

4. SURFACE CHEMISTRY

IMPORTANT POINTS

- 'Surface chemistry'** deals with the chemistry of various **interacting surfaces**.
- Absorption:** It is a 'bulk absorption process' in which a substance (in one Physical state) is dissolved into another substance (of different physical state).
Ex: 1. Water absorbed by Sponge, Sand.
2. Ink absorbed by chalk (Liquid by Solid).
3. CO₂ gas absorbed by activated Charcoal.
4. Water absorbed by plant roots.
- Adsorption:** It is a 'surface adhesion phenomenon' in which molecular particles of a gas (or) liquid are deposited (accumulated) to a surface in the form of a layer.
Ex: Gases like CO₂, SO₂, Cl₂ are adsorbed by Activated Charcoal Powder.

Adsorption involves two substances
a) adsorbent b) adsorbate.
- Adsorbent:** It is the substance 'on whose surface' adsorption occurs.
Ex: Activated Charcoal Powder.
- Adsorbate:** It is the substance 'whose molecules get adsorbed' on the surface of the adsorbent.
Ex: CO₂, SO₂ gases on activated charcoal.
- Sorption** is the process in which both adsorption and absorption take place simultaneously.
Ex: Cotton dipped in ink.
- Desorption** is the removal of an adsorbed substance from the surface.
Ex: When water is heated, oxygen desorbs from the water.
- Colloidal solution:** It is a heterogeneous mixture of solution in which very fine particles are dispersed in the dispersion medium.
Types:
Sol - Solid in liquid
Gel-Liquid in solid
Emulsion - Liquid in Liquid.
Ex: Starch solution, Gelatin, Glue, Milk, Butter, Dust, Foam etc.,
- Dispersed phase:** It is the substance which is scattered in the form of colloidal particles.
Ex 1: Liquid fat is dispersed phase in Milk.
Ex 2: Starch is dispersed phase in Starch solution.
- Dispersion medium:** It is the medium in which the colloidal particles are dispersed.
Ex 1: In starch solution, water is the dispersion medium.
Ex 2: In smoke, air is dispersion medium.
- Sol:** Sol is a solid in liquid colloidal in which very small solid particles are dispersed in a liquid medium. Sols are very stable compounds
Ex: Blood, Cell fluids, Paint, Antacids, Mud.
- Lyophilic sol** (Lyo=solvent, Philic=loving):
These are 'solvent loving' colloidal solutions.
Ex: Starch solution, Gelatin, Gum, Proteins
- Lyophobic sol** (Lyo=solvent, Phobic=hating):
These are 'solvent hating' colloidal solutions.
Ex: Gold sol, Metal Sulphides.
- Emulsion:** It is a liquid in liquid colloidal in which both dispersed phase and the dispersion medium are liquids.
Ex: Milk is a naturally occurring emulsion in which liquid fat is dispersed in water.

Our Daily LIFE

CHEM BEATS!

- చక్కటి నురగనిస్తూ, మంచి సువాసన అందించే టాప్ బ్రాండ్ సోప్ తో స్నానం చేస్తే ఎంత **Refresh** అవుతామోకదా!
 - వంటికి పరిమళాన్ని అందించే అత్తరు **Scent !**
 - **Modern Kitchen** లో వాడే **Non-stick Cookware !**
 - ఇంటికి వేసే **Paints, Corrosion Resistant Coatings !**
 - మన **Body Surface(Skin)** ను శుభ్రపరచడానికి మనం వాడే **Soap!**
 - **Face Wash** తర్వాత మన **Face** కు సువాసన అందించే **Face Powder !**
 - దుస్తుల **Dry Cleaning** లో ఉపయోగించే **Starch** (గంజిపొడి) !
 - **Mechanical Engines** లో వాడే **Grease like Lubricants !**
 - జుట్టుకు వ్రాసుకునే **Hair Oil !**
 - చేతికి ధరించే **Rings** లో వాడే **Gems, Diamonds !**
 - చర్మానికి గాయమైనప్పుడు పైపూతగా వాడే **Ointment , Powder !**
 - తినే **Cake** పై ఉండే **Butter Cream**, రోజూ తాగే **Milk, Inhaling Air !**
 - విరిగిన వస్తువుల **Surfaces** ను దృఢంగా అతుక్కునేలా చేసే **Fevikwik, Fevicol !**
- ఇప్పుడు ఈ **BIG BULLET Q** లో మీరంతా చదువుతున్న ఈ పేజీలలోని **Printed Letters !**
- **WOW!** ఎంత అద్భుతంగా ఉన్నాయో కదా! ఈ **SURFACE CHEMISTRY** లోని **DAILY LIFE EXAMPLES !!**