## CONTENTS

	Page
Preface	XV
List of Contributors	xvii
Table of Contents for Volume1	
(provided as a reference for those who have not read Volume 1)	xxi
1 / Introduction	1
2 / Moisture and Temperature Induced Degradation of Graphite Epoxy Composites	6
3 / Property Changes of a Graphite/Epoxy Composite Exposed to	
Nonionizing Space Parameters	20
4 / The Effect of Temperature and Moisture Content on the Flexural Response of	
Keviar/Epoxy Laminates: Part I. (0/90) Filament Orientation	27
5 / The Effect of Temperature and Moisture Content on the Flexural Response on	
Keviar/Epoxy Laminates: Part II/ [±45,0/90] Filament Orientation	43
6 / Effects of Temperature and Moisture on Sheet Molding Compounds	59
7 / The Influence of Environmental Conditions on the Vibration Characteristics of	
Chopped-Fiber-Reinforced Composite Materials	79
8 / Thermal and Photo-Degradation Behaviors of Glass-Fiber Reinforced	
Rigid Polyurethane Foam	95
9 / Buffer Strips in Composites at Elevated Temperature	107
10 / Predicting the Time-Temperature Dependent Axial Failure of B/A1 Composites	119
11 / Detection of Moisture in Graphite / Epoxy Laminates by X-Ray Diffraction	136
12 / Moisture Detection in Composites Using Nuclear Reaction Analysis	144
13 / Model for Predicting the Mechanical Properties of Composites	
at Elevated temperatures	151
14 / Multi-Material Model Moisture Analysis for Steady-State Boundary Conditions	162
15 / A Rapidly Convergent Scheme to Compute Moisture Profiles in Composite	
Materials Under Fluctuating Ambient Conditions	170
16 / A Fickian Diffusion Model for Rermeable Fibre Polymer Composites	179
17 / Irreversible Hygrothermomechanical Behavior and Numerical Analysis in	
Anisotropic Materials	190
18 / A Comparative Study of Water Absorption Theories Applied to	
Glass Epoxy Composites	209
19 / Moisture Gradient Considerations in Environmental Fatigue of CFRP	230
20 / Thermal Response of Graphite Epoxy Composite Subjected to Rapid Heating	245
21 / Some Investigations of Effective Thermal Conductivity of Unidirectional	
Fiber-Reinforced Composites	261
22 / Bounds of Effective Thermal Conductivity of Short-Fiber Composites	271
23 / Thermal Conductivities of a Cracked Solid	281
24 / Moisture Diffusivity of Unidirectional Composites	288
25 / Moisture and Thermal Expansion Properties of Unidirectional Composite	
Materials and the Epoxy Matrix	300
26 / In-Plane Thermal Expansion and Thermal Bending Coefficients	
of Fabric Composites	317
27 / Coefficient of Thermal Expansion for Composites with Randomly Oriented Fibers	330
28 / Analysis of the Thermal Expansion Coefficients of Particle-Filled Polymers	348
29 / Analysis of the Viscoelastic Response of Composite Laminates During	
Hygrothermal Exposure	363
30 / Time-Temperature Effect in Adhesively Bonded Joints	381
31 / Adhesive Joints Involving Composites and Laminates.	
Measurement of Stresses Caused by Resin Swelling	403
32 / Authors and References Cited in Volumes 1 and 2	413
Index	437

Ta	ble of Contents for Volume 1		
(I	Provided as a reference for those who have not read Volume 1)		
Preface		vii	
1	/ Introduction	1	
2	/ Thermal Conductivities of Unidirectional Materials	7	
3	/ Moisture Absorption and Desorption of Composite Materials	15	
4	/ Moisture Absorption of Graphite Epoxy Composition Immersed	34	
5	/ Moisture Absorption of Polyester-E Glass Composites	51	
6	/ Moisture Content of Composites Under Transient Conditions	63	
7	/ Effects of Moisture and Temperature on the Tensile Strength of Composite Materials 79		
8	/ Environmental Effects on the Elastic Moduli of Composite Materials	94	
9	/ Effects of Thermal Spiking on Graphite-Epoxy Composites	108	
10	/ Environmental Effects on Glass Fiber Reinforced Polyester and		
	Vinylester Composites	126	
11	/ Degradation of Tensile and Shear Properties of Composites Exposed to Fire	on High	
	Temperature	145	
12	/ Electrical Hazards Posed by Graphite Fibers	159	
13	/ Numerical Procedures for the Solution of One Dimensional Fickian		
	Diffusion Problems	166	
Ind	ex	200	