Contents

Overview vii

POLYMERS


Time Dependent Volume and Enthalpy Responses in Polymers—G. B. MCKENNA AND S. L. SIMON 18

Creep Behavior in Amorphous and Semicrystalline PEN—M. L. CERRADA AND G. B. MCKENNA 47

A Constitutive Model for Long-Term Behavior of Polymers—I. D. SKRYPNYK, J. L. SPOORMAKER, AND P. KANDACHAR 70


An Overstress Model for Solid Polymer Deformation Behavior Applied to Nylon 66—E. KREML AND KWANGSOO HO 118

COMPOSITES

Aging During Elevated Temperature Stress Relaxation of IM7/K3B Composite—T. S. GATES, L. C. BRINSON, K. S. WHITLEY, AND T. BAI 141

Tensile and Compressive Creep of a Thermoplastic Polymer and the Effects of Physical Aging on the Composite Time-Dependent Behavior—D. R. VEAZIE AND T. S. GATES 160
Nonlinear Multiaxial Behavior and Failure of Fiber-Reinforced Composites—
S.-C. Hung and K. M. Liechti

Nonlinear and Dynamic Compressive Behavior of Composites with Fiber
Waviness—H. M. Hsiao and I. M. Daniel

Nonlinear Viscoelastic Behavior of Rubber-Toughened Carbon and Glass/
Epoxy Composites—R. T. Bocchieri and R. A. Schapery

A Viscoelasticity Model for Characterizing Loading and Unloading Behavior
of Polymeric Composites—C. M. Zhu and C. T. Sun

Durability and Damage Tolerance of a Polyimide Chopped Fiber Composite
Subjected to Thermomechanical Fatigue Missions and Creep Loadings—
M. G. Castelli, J. K. Sutter, and D. Benson

Life Prediction of PPS Composites Subjected to Cyclic Loading at Elevated
Temperatures—J. S. Loverich, B. E. Russell, S. W. Case, and
K. L. Reifsnider

Accelerated Strength Testing of Thermoplastic Composites—J. R. Reeder,
D. H. Allen, and W. L. Bradley

Hygrothermal Modeling of Polymers and Polymer Matrix Composites—
Samit Roy

Hygrothermal Effects on Failure Mechanisms of Composite/Steel Bonded
Joints—A. Roy, E. Gontcharova-Bénard, J.-L. Gacougnolle, and
P. Davies

Indexes