

## **201b Prospective on Biobased Materials: Opportunities and Challenges**

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An overview of research and development in the field of biobased materials will be provided along with the opportunities, impediments, and challenges these materials offer. Biobased research has made some technological advances in the last couple of decades. The ever-increasing fuel prices as well as the rising cost of petroleum-derived commodity chemicals provided much of the impetus for the research and development in this area. Availability of many biopolymers in surplus quantities, solid-waste management crisis of recalcitrant plastic products, and consumers' demand for environmentally compatible products, especially, single-use packaged goods have certainly helped build the momentum to investigate new uses for agriculturally-derived and/or biobased materials. In comparison to petroleum-based polymers, biobased polymers exhibit poor physical-mechanical properties, provide materials of inconsistent purity, display difficulty in material processing utilizing the existing equipment/infrastructure, and perform poorly under extreme environmental conditions. Nevertheless, these materials have an inherent advantage over their petroleum counterparts in that they are immediately susceptible to biodegradation in the environment upon disposal. Efforts are being made worldwide, including USDA laboratories, to improve and transform agriculturally derived materials to overcome the technological barriers that are restricting their commercial potential and consumer acceptance. The future outlook for these materials will be discussed