



Biorefineries - Industrial Processes and Products: Status Quo and Future Directions (2 Volume Set) (v. 1)

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This is the first book dedicated to biorefineries and biobased industrial technologies, and, as such, is directed towards the technological principles of biorefineries, green processes, plants, concepts, current and forthcoming biobased product lines, as well as the economic aspects. Since the hot topics of green chemistry and green processes are of a multidisciplinary interest, this book will benefit the whole spectrum of the process industry, including chemical engineers, process engineers, apparatus construction engineers, chemical industry, chemists in industry, and biotechnologists. The editors and authors are all internationally recognized experts from industry and academia, including Dr. Patrick Gruber, the former Vice President and Chief Technology Officer of Cargill Dow, a winner of the U.S. Presidential Green Chemistry Award and holder of more than 40 patents.

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Editorial Review

Review

"For the first time, a comprehensive, systematically composed and clearly structured book about the processing of biomass in the form of whole crops in biorefineries has been published."

(www.iupac.org/publications, January 2008)

"...a marvelous job of reviewing the current state of biorefining...should be required reading by chemical engineers." (*Journal of Hazardous Materials*, June 1, 2007)

"Altogether, the edition is an interdisciplinary effort to collect knowledge, experience, and potential in the field of biomass treatment and utilization from a rather chemical point of view. It is a useful source of information for interested scientists, technologists, and engineers in chemistry, agricultural and food sciences and technology as well as related fields." (*Starch/Stärke*)

"The book covers a wide range of topics and is, to my knowledge, the best and most comprehensive review of biorefineries. It is the work of 85 experts from universities, R&D institutes, industry and commerce. The authors address the challenges of moving towards a sustainable society in which biological feedstocks, processes and products become the main pillars of the economy, together with the science and technology that makes this transition possible, including economic, infrastructure and policy issues." (*Chemistry World*)

"The topics presented in this volume are challenges of moving toward a sustainable society in which bio-based feedstocks, processes and products are fundamental pillars of the economy. One important feature of the book is that it discusses the necessary topics of economics, infrastructure and policy. The book can be a very valuable scientific support for the specialists interested in conservation of non-renewable resources and development of biorefineries - technologies for bio-conversion." (*Environmental Engineering and Management Journal*)

From the Back Cover

A sustainable economical growth requires safe resources of raw materials for industrial production. Today's most frequently used industrial raw material, petroleum, is neither sustainable, nor environmentally friendly. Biorefineries combine the necessary technologies of the biological raw materials with those of chemical intermediates and final products.

This is the first book dedicated to biorefineries and biobased industrial technologies. This 2-volume set gives a comprehensive survey of technological principles of biorefineries, green processes and plants, current and forthcoming biobased product lines, as well as the economic aspects.

From the contents:

- Background
- Biorefinery Systems
- Green Biorefinery
- Lignocellulose Feedstock Biorefinery
- Whole Crop Biorefinery
- Fuel oriented Biorefineries

- Biobased Feedstocks and Biomass Production
- Wet and Dry Fractionation
- Industrial Bioconversion
- Biobased Product Lines and Product Family Trees
- Carbohydrate Lines
- Lignin Lines
- Protein Lines
- Biobased Fats and Oils
- Syngas Platform and Gasification Route
- Biobased Products and Materials
- Biobased Basic Chemicals
- Biobased Polymers and Materials
- Biobased (Industrial) Economy and Commercialization
- Biobased Industry and Sustainability

About the Author

Birgit Kamm has been a member of the board and scientific director at biopos e.V. since 1998. She founded the Green Biorefinery Association Berlin-Brandenburg in 1997 and co-founded the biorefinery.de gmbH, Potsdam (a research, development and transfer company). She is a member of several scientific associations, such as the Society of German Chemists, Liebig Association of Organic Chemistry, and of the American Chemical Society, Green Chemistry and Subdivision.

Patrick Gruber is currently President and CEO of Outlast Technologies. He is the former Vice President and Chief Technology Officer at NatureWorks LLC (formerly Cargill Dow LLC), USA. He has over 40 patents to his name and has repeatedly won top awards for his work in chemicals made from renewable resources, including the Discovery Award for Environmental Innovation awarded by the Christopher Columbus Fellowship Foundation, the US Presidential Green Chemistry Award, and the US Department of Energy Technology of the Year Award 2001, together with Cargill Dow Inc., for the pioneering NatureWorks PLA project. He has served on the Advisory Board to the Energy Futures Coalition, The DOE/USDA Biomass Federal Advisory Board, and several other boards.

Michael Kamm studied organic chemistry in Merseburg. Following a research assistantship in Halle-Wittenberg he moved to Potsdam University, founded biopos where he has been involved in the material exploitation of regenerative raw materials. He has been President of biorefinery.de since its foundation in 2001.

Users Review

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Detra Satterwhite:

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