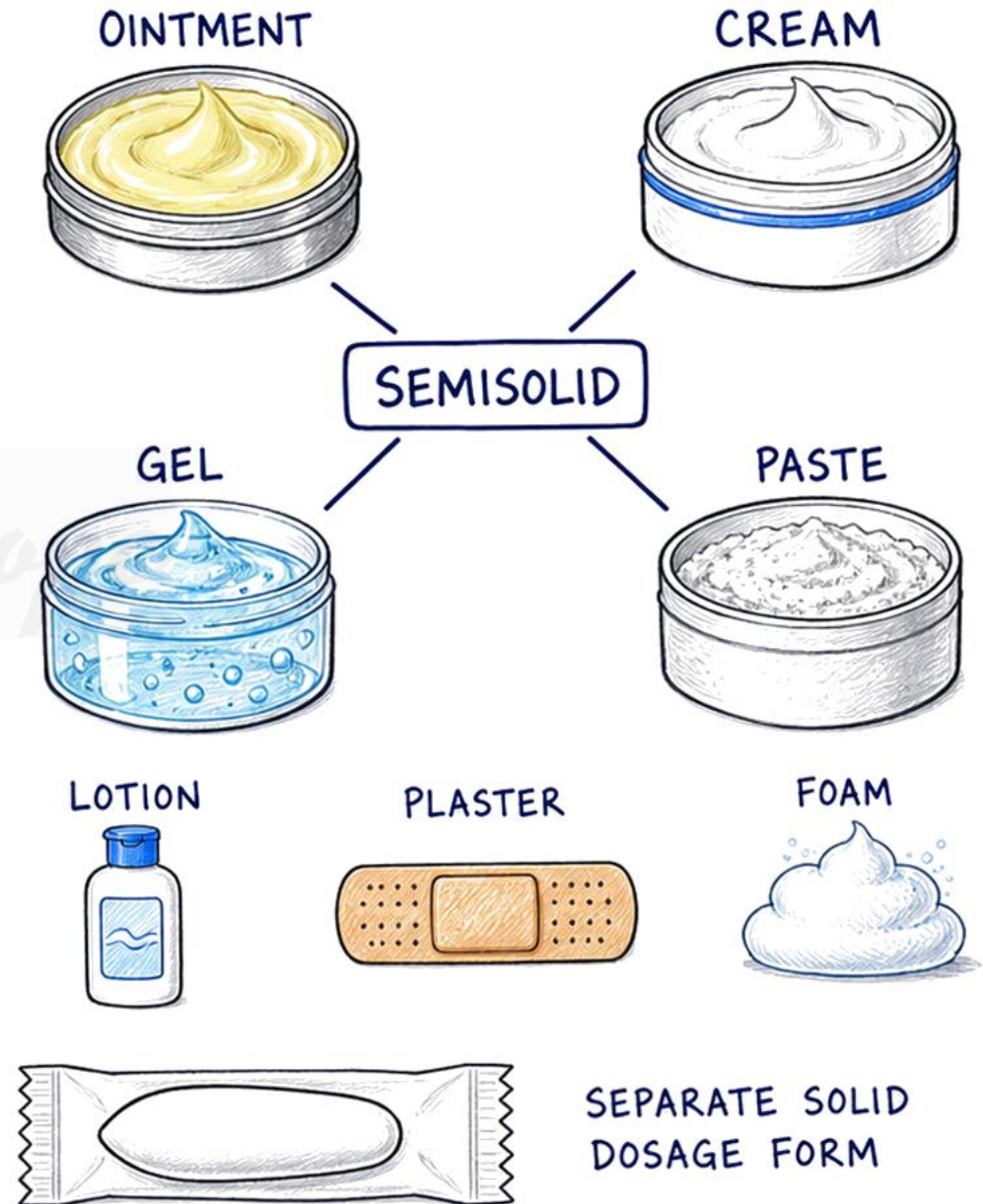
RELATED CUTANEOUS FORMS

Lotions, plasters, and foams have distinct physical structures.

IMPORTANT

Topical products usually act locally. Systemic transdermal delivery requires a product specifically designed and evaluated for that purpose.

