

## An example of a condensation homopolymer is

PPT, Test Test for Exam, Target Type Questions, Documents of Last Year, Sample Paper, Video Conferences, PDF, Study Material, Short and Long Response Question (PARTE-2) - Polymers Class 12 Notes | Edurev, Practice quiz, Short and Long Response Question (Part-2) - Polymers Class 12 Notes | Edurev, MCQ, Synthetic, Important Questions Polymers are macromolecules formed by the connection of a large number of small units called monomers through chemical reactions. The polymerization process is called polymerization. The chemical and physical properties of a polymer depend mainly on the type of monomer or monomer used to form polymer. monomers used to form a polymer molecule, there are two types of polymers: homopolymers and copolymers are produced using a single type of monomer, while copolymers are formed using two difference between homopolymers are produced using a single type of monomer, while copolymers are formed using two differences. and copolymers get their unique set of properties. This article explores, 1. What is a homopolymer? A A R "Definition, training, structure and characteristics 3. What is the difference between homopolymer? A A R" Definition, training, structure and characteristics 3. What is a homopolymer? A A R" Definition, training, structure and characteristics 3. What is a homopolymer? A A R" Definition, training, structure and characteristics 3. What is a homopolymer? A A R" Definition, training, structure and characteristics 3. What is a homopolymer? formed by a single type of monomer. Therefore, it consists of only one type of repetition unit. Homopolymers are usually made from a polymerization. The monomers undergoing this process must have double or single bonds. The repeating unitIn brackets it represents the chemical structure of a homopolymer. For example, if we take  $\hat{a} \in \hat{a}$   $\hat{a} = \hat{a} = \hat{a} = \hat{a}$   $\hat{a} = \hat{a} = \hat{a} = \hat{a}$   $\hat{a} = \hat{a} = \hat{a}$ statistical copolymers. the structure of these classes can be explained simply by using two types of repeated hypothetical units in particular; a and b. in statistical copolymers, the sequence of repetition units obeys the known statistical copolymers. (examinetilene sebaacamide.) structure of condensation polymerization between formaldehyde and phenoletta toBakelite definition consist of two or more types of repeated units. Copolymers have two or more types of monomers. The homopolymers of the chemical structure usually have a simple structure. Copolymers are formed through added polymerization. Copolymers are formed through condensation polymerization. polypropylene, polystyrene, polystyrene, polythetrafluoroethylene and poles (methyl methacrylate). Copolymers include poles (vinyl acetate), poles (ethylene oxide), poles (et Wikimedia â € œPolykondensation Bakelit 1â €. From Mache (Talk) â € "own work (public domain) via Commons Wikimedia Save when many molecules of a simple compounds whose molecules come together, the product is defined a polymer and process polymerization. Simple compounds whose molecules of a simple compound come together, the product is defined a polymer and process polymerization. polymer is a chain of atoms, providing a spine, to which you join atoms or groups of atoms. This unit provides an overview of the main types of polymers characterized by how they are realized, as their structures govern their general properties and how these properties can be refined from their formulation using a range of additives. Finally, the unit summarizes the range of processing techniques that can be used to convert polymers into a wide range of different products. Each of the polymers or group of polymers in a more detailed way. Polymers are great molecules, a type of macromolecule. Their chemical properties are similar to those of molecules For example, if the polymer contains a double carbon-carbon bond, as in poles (but-1.3-ca diene), suffer additional reactions, saying with nitric acid. The main differences between smaller and polymer molecules are not found with their chemical properties, but with their physicists. Ã, their larger dimensions lead to much stronger intermolecular forces are even stronger when polymeric chains pack together regularly as in HDPE (high poly density (Etene)) and have crystallinity regions. Once heated, it melts and crystallinity regions. Once heated, it melts and crystallinity regions. Once heated, it melts and crystallinity is lost. As it does not have a sharp melting point, the temperature to which this is defined as the merger transition temperature, TM. Above this temperature, the polymer is amorphous. Some polymers are hard and