

Index

a

accelerated testing methodology
 (ATM) 1, 9
 activation energy 25, 44
 adhesion 120
 Arrhenius' equation 25, 44
 autoclave technique 57, 72
 automatic shifting 17, 30

b

bending tests 39

c

carbon fiber reinforced polymers
 (CFRP) 1, 39
 CFRP laminates 3
 CFRP strand 9
 compression tests. 148
 carbon fibers 1, 35
 creep compliance 5, 17
 creep strength 12, 83

d

Dow's theory 50, 112
 dry specimens 91, 101
 dual cantilever bending 26
 dynamic mechanical analysis (DMA)
 24, 26

e

elastic modulus 34
 electro-hydraulic servo testing machine
 40, 104
 entropy elasticity 18
 epoxy (EP) resin 19

f

failure mechanism 50, 81
 fatigue failure load 131
 fiber-reinforced polymers (FRP) 1
 fatigue strength 13, 44
 formulation 55, 71, 83
 filament winding method 40
 frequency multiplexing DMA 17, 22

i

Instron type testing machine 40

l

load–elongation curves 128
 load ratio 131
 longitudinal direction 39, 55

m

master curve 8, 17
 matrix resin 5, 17
 Maxwell model 5, 7, 15
 mechanical properties 33
 metal bolted joints 123
 microbuckling 50, 137
 micromechanics of failure (MMF)/ATM
 critical parameters 144
 method 141
 molding processes 1

n

non-isotropic elastic behavior 36

o

open hole compression (OHC) 141,
 144

p

Poisson's ratio 34
polyether ether ketone (PEEK) 51

q

quasi-isotropic laminates (QIL) 144

r

reduced time 8
reference temperature 8
resin transfer molding (RTM) 101
roles of mixture 33
Rosen's shear lag model 45

s

static failure load 130
static strengths 11, 42
storage modulus 24
stress ratio 40, 41, 104

t

temperature shift factor 20
tension tests 39
thermal properties 33

thermosetting resin 5

three-point bending tests 39

time-temperature shift factor 8, 20

time-temperature superposition principle (TTSP) 5, 17

time to failure 10

transverse direction 39, 55

u

unidirectional CFRP 55, 71, 83, 91

v

viscoelastic behavior 5
vinylester (VE) resin 91, 101
viscoelastic coefficients 17
viscoelastic compliance 56, 72
viscoelastic crack kinetic theory 55, 69

w

Weibull distribution 56, 63, 66, 74, 87
wet specimens 91, 101

y

Young's modulus 24, 73