POLYMERS

Polymers. They are high molecular mass compounds made up of a large number of simple repeating units known as monomers.

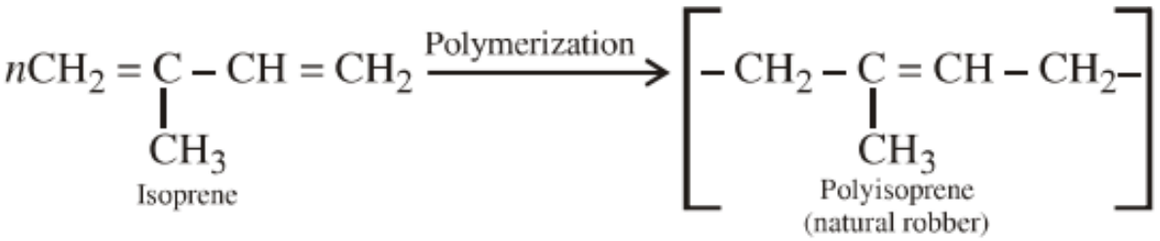
Polymers synthesized from one type of monomers are known as **homopolymers** such as polythene, which has one type of monomer ethylene.

Polymers synthesized from two or more types of monomers are known as **co-polymers** such as terylene, which has two types of monomers, ethylene glycol and terephthalic acid.

Classification of Polymers Based on Source

(*a*) **Natural polymers:** The polymers that are found in nature are known as natural polymers. Strach is a polymers of glucose,

protein is a polymer of α-amino acids and natural rubber is a polymer of 2-methyl-1, 3-butadiene (isoprene).



(*b*) Synthetic polymers: The polymers prepared in the laboratories are known as synthetic polymers. Such as polyethylene, polystyrene, bakelite, nylon etc.

Some Important Facts

I. All polymers are macromolecules but all macromolecules are not polymers.

II. The addition polymers have the same empirical formula as their monomers.

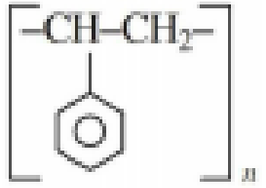
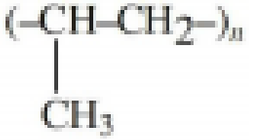
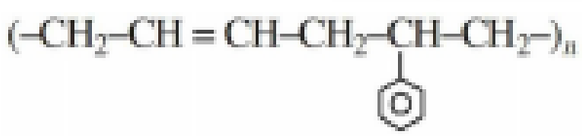
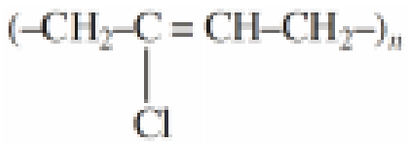
III. Carbohydrates and proteins are biopolymers.

IV. Metaphosphoric acid $(HPO_3)_n$, silicates and silicones are some inorganic polymers.

V. Natural rubber is obtained from white milky juice called latex of rubber trees.

VI. Thiokol rubber is made by polymerization of ethylene dichloride and sodium polysulphide.

Some important polymers and their monomers

	Polymers	Monomers	Structural formula
Addition polymers			
I.	Polyethylene or Polythene	Ethene	$(-CH_2-CH_2-)_n$
II.	Polystyrene	Styrene	
III.	Polypropylene or polypropene	Propylene	
IV.	Buna-S	1, 3- butadiene and styrene	
V.	Neoprene	Chloroprene	
VI.	Polyacrylonitrile (PAN) or Orlon	Vinyl cyanide