

Why is it called FATTY CREAM?

healthE™ Fatty Cream is an **OIL-IN-WATER EMULSION**

What is an EMULSION?

Emulsions are two-phase systems in which one liquid is dispersed throughout another liquid in the form of small droplets. Where oil is the dispersed phase and an aqueous solution is the continuous phase, the system is designated as an **Oil-in-Water (O/W)** emulsion (eg fat in milk). Conversely, where water or an aqueous solution is the dispersed phase and oil or oleaginous material is the continuous phase, the system is designated as a **Water-in-Oil (W/O)** emulsion. Emulsions are stabilised by emulsifying agents that prevent coalescence, the merging of small droplets into larger droplets and, ultimately, into a single separated phase. Emulsifying agents (surfactants*) do this by concentrating in the interface between the droplet and the external phase and by providing a physical barrier around the particle to coalesce. Surfactants also reduce the interfacial tension between phases, thus increasing the ease of emulsification upon mixing

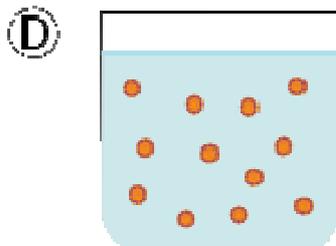
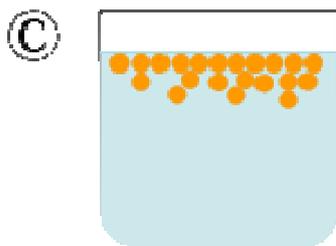
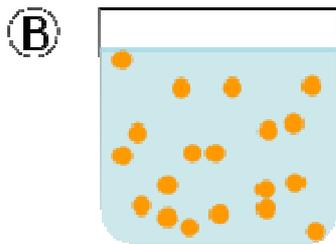
Natural, semisynthetic, and synthetic hydrophilic polymers may be used in conjunction with surfactants in **Oil-in-Water (O/W)** emulsions as they accumulate at interfaces and also increase the viscosity of the aqueous phase, thereby decreasing the rate of formation of aggregates of droplets. Aggregation is generally accompanied by a relatively rapid separation of an emulsion into a droplet-rich and droplet-poor phase. Normally the density of an oil is lower than that of water, in which case the oil droplets and droplet aggregates rise, a process referred to as creaming. The greater the rate of aggregation, the greater the droplet size and the greater the rate of creaming

The water droplets in a **Water-in-Oil (W/O)** emulsion generally sediment because of their greater density

The consistency of emulsions varies widely, ranging from easily pourable liquids to semisolid creams. Generally **Oil-in-Water (O/W)** creams prepared at high temperature, where they are fluid, and cooled to room temperature, whereupon they solidify as a result of solidification of the internal phase. When this is the case, high internal-phase volume to external-phase volume ration is not necessary for semisolid character, and, for example, stearic acid creams, dermatological creams or moisturising creams are semisolid with as little as 15% internal phase.

Any semisolid character with **Water-in-Oil (W/O)** emulsions generally is attributable to a semisolid external phase

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- A.** Two immiscible liquids, not emulsified
- B.** Emulsion of Phase II dispersed in Phase I
- C.** The unstable emulsion progressively separates
- D.** Surfactant positions itself on interface between Phases I and II, stabilising emulsion

**Surfactants are compounds that lower the surface tension of a liquid, the interfacial tension between two liquids, or that between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, and dispersants*