

Preface

Polyurethanes are versatile polymeric materials and are usually synthesized by isocyanate reactions with polyols. Due to the variety of isocyanates and polyols, particularly polyols, polyurethanes can be easily tailored for wide applications, such as rigid and flexible foams, coatings, adhesives, and elastomers. Considerable efforts have been recently devoted to developing bio-based substitutes for petroleum-based polyurethanes due to increasing concerns over the depletion of petroleum resources, environment, and sustainability. This book first introduces general production methods and characteristics of polyols, isocyanates, and polyurethanes (Chap. 1) and then focuses on the synthesis and properties of bio-based polyols and polyurethanes from different renewable feedstocks including vegetable oils and their derivatives (Chap. 2), lignocellulosic biomass (Chap. 3), and protein-based feedstocks (Chap. 4). A comparison of bio-based polyol and polyurethane properties with their petroleum-based analogues is also discussed. This book provides useful information on bio-based polyols and isocyanates and their derived polyurethanes for chemists, researchers, students, and others who are interested in green chemistry and bio-based products.

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