

Advances in Polymer Chemistry: Synthesis, Properties, and Applications

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Abstract: *Polymer chemistry is a rapidly evolving field that has revolutionized various aspects of our lives. Polymers, being macromolecules composed of repeating units, exhibit unique properties that make them indispensable in various industries. This abstract provides an overview of the recent advances in polymer chemistry, highlighting the synthesis, properties, and applications of polymers.*

The synthesis of polymers has witnessed significant advancements, with the development of novel polymerization techniques, such as controlled radical polymerization and ring-opening metathesis polymerization. These techniques have enabled the creation of polymers with tailored properties, such as molecular weight, architecture, and functionality.

The properties of polymers, including their mechanical, thermal, electrical, and optical properties, have been extensively studied. The development of new polymer architectures, such as dendrimers and nanocomposites, has led to the creation of materials with enhanced properties.

Polymers have found numerous applications in various fields, including medicine, energy, electronics, and construction. Biodegradable polymers, such as polylactic acid and polyhydroxyalkanoates, have emerged as promising materials for biomedical applications. Conductive polymers, such as polyacetylene and polyaniline, have found applications in energy storage and conversion devices..

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