

CHEMISTRY IN EVERYDAY LIFE

Learning Objectives:

- To study functional food additives and food adulteration
- To study soaps and detergents, manufacturing process and environmental hazards
- To study chemical composition of cosmetics and perfumes
- To study the chemical nature of glasses, ceramics and plastics in daily use

Learning Outcomes:

- Learn about food adulteration, food additives and artificial sweeteners, saccharin, cyclamate and aspartate in the food industries
- Understand the chemistry of soaps and detergents and their action
- Know about the ingredients in commonly used cosmetics and perfumes
- Gain knowledge about glasses and ceramics and their properties
- Learn the nature of the plastics used in everyday life and natural substitution for plastic

Unit I: Food additives

(12 Hours)

Functional food additives and its importance, food adulteration, detection of food adulterations, food safety laws and fssai regulations. Food colours-permitted and non-permitted – Flavours – natural and synthetic, artificial sweeteners, toxic effect of additives.

Unit II: Soaps and Detergents

(12 Hours)

Soaps and Detergents – saponification, classification, cleansing action of soap, manufacturing process, additives, fillers, flavours, bleaching agents and enzymes used in commercial detergents, environmental hazards.

Unit III: Cosmetics and perfumes

(12 Hours)

Cosmetics and perfumes – classification, ingredients and regulations, bathing oils, face creams, talcom powder, skin products, hair dyes, shaving cream, shampoo, conditioners, nail polish, deodorants, antiperspirants, oral hygiene products, toxic effect of cosmetics.

Unit IV: Glasses and ceramics

(12 Hours)

Glasses and ceramics – classification, manufacturing process, composition and properties of glasses, soda glass, borosilicate glass, coloured glass, photosensitive glass, armoured glass, safety glass, Important clays and feldspar, plasticity of clay, ceramic and its types, white pottery, glazing, applications.

Unit V: Plastics in daily use**(12 Hours)**

Plastics in daily use. Polymerization process (brief). Thermosetting and thermoplastic polymers. Use of PET, HDPE, PVC, LDPE, PP, PS, ABS, and others. Recycling of plastics. Biodegradable plastics. Environmental Hazards of plastics. Paper news print, writing paper, paper boards, cardboards. Organic materials, wood, cotton, Jute, coir – International Universal recycling codes and symbols for identification.

Reference Books:

1. Food – The Chemistry of its components, T.P. Coultate,. Royal Society of Chemistry London, 2001.
2. Engineering Chemistry, Shashi Chowla, Danpat Rai & Co., 2017.
3. Industrial Chemistry, B.K. Sharma, Krishna Prakashan Publishers, 2012.
4. Understanding Chemistry, CNR Rao, Universities Press, 1999.
5. Engineering Chemistry, Jain and Jain, Darpat Rai Publication, 17th Ed., 2015.
6. Chemistry of cosmetics, Kumari R, Prestige publications, 2018.