



Water dispersed in oil (W/O type) Butter

Oil dispersed in water (O/W type) Milk

Types

**Emulsion:** Dispersion of one liquid into another liquid which is immiscible

**Absorption**

- Bulk Phenomenon.
- Concentration is same throughout the material.

**Applications**

- Purification of drinking water
- Medicine
- Tanning
- Cleansing action of soaps detergents
- Rubber industry
- Industrial Products

**Uses in Industry**

Manufacture of nitric acid - Manufacture of ammonia  
 oswald's process                      Haber's process  
 (platinised asbestos, 573 K)      (Fe + Mo, 200 bar, 723-773 K)

**Surface Chemistry**

Substance which accelerate the rate of reaction and remain chemically and quantitatively unchanged and phenomenon is known as catalysis

**Shape Selective**

Catalytic reaction that depends upon pore structure of catalyst and size of reactant and product molecules. (Zeolites)

**Enzyme Catalysis**

Enzymes that catalyse many life processes in bodies of plants and animals are termed as Biochemical catalysts and phenomenon is known as Biochemical catalysis (Inversion of sugar, Conversion of milk into curd)

**Heterogenous Catalysis**

Reactants and catalyst are in different phases. (Oxidation of  $\text{SO}_3$  to  $\text{SO}_2$  by Pt as catalyst)

**Homogeneous Catalysis**

Reactants and catalyst are in same phase. (oxidation of  $\text{SO}_3$  to  $\text{SO}_2$  by NO as catalyst)

**Mechanism**

**Step 1:** Binding of enzyme to substrate to form an activated complex.



**Step 2:** Decomposition of activated complex to form product.



**Mechanism**

- Diffusion of reactants to surface of catalyst
- Adsorption of reactants molecules on the surface of catalyst.
- Chemical reaction on the surface of catalyst through formation of intermediate.
- Desorption of products creating surface for further reaction.
- Diffusion of products away from catalyst surface.