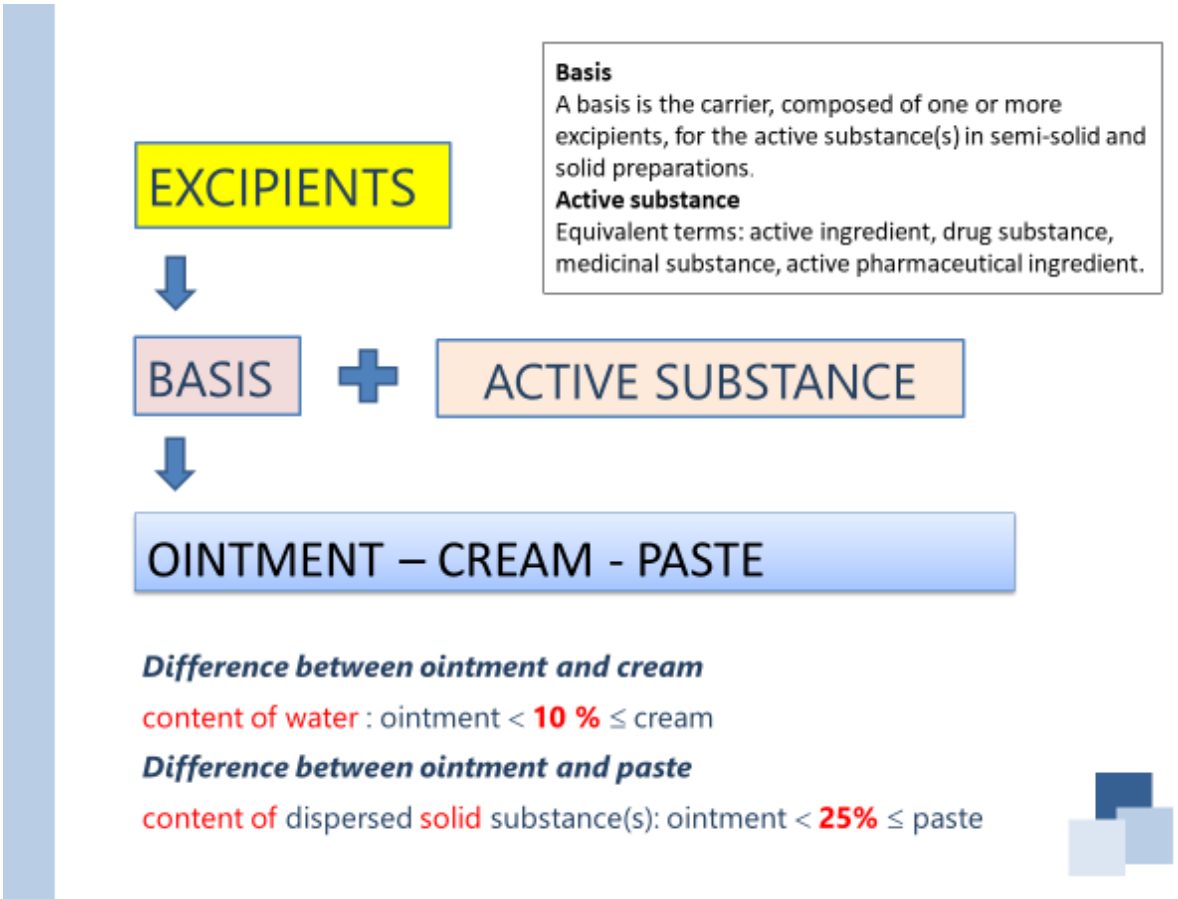
CREAMS

Creams are biphasic semisolid preparations intended for application to the skin and mucous membranes. They consist of a lipophilic and a hydrophilic (aqueous) phase. The main difference between creams and ointments is the water content; creams contain at least 10% water. According to which phase is continuous, creams are divided to lipophilic and hydrophilic.

Lipophilic (hydrophobic) creams have the lipophilic phase as the continuous phase (semisolid emulsions w/o). They usually contain water-in-oil emulsifying agents such as wool alcohols, sorbitan esters and monoglycerides.

Hydrophilic creams have the hydrophilic (aqueous) phase as continuous phase (semisolid emulsions o/w). They contain oil-in-water emulsifying agents such as sodium or trolamine soaps, sulfated fatty alcohols, polysorbates and polyoxyl fatty acid and fatty alcohol esters combined, if necessary, with water-in-oil emulsifying agents.



COMPOUNDING

Creams can be prepared by using a base which contains an emulsifier (= **emulsifying base**).
As emulsifying bases, the following can be used:

a) a hydrophobic excipient alone (eg Wool fat): the cream is prepared by incorporation of aqueous phase. These creams can contain an API.
b) a hydrophobic emulsifying ointment (eg Wool alcohol ointment, Anionic ointment): The cream is prepared by incorporation of aqueous phase. These creams can contain an API.
c) a cream base (e.g. Anionic cream) which is already made of oil and aqueous phases, and can be applied as eg emollient cream, or it serves for incorporation of an API.

Many creams do not contain API. If the API is prescribed, then according to the solubility it can be dissolved or dispersed in either oily phase or aqueous phase.

The compounding of creams includes the blending of oily materials by a process called "**mixing by fusion**". It involves melting the ingredients starting with the one having the highest melting point. Each excipient should be melted at the lowest possible temperature. The waxy solids should be grinded prior to weighing. Initially, the oily phase should be completely melted to the liquid form in a basin using a heating source (infra-red lamp, water lamp, etc). Most of the times, the basin containing the oily is removed from the heating source and fastened to a basin holder. Aqueous phase is prepared separately (eg in a beaker) and usually is heated at a temperature similar with the oily phase (± 5°C) before the mixing of the two phases. If the content of aqueous phase is larger than the oily phase, it should also be added by **trituration method** (= step by step in ratio 1:1). After addition of all aqueous phase, continual stirring until cold follows. Rapid cooling is not recommended.

Methods of compounding creams are divided according to the procedure handling the emulsifier (*see Emulsions*):

a) English method (eg Wool alcohol cream, Cetyl alcohol cream)
b) Continental method (eg Aqueous cream)
c) “in situ” method (eg Stearate cream)