

Book review

Chemicals from biomass: integrating bioprocesses into chemical production complexes for sustainable development

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CRC Press, Taylor & Francis Group, 2012

Hardcover, 496 pp.

Price: £95.00

ISBN: 978-1-4398-7814-9

This book is intended for (chemical) engineers and researchers that deal with the design of processes regarding renewable resources (biomass). But it will basically serve everyone that is interested in biomass conversion processes and related conceptual process design.

The book has 471 pages and is divided into seven chapters. In the introduction the authors pamphlet their research vision and sketch the new frontiers of biomass conversion processes. In the second chapter the authors identify and classify biomass and feedstock and discuss in a fair amount of detail the availability of different biomass resources to the world. In the third chapter the authors give an extensive portfolio of chemicals that can be produced from biomass and compare this with production from non-renewable resources. In Chapters 4 and 5 a significant effort in modeling and simulating a biorefinery process has been detailed, resulting in comprehensive discussions on the required process models for production of several biorenewables, for example, the

transesterification of soybean oil or the acetetic acid production from corn stover digestion. In Chapters 6 and 7 the real added value of the book becomes visible, where the authors devise a superstructure optimization model that can be used as a decision support tool in selecting most viable processing routes for biorenewables production. In addition to the main part, the book also includes nine appendices with a myriad of useful information; introductions to sustainability analysis and optimization and many tables with economic and chemical data.

Although the book is written as an scientific treatise, it can be fairly easy read and it has an organized structure, such that the reader can readily find the topics of his or her interest. The book contains a large collection of useful data for the conceptual design of biorenewable processes. In addition it provides several systematic methods that aid the engineer in designing and deciding throughout the design process.

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