

Biopolymers

Lignin, Proteins, Bioactive Nanocomposites

Bearbeitet von
Akihiro Abe, Shiro Kobayashi

1. Auflage 2010. Buch. x, 214 S. Hardcover
ISBN 978 3 642 13629 0
Format (B x L): 15,5 x 23,5 cm
Gewicht: 543 g

[Weitere Fachgebiete > Chemie, Biowissenschaften, Agrarwissenschaften > Biochemie
> Polymerchemie](#)

Zu [Inhaltsverzeichnis](#)

schnell und portofrei erhältlich bei

The logo for beck-shop.de features the text 'beck-shop.de' in a bold, red, sans-serif font. Above the 'i' in 'shop' are three red dots of increasing size. Below the main text, 'DIE FACHBUCHHANDLUNG' is written in a smaller, red, all-caps, sans-serif font.

beck-shop.de
DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beck-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Lignin Structure, Properties, and Applications

Hyoe Hatakeyama and Tatsuko Hatakeyama

Abstract Polymeric features of lignin and its potential as a bio-resource are reviewed, focusing on its characteristic structure and properties. Lignin is a random copolymer consisting of phenylpropane units having characteristic side chains. Lignin slightly crosslinks and takes an amorphous structure in the solid state. The molecular motion is observed as glass transition by thermal, viscoelastic and spectroscopic measurements. The hydroxyl group of lignin plays a crucial role in interaction with water. By chemical and thermal decomposition, a wide range of chemicals can be obtained from lignin that can be used as starting materials for synthetic polymers, such as polyesters, polyethers, and polystyrene derivatives. At the same time, a variety of polymers can be derived from lignin by simple chemical modification. The hydroxyl group acts as a reaction site for the above chemical reaction.

Keywords Biocomposites · Glass transition · Lignin · PCL · Polyurethanes

Contents

1	Introduction to Lignin	4
1.1	Historical Background of Lignin in Polymer Science	4
1.2	Varieties of Lignin	5
1.3	Lignin as a Bio-Resource	6
2	Molecular Structure and Higher Order Structure	7
2.1	Specific Chemical Structure	7
2.2	Molecular Mass and Molecular Mass Distribution	8

H. Hatakeyama

Graduate School of Engineering, Fukui University of Technology, 3-6-1, Gakuen,
 Fukui 910-8505, Japan

T. Hatakeyama (✉)

Lignocel Research, 73-8, Yatsumata, Fukui 910-3558, Japan
 e-mail: lignocel@mx3.fctv.ne.jp