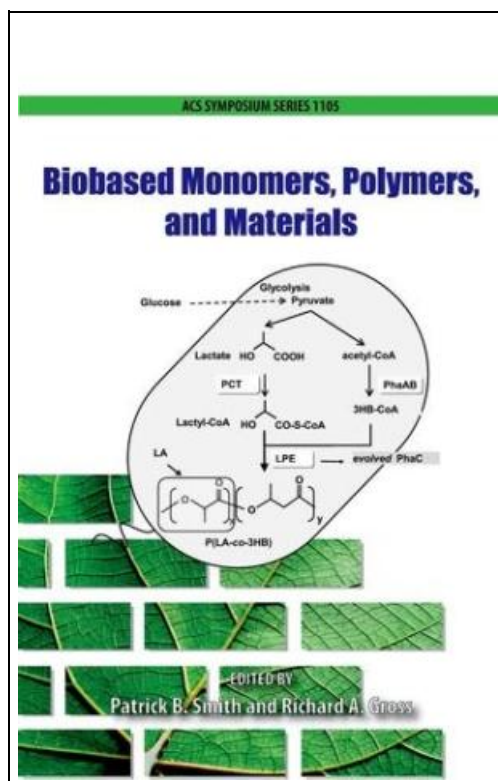


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BIOBASED MONOMERS, POLYMERS, AND MATERIALS

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Oxford University Press Inc. Hardback. Book Condition: new. BRAND NEW PRINT ON DEMAND., Biobased Monomers, Polymers, and Materials, Patrick B. Smith, Richard B. Gross, This ACS Symposium Series is the product of a symposium held at the 241st National Meeting of the American Chemical Society in Anaheim, CA on March 27-31, 2011. It includes chapters on new biobased building blocks such as the furandicarboxylic acid, polyesters and polyamides from adipic, succinic and sebacic acids with aliphatic diols such as 1,3-propylene glycol, 1,4-butanediol, 1,12-dodecylenediol and isosorbide. The conversion of hydroxymethylfurfural, the dehydration product of hexose sugars, to succinic acid and 1,4-butanediol to produce poly(butylene succinate) is described in one chapter. Also the synthesis of new polymers from plant-derived olefinic monomers such as tulipalin A and studies of composites from cotton by-products are featured in other chapters. There is a strong emphasis on biocatalytic synthesis and polymerization within the book. Chapter topics include the synthesis of ω -hydroxyfatty acids and polymers therefrom, an interesting discussion on the structural differences of the products of the biocatalytic and chemical catalytic synthesis of polyesters from oleic diacid and glycerol and the ability to produce polylactic acid (PLA) and PLA-PHA copolyesters within a "microbial cell factory". Other areas of interest explored in other chapters include recent developments of biobased polymer fibers and oleate-based pressure sensitive adhesives and composites. One chapter describes a large increase in cold-drawn fiber tensile strength by the blending of a small amount of ultrahigh molecular weight (MW) poly(3-hydroxybutyrate) with a much lower MW 3-hydroxybutyrate polymer. The addition of a rubber and inorganic fillers to normally brittle PLA was found to dramatically improve its ductility. Finally, there are several chapters on seed oil-based polyurethanes, one on fibers from soy proteins and composites from starch.

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