CHEMISTRY OF POLYMERS POLYMERATION OF VAMONOMERS

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ANNOTATION

This article is about the chemistry of polymers, which is a major branch of chemistry. This article also provides information on ionic polymerization, complex-radical polymerization of monomers.

Keywords: chemistry, polymers, cellulose, polyethylene, bodies, monomers.

The science of chemistry (its structure, properties and chemical changes). Polymer chemistry is a very important and large branch of chemistry about polymer substances, their structure, properties and chemical changes. Like any science, polymer chemistry has its own language and terminology. Polycop means inheritance. the molecular mass of the polymers is very large, enormous. Their exact scientific name is high-molecular compounds. Its short synonym, called “polymer,” is widely used in science, technology, and life. A molecule of polymers is called a macromolecule because it has a very large molecular mass. Polymers are high-molecular compounds whose macromolecules have a chain structure and consist of groups of atoms (bonds) that repeat many times. Polymers are synthesized from low-molecular substances called monomers. The "monomer" bond, or simple bond, that is part of a polymer macromolecule and forms a group of atoms that repeat many times. The chemical gross formula of the bond is equal to that of monomer. The number of bonds in a macromolecule indicates how many monomers the macromolecule has chemically synthesized. Therefore, the number of bonds of macromolecules is called the "n" polymerization rate. (Polymerization is a method of synthesizing polymers from monomers). Typically n- can be 10,100,1000 and larger. The most important feature of a polymer macromolecule is that it has a chain structure, that is, the linear length of the molecule is many times the size of the condensate (in several order). For example, the length of macromolecules in various polyethylene tapes is 1000-10000 times larger than the diameter. Due to the chain structure of macromolecules, polymeric substances have completely different properties from lower-molecular substances, which are:

- the chain structure of macromolecules establishes the property of flexibility in them. It is within this particular boundary that progress moves independently. Because of this property, bodies composed of macromolecules exhibit a new high-elastic state;
- The strength of the interaction of macromolecules is very large. Therefore, a variety of fibers and bands are obtained from polymeric substances; The properties of materials, bodies and substances The two most important characteristics of the macromolecules that make them up are: chemical structure (nature and composition) and size - molecular mass. In terms of the properties and capabilities of this dimension, the polymer material is very different from ordinary materials. The structure of polymers is so diverse that it is difficult to understand this characteristic without classifying it according to its chemical properties.

Depending on the elements that make up the main chain of a macromolecule, they are divided into 2 groups:

a) if they consist only of a carbon atom, they are called carbochain polymers - C - C - C - C - C -.

b) If the atoms that make up the main chain consist of 2 or more elements, the polymer is called a heterochain polymer. The main chain of macromolecules of protein and synthetic polyamides consists of atoms of 3 different elements S, H, N, atoms of urea-formaldehyde resin and 3 different S, O and N atoms of polyamides. If the bonds in the polymer macromolecule are the same, they are called homopolymers, and if they are different,

they are called copolymers. Another factor related to the chemical structure-configuration of macromolecules is the mutual structure of the bonds, ie the stereoisomerism of the macromolecule. It is known that if there are 2 types of substituents on a carbon atom (R and H, or R1 and R2), the carbon atom is an asymmetric atom, which can be L- or D-shaped (right and left). If the asymmetric atoms of a macromolecule are only L- or only D-shaped (relative to the plane in which the main chain lies), the substituents are on one side of the main chain: polymers also exhibit a new property in solubility. They do not melt from mountain to mountain. First bo, kadi, so, ng dissolves. The viscosity of the solution is so great that the lib of 1-2% of the solution loses its fluidity, solidifies and turns into a gel;

There are cases when chemical reactions of polymers do not occur in simple low-molecular compounds. The properties of macromolecules and polymers in terms of structure and properties are unique. They cannot be in low molecular weight substances. Therefore, the polymer state can be called a unique state of matter. Therefore, the reason for the study, organization, and teaching of polymer chemistry as a separate science is understandable. Uzbekistan is rich in raw materials for the production of polymers. These include monomers such as gas and oil, cotton lint, caprolactam, acetylene, ethylene, and acrylonitrile. There are polyacrylonitrile, polyacrylamide, polycaprolactam (polyamide-6), carboxymethylcellulose, diacetylcellulose plants in our country. Microcrystalline cellulose (MKS) is produced. In recent years, the Shortan Gas Chemical Complex has launched enterprises for the production of polyethylene and pulp for various purposes in Namangan, Fergana and Yangiyul. At present, much attention is paid to the further enrichment of polymers that have passed many tests and have a sufficient raw material base. gives. In this regard, the classical radical polymerization method has not lost its potential, on the contrary, recent advances in science, especially as a result of improving the speed and initiation methods of branched chain reactions, allow to improve the polymer structure and increase its physical and mechanical properties. . This phenomenon is most evident in the example of vinyl monomers, which contain the elements oxygen, nitrogen and sulfur. Some of these factors lead to the formation of polymer chains, which dramatically reduce the reaction temperature and prevent secondary reactions, the use of high-pressure vacuum electrostatic fields, the initiation of the monomer on the basis of a complex-radical mechanism. According to the literature, to date, the activation of radical polymerization by complex compounds, the interaction of monomers with various donor and acceptor molecular compounds, has been accomplished through the use of ultraviolet, monochromator light, or high temperature.

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