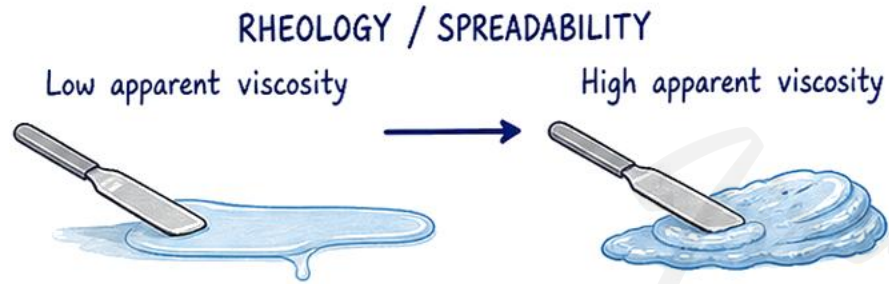
Suppositories are separate solid dosage forms; after insertion they melt, soften, or dissolve.



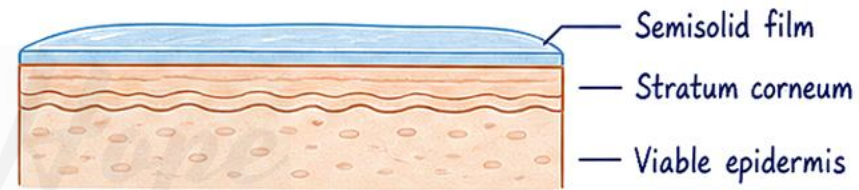
SEMISOLIDS: PERFORMANCE & TRADE-OFFS

KEY CHARACTERISTICS

- Rheology and viscosity control flow and retention.
- Spreadability affects application and film uniformity.
- Occlusiveness may reduce water loss from skin.
- Drug release, dose uniformity, compatibility, and physical or microbial stability must meet product needs.



EVENLY SPREAD FILM ON SKIN



POTENTIAL BENEFITS

- Place medicine directly at a local site
- Provide emollient, protective, or barrier action 
- Remain longer than a freely flowing liquid
- Adapt the base and consistency to the intended route

LIMITATIONS

- Greasy, sticky, difficult to remove, or able to stain
- Applied dose and skin penetration may vary 
- Microbial contamination or phase/viscosity change may occur
- Some ingredients may irritate or sensitise
- Repeated application may be inconvenient

IMPORTANT

Local application does not guarantee absence of systemic exposure or side effects. Benefits and dosing are product-specific.

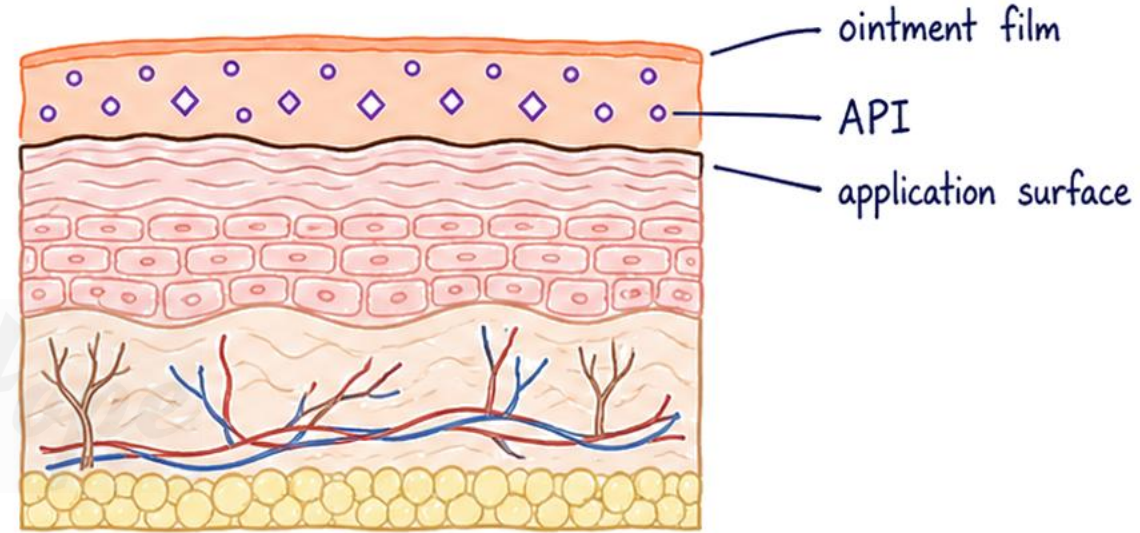
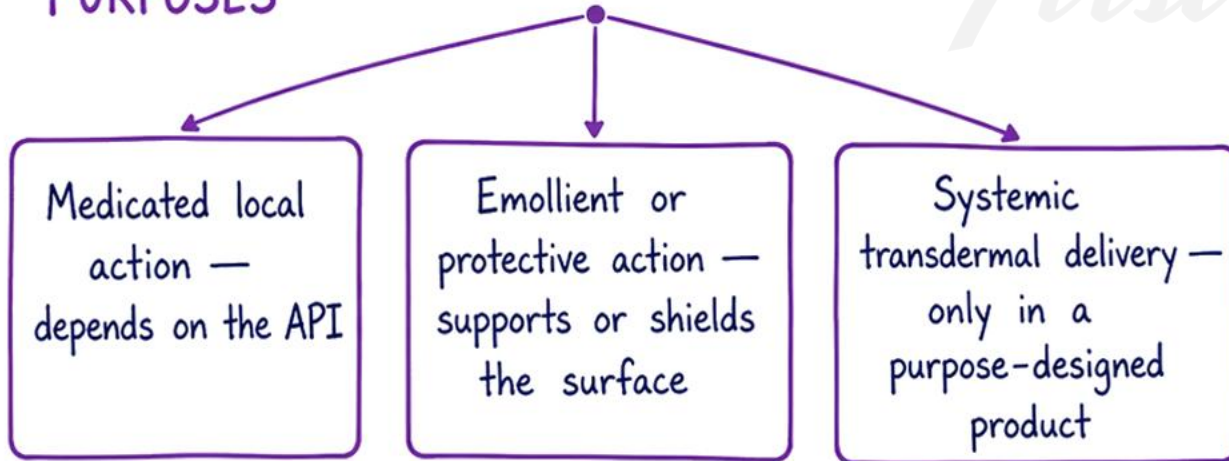
OINTMENTS: OVERVIEW & PURPOSES

