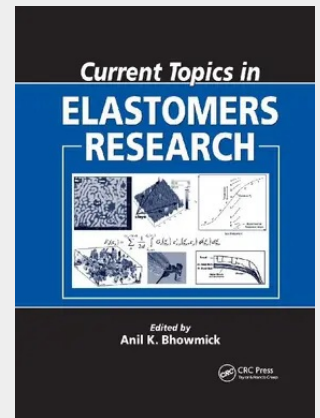


Current Topics in Elastomers Research

From weather-proof tires and artificial hearts to the o-rings and valve seals that enable successful space exploration, rubber is an indispensable component of modern civilization. Stiff competition and stringent application requirements foster continuous challenges requiring manufacturers to fund ever-expanding research projects. However, this vast and growing body of knowledge is jealously guarded by the rubber companies and not published in the open literature, leaving the novice or general researcher forced, as it were, to re-invent the wheel. Drawing on the expertise of leading researchers in their fields, *Current Topics in Elastomers Research* provides the first comprehensive overview of rubber research activities from around the world. Divided into seven sections, this seminal work begins with a general introduction before presenting the chemistry and structure-property relationships of a variety of new materials and composites. The second section covers the most important rubber ingredients along with the current thinking on their mechanism of action. Two important new characterization techniques, 3D-TEM and AFM, are evaluated in the third section, while the fourth considers the physics and engineering aspects of elastomers, including reinforcement mechanisms, viscoelastic properties, fatigue life, abrasion, adhesion, rheology, mixing and processing, and the effects of time, temperature and fluids. The fifth section pays respect to the tire, a driving impetus for research and one of the major applications of rubber. Finally, the book includes two chapters on eco-friendly technology and recycling, perhaps the most important engineering topic in this age of globalization and environmental responsibility. Barring the inaccessibility of truly classified information, *Current Topics in Elastomers Research* is a complete review of current elastomers research and applications, compiling once-guarded knowledge and



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