

Preface

This book presents detailed information on the production and properties of carbon fibres derived from lignin precursors. Focusing on future directions of the carbon fibre industry, it also introduces a novel process for obtaining high-purity lignin, a key aspect in the manufacture of high-quality carbon fibre. Carbon fibre is currently the most preferred lightweight manufacturing material and is rapidly becoming the material of choice for manufacturers around the world. Although more than 80% of commercial carbon fibre is estimated to use PAN (polyacrylonitrile) as a precursor, carbon fibre manufactured from PAN is expensive and therefore its application is limited to high-performance structural materials. After cellulose, lignin is the second most abundant natural biopolymer and offers a carbon-rich, renewable resource. As a byproduct of the pulp and paper industry and the production of cellulosic ethanol, lignin is available at low cost. It is an economically attractive alternative to the use of PAN for the production of carbon fibres, as highlighted in this book. The information presented will be of interest to all those involved in the investigation of carbon fibre materials, carbon fibre manufacturers and carbon fibre users.

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<http://www.springer.com/978-981-10-4228-7>

Carbon Fibre from Lignin

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2017, XIII, 77 p. 10 illus., Softcover

ISBN: 978-981-10-4228-7