The Complete Book on Biomass Based Products (Biochemicals, Biofuels, Activated Carbon)

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Biomass use is growing globally. Biomass is biological material derived from living, or recently living organisms. It most often refers to plants or plant-based materials which are specifically called lignocellulosic biomass. Biomass (organic matter that can be converted into energy) may include food crops, crops for energy, crop residues, wood waste and byproducts, and animal manure. It is one of the most plentiful and well-utilized sources of renewable energy in the world. Broadly speaking, it is organic material produced by the photosynthesis of light. The chemical materials (organic compounds of carbons) are stored and can then be used to generate energy. The most common biomass used for energy is wood from trees. Wood has been used by humans for producing energy for heating and cooking for a very long time.

As an energy source, biomass can either be used directly via combustion to produce heat, or indirectly after converting it to various forms of biofuel. Conversion of biomass to biofuel can be achieved by different methods which are broadly classified into: thermal, chemical, and biochemical methods. Biomass gasification is the conversion of solid fuels like wood and agricultural residues into a combustible gas mixture. The gasification system basically consists of a gasifier unit, a purification system and energy converters- burner or engine.

This book offers comprehensive coverage of the design and analysis of biomass gasification, the key technology enabling the production of biofuels from all viable sources like sugar beet and sweet sorghum. It aims at creating an understanding of the nature of biomass resources for energy and fuels, the variety of processes that are available for conversion of the wastes into energy or fuels. The book discusses the overview of the Biomass Energy along with their Properties, Composition, Benefits, Characteristics and Manufacturing Process of Biomass based products. Also it contains suppliers contact details of plant & machinery with their photographs.

The content includes biomass renewable energy, prospective renewable resources for bio-based processes, biochemical from biomass, biomass based chemicals, biofuel production from biomass crops, biomass gasification, reuse of bio-genic iron oxides and woody biomass fly ash in cement based materials and agricultural areas, biofuel briquettes from biomass, biomass based activated carbon, environmental aspects.

It will be a standard reference book for Professionals, Decision-makers, Engineers, those studying and researching in this important area and others interested in the field of biomass

based products. Professionals in academia and industry will appreciate this comprehensive and practical reference book, due to its multidisciplinary nature.

Thermo Chemical Conversion
(a) Combustion
Gasification
Pyrolysis
Biochemical Conversion
Fermentation
Anaerobic Digestion
Mechanical Extraction
Biochemical from Biomass
Biomethanation
Feature of Biomethanation
Mechanism of Biomethanation
Current Status
Ethanol Fermentation
Ethanol Fermentation of Saccharine Materials
Ethanol Fermentation of Starch
Ethanol Fermentation of Lignocellulosics
(a) Concentrated Sulfuric Acid Process
(b) Dilute Sulfuric Acid Process
Acetone-Butanol Fermentation
Characteristics of Acetone-Butanol Fermentation
Reactions of Acetone-Butanol Fermentation
Energy Efficiency of Acetone-Butanol Fermentation
Products of Acetone-Butanol Fermentation
Hydrogen Fermentation
Characteristics of Hydrogen Fermentation
Reactions of Hydrogen Fermentation
Energy Efficiency of Hydrogen Fermentation
Products of Hydrogen Fermentation
Lactic Acid Fermentation
Lactic Acid Bacteria
Biomass Resources for Lactic Acid Fermentation
Utilization of Unused Biomass from Palm Oil Industry
Lactic Acid Fermentation from Kitchen Garbage
Purification of Lactic Acid
Silage
Silage Making
Silage Fermentation
Roll Bale Silage
Composting
Basic Principles of Composting
Basic Elements of Composting
(a) Preprocessing
(b) Fermentation
(c) Product Forming Process
Current Composting Technology
4. BIOMASS BASED CHEMICALS
Chemicals from Biomass as Feedstock
Biomass Conversion Chemicals
Methane
Methanol
Production of Methanol from Biomass
Uses and Applications of Methanol

Waste Water Treatment
Environmentally Friendly
Chemical Intermediate and Fuel
Safety in Automotive Fuels
Government Policy
Other Applications
Ethanol
Properties of Ethanol
Ethanol Production Process from Sugarcane
Cleaning of Sugarcane, Extraction of Sugars and Juice Treatment
Juice Concentration and Sterilization
Fermentation
Distillation and Dehydration
Acetic Acid
Ethylene
Glycerol
Production of Glycerol
Applications of Glycerol
Lactic Acid
Propylene Glycol
1,3-Propanediol
Acetone
Uses of Acetone
Production of Acetone
Butanol
Butanol Fermentation Process
Advantages of Biobutanol
Succinic Acid
Aspartic Acid
Levulinic Acid
Itaconic Acid
Xylitol
2,5-furandicarboxylic Acid
Sorbitol
Uses of Sorbitol
5. BIOFUEL PRODUCTION FROM BIOMASS CROPS
Biomass Production
Introduction
The Holistic Approach
Pretreatment of Lignocellulosic Biomass to Biofuel
Bioethanol from Sugar Beet
Biological Hydrogen from Sweet Sorghum
Few Crops and Their Residues
Arhar
Bajra
Banana
Barley
Coconut
Coffee
Coriander
Cotton
Dry Chilly
Dry Ginger

Green Gram
Ground Nut
Jowar
Maize
Mango
Masoor
Moong
Moth
Mustard
Potato
Soyabean
Sugarcane
Tea
6. BIOMASS GASIFICATION
Gasification Reactor Types
Moving Bed (Fixed Bed)
Down-draft Gasifiers
Up-draft Gasifier
Fluidized Bed Gasifier
Bubbling Fluidized Bed
Circulating Fluidized Bed Gasifier
Entrained-Flow Reactor
Gasification Reactions and Steps
Gasifying Medium
Chemical Reactions
1. Reactions with Molecular Oxygen
2. Reactions with Carbon Dioxide
3. Reactions with Steam
4. Reactions with Hydrogen
Fuel-Gas Production and Utilization
Synthesis Gas Production
The Gasification Process
Drying
Pyrolysis
Char Gasification Reactions
Speed of Char Reactions
Boudouard Reaction
Water–Gas Reaction
Shift Reaction
Hydrogasification Reaction
Char Combustion Reactions
Catalytic Gasification
Catalyst Selection Criteria
Advantages and Limitations
Advantages
Limitations
Generation of Thermal Energy from Wood through Biomass Gasification System
Scope of Supply
Equipment Description
Appendix & Annexure
7. REUSE OF BIO-GENIC IRON OXIDES AND WOODY BIOMASS FLY ASH IN CEMENT BASED MATERIALS AND AGRICULTURAL AREAS
Introduction

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