

## Biofuels and Bioenergy: Processes and Technologies (Green Chemistry and Chemical Engineering)

Sunggyu Lee, Y.T. Shah



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The newest addition to the *Green Chemistry and Chemical Engineering* series from CRC Press, **Biofuels** and Bioenergy: Processes and Technologies provides a succinct but in-depth introduction to methods of development and use of biofuels and bioenergy. The book illustrates their great appeal as tools for solving the economic and environmental challenges associated with achieving energy sustainability and independence through the use of clean, renewable alternative energy. Taking a process engineering approach rooted in the fuel and petrochemical fields, this book masterfully integrates coverage of current conventional processes and emerging techniques.

Topics covered include:

- Characterization and analysis of biofuels
- Process economics
- Chemistry of process conversion
- Process engineering and design and associated environmental technologies
- Energy balances and efficiencies
- Reactor designs and process configurations
- Energy materials and process equipment
- Integration with other conventional fossil fuel processes
- Byproduct utilization
- Governmental regulations and policies and global trends

After an overview of the subject, the book discusses crop oils, biodiesel, and algae fuels. It examines ethanol from corn and from lignocelluloses and then explores fast pyrolysis and gasification of biomass. Discussing the future of biofuel production, it also describes the conversion of waste to biofuels, bioproducts, and bioenergy and concludes with a discussion of mixed feedstock. Written for readers with college-level backgrounds in chemistry, biology, physics, and engineering, this reference explores the science and technology involved in developing biofuels and bioenergy. It addresses the application of these and other disciplines, covering key issues of special interest to fuel process engineers, fuel scientists, and energy technologists, among others.

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