An ointment is a semisolid preparation for application to skin or a specified mucosal surface. The API is dissolved or dispersed in a suitable base.

TYPICAL CHARACTER

- Often greasy and more occlusive than a cream or gel
- May be anhydrous or may contain water
- Retains contact at the application site

PURPOSES



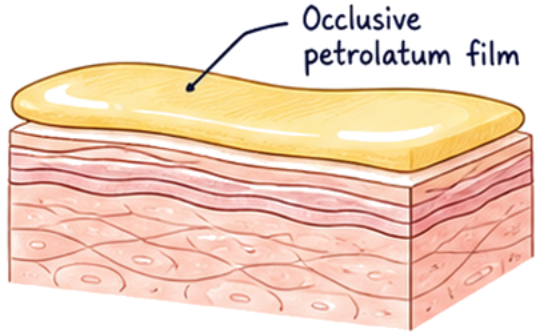
DISTINGUISH

- Cream: semisolid emulsion
- Gel: structured liquid network
- Paste: stiff semisolid with abundant fine solids

Performance depends on the base, API-base partitioning, formulation, route, and patient use.
Greasiness or occlusion alone does not determine drug release.

TYPES OF OINTMENT BASES

HYDROCARBON / OLEAGINOUS



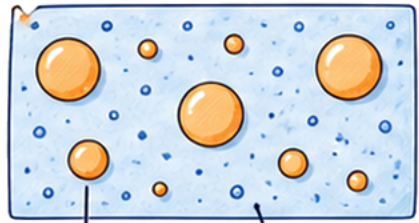
- White petrolatum or soft paraffin
- Hydrophobic, greasy, occlusive, non-washable
- Useful for emollient or prolonged surface contact

ABSORPTION



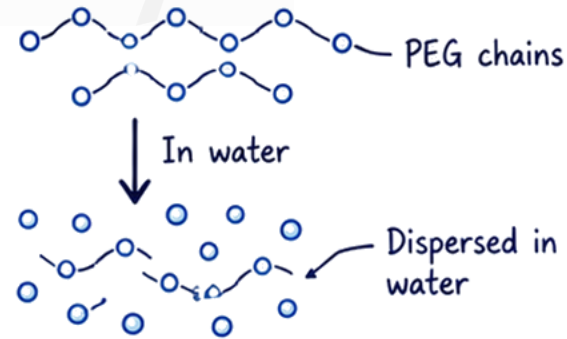
- Anhydrous water-absorbing base or W/O emulsion base
- Lanolin-related materials may help incorporate an aqueous phase
- Greasy and generally water-resistant

WATER-REMOVABLE



- Oil-in-water emulsion, such as hydrophilic ointment
- Water-washable and able to accept additional water within limits
- Requires suitable emulsion and microbial stability

WATER-SOLUBLE



- Polyethylene glycol (PEG) blends
- Greaseless and water-washable; dissolve or disperse in water
- May irritate or dehydrate some tissues

SELECT BY

Route and skin condition; API solubility and drug-base partitioning; compatibility, release, stability, washability, occlusion, and patient acceptability.

No base is universally compatible or superior for drug release.



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