Polyurethanes: Preparation, Properties, and Applications

**Volume 1: Fundamentals** 

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48n1984. | ISBN 9781713888659 (pod)

Copyright © 2023 American Chemical Society

All Rights Reserved. Reprographic copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Act is allowed for internal use only, provided that a per-chapter fee of \$40.25 plus \$0.75 per page is paid to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA. Republication or reproduction for sale of pages in this book is permitted only under license from ACS. Direct these and other permission requests to ACS Copyright Office, Publications Division, 1155 16th Street, N.W., Washington, DC 20036.

The citation of trade names and/or names of manufacturers in this publication is not to be construed as an endorsement or as approval by ACS of the commercial products or services referenced herein; nor should the mere reference herein to any drawing, specification, chemical process, or other data be regarded as a license or as a conveyance of any right or permission to the holder, reader, or any other person or corporation, to manufacture, reproduce, use, or sell any patented invention or copyrighted work that may in any way be related thereto. Registered names, trademarks, etc., used in this publication, even without specific indication thereof, are not to be considered unprotected by law.

PRINTED IN THE UNITED STATES OF AMERICA

## **Contents**

Prefacei		ix
1.	Polyurethane and Its Composites: Synthesis to Application	1
2.	Non-Isocyanate Based Polyurethanes	21
3.	Modification of Polyurethanes by Atom Transfer Radical Polymerization and Their Application	39
	Izabela Zaborniak, Małgorzata Sroka, and Paweł Chmielarz	
4.	Polyurethane Membranes Preparation, Characterization and Their Diverse Applications	59
	Diksha Yadav and Pravin G. Ingole	
5.	Composites of Polyurethanes	79
6.	Fiber-Reinforced Polyurethane Matrix Composites for Engineering Applications Anurag Sharma and Sunil C. Joshi	101
7.	Fabrication Strategies and Mechanical Analysis of Composites Derived from Bio Sources and Carbon-Based Reinforcements  Teddy Mageto, Felipe M. de Souza, and Ram K. Gupta	119
8.	Polyurethanes for Corrosion Protective Coatings	
9.	Recycling of Polyurethanes  Devesh Sane, Apurv Gadekar, Vandana Jamdar, and Anagha Sabnis	161
Ed	itor's Biography	181
Indexes		
Author Index		
Sul	biect Index	187