amorphous, not having crystallinity regions, for example, poles (2-methyl methylpropenate). Ã, the temperature to which it becomes soft and ductile defined glass transition temperature, TG. Figure 1 These crystallites have order in which the zigzag polymeric chains are kept together regularly from intermolecular forces There are many examples of polymers that occur naturally, for example, starch, cellulose and protein. Over the past 70 years, synthetic polymers have been invented, often imitating nature and are now produced in millions of tons a year and are now produced in millions o and when used in this way, they are often called plastics. Characterizing polymers or heteropolymers or heteropolymers (copolymers) c) are they themoplastics, elastomers or fibresd) for their steric structure (a) addition and condensation polymers also The polymer has the same empirical formula of the monomer but a greater molecular mass (Table 1). A, an example is the polymerization of condensation, the polymerization of one or more monomers is accompanied by the elimination of small molecules (such as water or ammonia) (Table 2). For example, in the production of 6.6 polyamide, two monomers are used. It is said that another type of condensation polymer is formed if the polymer chain contains (rather than added to the chain) a functional group as an ester, amid or urethane (Table 2). Table 2 Å, some condensation polymers. (b) Homopolymers and heteropolymers (co-polymers) Another way to characterize polymers is divide them into homopolymers and heteropolymers. (b) Homopolymers and heteropolymers (Table 1): a heteropolymer, or as they are more commonly known, a co-polymeric is produced. Two or more monomers. There are different types of co-polymerized together. Depending on the reactivity of the monomers, polymers can form with different dispositions of monomer units (Figure 2). SBS is an example of block polymer. SBS is so called with S refers to styrene (Fenilethene) and B for Buta-1.3-DIENI. First, the phenylothene is polymerized. Ã, buta-1.3-diene is therefore added and adds both to reactive ends of poly molecules (phenylothene) to form SBS: another type of co-polymer is known as co-polymer graft. Ã, an example is ABS. A is acrylonitrile, the banal name for proposeitrile. The polymer's spine is formed by phenylothene (styrene) and buta-1,3-diet. Å, propensitrile (acrylonitrile) is added to the system and forms a side chain grafted on the plug Å, the nitrile adds to the double bond on the on the Units: polymers are very useful as they have the properties of constituent polymers and therefore can be produced for specific purposes. For example, poly(phenylene) (polystyrene) is fragile but when copolymerized with buta-1,3-diene, the latter gives resilience and the force of polymer. known as high impact polystyrene (hips), now it can receive impacts without damage. figure 2 structures of different types of copolymer, figure 3 different types of copolymer have different properties. on the right, medical vials are made of a random copolymer of the block of the two alchenes, giving a very hard material with properties similar to the rubber. courtesy of total. (c) thermoplastics, thermosets, elastomers and fibers polymers can also be characterized in four classes: Thermo-hardening thermoplastics are made of single molecules without covalent bonds between them but kept together by intermodal bonding. be printed. can be repeatedly heated, softened and repopulated. Table 1. Thermosets, on the other hand, have many covalent bonds between the chains, leading to a three-dimensional structure, which can be considered as a single molecule. They can be hot and pressure-printed, but once molded they cannot be removed. The most important examples include methane-made plastics (formaldehyde). elastomers are solid amorphous that, as the name suggests, are elastic (Table 3). have rolled chains that can be stretching force is released. fibers are thin wires that are produced by extruding a polymer melted through a die where there are small holes. fibres produced inMode includes polyamides (such as example Polyester (such as the temylene) and the poles (propene) (Table 4.) Figure 4 After stretching to make a fiber, the crystalline regions are aligned in the direction of the fiber. Any tendency to return to a random orientation is prevented by the strong intermolecular forces between the molecules (figure 4.) the fibers are intertwined in a plastic to give it greater resistance (table 4.) Table 3 Some elastomers. Table 4 Some polymers used to produce fibers. d) Storage structure Another way to classify polymers is examining their steric structure. Polymers with side chains can be divided into two