

COSMETIC CHEMISTRY

INTRODUCTION:

- The word COSMETICS arises from a Greek word 'KOSMETICOS' which means to adorn (make more beautiful or attractive).
- Cosmetics are products designed to cleanse, protect and change the appearance of external parts of our bodies.
- Among the products included in this definition are skin moisturizers, perfumes, lipsticks, nail polishes, eye and facial makeup, cleansing shampoos, hair colour, deodorants etc...

DEFINATION OF COSMETICS:

- As per **European Union**, Cosmetics is defined as “any substance or preparation intended to be placed in contact with the various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance and/or correcting body odours and/or protecting them or keeping them in good condition.”
- In **India**, as per Drug and Cosmetic Act 1940 and Rules 1945, cosmetics have been defined as,” any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to, the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, and includes any article intended for use as a component of cosmetic”.

Some products meet the definitions of both cosmetics and drugs. This may happen when a product has two intended uses. Products that claim to ‘modify a bodily process or prevent, diagnose, cure or alleviate any disease, ailments or defects’ are called therapeutics.

For ex: shampoo, deodorants, creams is a cosmetic but, anti-dandruff shampoo, anti-perspirants, are therapeutics or drugs.

CLASSIFICATION OF COSMETICS:

- According to their use.
- According to their function.
- According to their physical nature.

According to use:

- **Skin:** Face -face wash, cream, lotion, makeup, masks, powder
Eyelids- eyeliners, eyeshadow, mascara
Lips- lipstick, lip gloss, lip liner, lip balm
- **Hair and Scalp:** Shampoo, hair oil, serum, hair removal creams
- **Nail:** Nail paint, nail paint remover
- **Mouth:** Toothpaste, mouthwash, gels
- **Body:** Soap, body wash, deodorants, perfume, powder

According to their function:

- **Curative or therapeutic function-** eg. Antiperspirants, anti dandruff shampoo etc
- **Protective function-** eg. Cold creams, lip balm, moisturizer etc
- **Decorative function-** eg. Lipstick, eyeliner, eye shadow, nail polish etc

According to their physical nature:

- **Aerosols-** eg. Hair spray, shaving cream
- **Cakes-** eg. Make up compacts
- **Emulsion** –eg. All purpose creams, (vanishing, cold, cleansing) cream
- **Oils-** eg. Hair oils, essential oils(tea tree, argan, olive, jojoba, etc)
- **Pastes** –eg. Tooth paste
- **Powders** –eg. Face powder, talcum powder
- **Solutions** –eg. Lotion, astringent, toners, makeup removers
- **Soaps** –eg. Toilet soap
- **Sticks** –eg. Lipstick, deodorant stick, foundation stick, concealers

WHAT DO COSMETICS CONTAIN:

- **Water** – forms the basis of almost every type of cosmetic product. Water plays an important part in the process, often acting as a solvent to dissolve other ingredients and forming emulsions for consistency.

Water used in the formulation of cosmetics is not your everyday, regular tap water. It must be 'ultra-pure'—that is, free from microbes, toxins and other pollutants. For this reason your label may refer to it as distilled water, purified water or just aqua.

- **Emulsifiers**-The term emulsifiers refers to any ingredient that helps to keep unlike substances (such as oil and water) from separating. Many cosmetic products are based on emulsions—small droplets of oil dispersed in water or small droplets of water dispersed in oil. Since oil and water don't mix no matter how much you shake, blend or stir, emulsifiers are added to change the surface tension between the water and the oil, producing a homogeneous and well-mixed product with an even texture. Examples :polysorbates, laureth-4, potassium cetyl sulfate.
- **Preservatives**-Preservatives are important ingredients. They are added to cosmetics to extend their shelf life and prevent the growth of microorganisms such as bacteria and fungi, which can spoil the product and possibly harm the user. Preservatives used in cosmetics can be natural or synthetic (man-made).Examples:parabens, benzyl alcohol, salicylic acid, formaldehyde.

- **Thickeners**-Thickening agents work to give products an appealing consistency. By incorporating enough wax into a thin lotion, a thick cream can be formed.

Examples include cetyl alcohol, stearic acid, carnauba wax, Gelatin, magnesium aluminium silicate, silica and bentonite.

- **Emollient**-Emollients soften the skin by preventing water loss. They are used in a wide range of lipsticks, lotions and cosmetics. A number of different natural and synthetic chemicals work as emollients, including beeswax, olive oil, coconut oil and lanolin, as well as petrolatum (petroleum jelly), mineral oil, glycerine, zinc oxide, butyl stearate and diglycol laurate.
- **Colouring agents/pigments**-A huge range of substances are used to provide the rainbow of appealing colours you find in the makeup stand. Mineral ingredients can include iron oxide, mica flakes, manganese, chromium oxide and coal tar. Natural colours can come from plants, such as beet powder, or from animals, like the cochineal insect. The latter is often used in red lipsticks and referred to on your ingredient list as carmine, cochineal extract or natural red.

- **Fragrances-** No matter how effective a cosmetic may be, no one will want to use it if it smells unpleasant. Consumer research indicates that smell is one of the key factors in a consumer's decision to purchase and/or use a product.

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