

① Ques: What is the role of Chemistry in Cosmetics Industry?

Ans: Chemicals, both natural and synthetic, are added to cosmetics to provide an appealing fragrance. Even "unscented" products may contain masking fragrance to mask the smell of other chemicals.

② What is the concept of Cosmetic Chemistry?

- Cosmetic Chemists specialize in the development, formulation, and testing of various skin care and cosmetic products, like make up, shower products and hair care. They ensure that all products are safe for humans and environmentally sustainable.

An Introduction to Cosmetic Technology

* Surfactants and lipids are important ingredients in cosmetics.
* Ingredients in cosmetics: There are 3

reasons to use an ingredient in a formula: Functionality, aesthetics, and marketing.

1) Functional ingredients provide the primary benefit to consumers who use the product.

* These are the ingredients that clean the skin, condition hair, and provide moisturization or even colour.

* They are also the so-called active ingredients that make over-the-counter drugs work.

* The problem with many functional ingredients is that they do not feel nice or apply well on their own.

2) Aesthetic ingredients are technologies that make formulas look and feel better,

* they improve the overall experience of using cosmetics.

3) Marketing ingredients are ingredients that are not expected to do anything in the formulation.

* but are added specifically to help support the marketing story.

* Such ingredients are important, since

they often provide the entire reason for purchasing a product but they are not actually expected to have a significant impact on the formulator's performance.

The cosmetic ingredients that have the most impact on the way cosmetics work are the functional ingredients. These include:

- Surfactants
- Conditioners/Moisturizers
- Colorants
- Polymers and active ingredients

Surfactants and their applications in cosmetics

Surfactants are the most important of all cosmetic ingredients.

Surfactants have so many useful applications that the cosmetic industry probably wouldn't exist without them. In cosmetics, surfactants are used for cleaning, foaming, thickening, emulsifying, solubilizing, penetration enhancement, antimicrobial effect, and a other special effect.

The key property of surfactant molecules that makes them useful cosmetic ingredients is that they are compatible with both water and oil.

When put in a water solution, they naturally create structures with lipophilic (oil) and hydrophilic (like water) portions aligning with water.

The exact structure that is produced depends on the concentration of the

Surfactant solutions:

* But the most important structure in cosmetics is micelles.

Detergency - One of the most common applications of surfactants in cosmetics is for cleaning formulations.

* Surfactants in detergent help get rid of these oily deposits.

* The lipophilic ends of the molecules are attracted to and align with the lipids on the surface of hair and skin.

* While, the hydrophilic end of the molecule align toward the surface of these deposits

* thereby increasing the hydrophilicity.

* That allows the lipid deposits to lift off the surface of skin or hair where the rinse water washes them away.

Wetting : Surfactants are also wetting agents that reduce the contact angle between a solution put on a surface and the surface.

* This property allows surfactants to spread more easily on the surface and insert themselves between the oily deposits and the skin or hair surface.

* This lifts up the oil and allows it to be removed.

FOAM : Foam is an important characteristic of cleansing cosmetics.

* It is formed when air is dispersed in a continuous liquid medium.

* The air bubbles are surrounded by thin

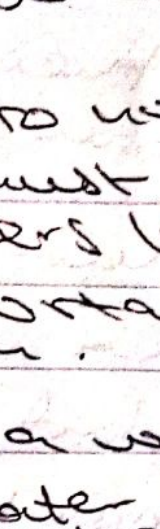
layers of liquid, and the surfactants help stabilize the bubbles that are formed, creating foam.

It is important to note that foam doesn't really contribute much to the removal of dirt but consumers like it.

So it is very important for a cleaning product to foam.

Thickening - In a water / surfactant solution, which water is the major ingredient, surfactants align themselves in structure called micelles.

These are tiny spherical structures in which the lipophilic tails orient inwards.


and the polar heads orient outward the water.

Micelles are important for the creation of emulsions and for thickening.

Emulsification - is a major application of surfactants to cosmetics in the creation of semi-stable mixtures of oil and water, or emulsions.

Emulsions are the creams and lotions that deliver beneficial lipid materials to the surface of skin and hair.

They can be simple oil-in-water or water-in-oil emulsions or more complex multiple emulsions.

Types of surfactant

* Surfactants can be classified according to the change of their condition or whether they form ions in solution or not.

① type of surfactant * There are anionic surfactants; which have a negatively charged or.

* Amphoterie surfactant; which are capable of both positive and negative charges depending on the pH condition.

* Cationic surfactants; which have positively charge.

* Nonionic surfactants; which have no charge at all.