classes, one (stereoregular) which has a recurring model in terms of stereochemistry and one (atactic) without a regular structure. A simple example of a polymer with a side chain is poly (propene.) The propene molecule is asymmetrical, and, when polymerized, it can form three basic structures of the chain dependent on the position of methyl groups: two are stereoregular (isotactic And synthetic) and the third does not have a regular structure and is defined atattico as shown diagrammatically below: Figure 5 molecular structures of poles (propene.) The structure "a hand" of the isotactic polypropene makes yes that the molecules formed propellers. This regular form allows molecules to crystallize to a relatively rigid hard material which, in its pure form, melts at 440 K. Even the syntactic polymer, due to its regular structure, is crystalline. The business chains are completely random in the structure and consequently do not crystallize. The high poly molecular mass (propene) is a material similar to the rubber. Commercial polypropena is a predominantly isotactic polymers are produced when using many Ziegler-Natta (see below) below) Metallocene catalysts. Manufacture of polymers as discussed above, polymers can be characterized by the method of polymerization, A, added and condensation. Many additional polymers are produced using an organometallic compound, known as Ziegler-Natta catalyst. They were developed for the first time by Karl Ziegler and ... Giulio Natta who led to the two chemists who have loved the Nobel Prize in 1963 for this brilliant work. Other additional polymers are produced generated using a compound, known as an initiator, to catalysts are described in the unit dedicated to each condensation polymer. Catalysts for Ziegler-Natta Catalysts Polymerization reactions Ziegler-Natta Catalysts are organometallic compounds, prepared by titanium catalyst can be represented as shown in Figure 6. The Alkene monomer sticks to an empty coordination site on the titanium atom and this alkena molecule then inserts into the carbon-titanium bond to extend the alkyl chain . This process continues therefore, thus forming a linear polymer, poles (Ethene). with adding water. Because it is linear, polymeric molecules are able to pack tightly, giving polymer a higher fusion point and a density of poles (Ethene) produced by radical initiation. Figure 6 6 illustrates the role of a Ziegler-Natta catalyst. Not only do the Ziegler-Natta catalyst allow you to produce linear polymers, but they can also give stereochemical control. A For example, it can polymerize in three ways, as shown above in Figure 5, to produce poly atactic, isotactic or union (propene). However, this catalyst only allows the IL To be inserted in a way and isotactic, isotactic or union (propene). metallocenes. Radical polymerization Many polymers, including all additional polymers in Table 1, are produced using radical initiators, acting as catalysts. For example, the polymerization of chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of poly chloroetene is started by warming it with a minute trace of a peroxide (R-O-O-R): Figure 7 Å ¢ a mechanism for free radical polymerization of polymerization o (chloroetene). In the case of Ethene, using the free radical process, the resulting polymer has a lower density and a bottom softening point compared to the poles (Ethene), LDPE, has lateral chains because radicals react not only with Ethene molecules, for adding, but also with polymeric molecules, from a process known as hydrogen abstraction. A, the radical of the polymer can also abstract a hydrogen atom from their chain: both of these reactions lead to side chains so that the polymer can also abstract a hydrogen atom from their chain: both of these reactions lead to side chains so that the polymer can also abstract a hydrogen atom from their chain a lower density. Formulating plastics The properties of many plastics can be changed by varying their formulation. For example, one of the most versatile plastics is poly (chloroetene) (PVC). It can be made in flexible or rigid form (and every combination of these extremes) using various additives (Table 5). Figure 8 Specific properties can be produced by mixing polymers. A, for example this shirt is made from a mixture of poly fibers (propanate) (acrylic), A ¢ aramid and polyamide that gives protection against heat and yet remains comfortable to wear. DuPont. AdditiveExampleSfunction Plasticiser E.g. The esters of benzene-1,2-dicarboxylic acid act as a polymeric chain lubricant. The amounts diligo give a flexible product, low quantities produce a rigid rigid E.G Stabilizer. Lead carbonate (

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