

D. B. College (Jaynagar) Lect. no. 14
B.Sc. (II) Hons. Carbohydrate
Guest Lecture - Akhilesh Kumar Singh
Date - 26/07/2020

(b) Condensation Polymers: Condensation Polymers are formed by the combination of monomers with the elimination of simple molecules such as water or alcohol. This process is called Condensation Polymerisation.

Proteins, Starch, Cellulose etc. are the example of natural Condensation Polymers.

Two main Synthetic Polymers of Condensation types are polyesters (Terylene or dacron) and Poly amides (Nylon - 66)

(3) Classification based upon mechanism:

(a) Chain growth Polymerisation: These polymers are formed by the successive addition of monomer units to the growing chain having a reactive intermediate (Free radical, Carbocation or Carbanion). Chain growth polymerisation is an important reaction of alkenes and conjugated dienes.

Ex: Polythene, Polypropylene, teflon, PVC, Polystyrene are some examples of chain growth polymers.

(b) Step growth Polymerisation: These polymers are formed through a series of independent steps. Each step involves the condensation between two monomers.

Leading to the formation of smaller
Polymer.

EX: Nylon, terylene, bakelite etc.

(4) Classification based upon Structure:

(a) Linear Polymers: These consist of extremely long chains of atoms and are also called one dimensional Polymers.

Examples - Polyethylene, PVC, Nylon, Polystyrene.

(b) Three dimensional Polymers: These Polymers in which chain are cross linked to give a three dimensional network are called three dimensional Polymers. Example - Bakelite.

(5) Classification based upon molecular forces:

(a) Elastomers: These are the polymers having very weak intermolecular forces of attraction between polymer chains.

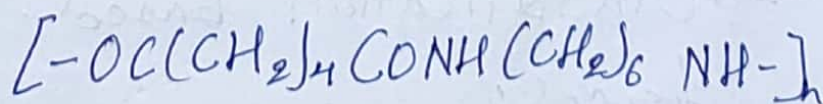
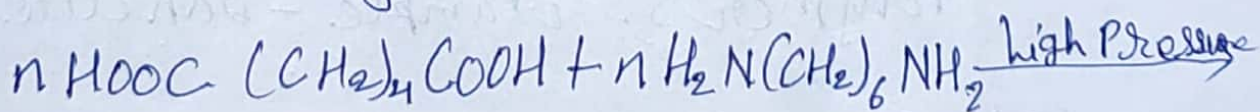
Elastomers possess elastic character.

Vulcanised rubber is very important example of an elastomer.

(b) Fibres: These are the polymers which have bit strong intermolecular forces such as hydrogen bonding.

Ex. Nylon-6,6, Nylon-6,10, Terylene.

◆ Nylon-6,6: It is obtained by condensation polymerisation of hexamethylene diamine (six carbon) and adipic acid (a dibasic acid having six carbon).



Nylon-6,6