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B. Lauke, W. Beckert, Institute of Polymer Research Dresden
Solid State Roll-Drawing of Engineering Polymers: Orientation and Properties .......................... 1900
A. Aiji, M. M. Dumoulin, K. C. Cole, Industrial Materials Institute
An Experimental Verification of Fiber Orientation Predictions for Compression Molded SMC Parts .................. 1905
L. G. Reifschneider, H. U. Akay, Technalysis, Inc.
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A Mechanistic Understanding of Fatigue Crack Propagation Behavior of Rubber-Modified Epoxy Polymers .......... 1920
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High-Cycle Fatigue Behavior of Engineering Thermoplastics .................. 1925
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Non-Linear Viscoelastic Response of Polycarbonate in Torsion .......... 1932
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Creep Modulus Projection—A Better Method .................. 1936
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Insight into the Mechanisms Controlling Creep Deformation of Polyethylene .......... 1939
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Melt Diffusion in Liquid Crystalline Polymers Rigid Rod vs. Semi-Rigid Model Systems .......... 1950
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R. A. Gaudiana, E. Kolb, Polaroid Corporation
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J. W. Mays, University of Alabama at Birmingham
G. D. Wignall, Oak Ridge National Laboratory
Improved Water-Absorbing Acrylamide Hydrogels with Itaconic Esters .......... 1960
E. Mendizabal, D. Espinoza, A. Castaneda, J. E. Puig, Universidad de Guadalajara
I. A. Katime, J. L. Velada, Universidad del Pais Vasco
Effect of Internal Plasticization on the Melt Rheology of a Polyester Ionomer .......... 1964
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K. N. Knapp II, D. Lee, R. W. Messler, Jr., A. F. Luscher,
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Viscoelastic Properties of Elastomers under Nonsinusoidal Periodic Loading .... 1983
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*Study of Breakup Mechanisms in Cavity Flow ............................................ 1988
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*Rheology-Driven Mixing Mechanisms in TSMEE Kneading Blocks:
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