

Index

A, B

ageing, 364-365
amorphous polymer, 92-100
arc commutation, 560
band gap, 144
bioconcentration, 373
biomedical, 555
breakdown voltage, 359, 369

C

cellulose insulations, 347
characterization, 383, 387
 techniques, 325
charge
 transfer, 103
 trapping, 17
chemical, 524
coatings, 495, 501, 503
composite, 563
 membranes, 439-442, 450-451,
 469, 471
composition, 385
 band, 121, 138, 142, 144, 146, 222
current
 absorption, 226
 discharge, 217, 219, 223-226

D

detrapping, 28-29, 33-34, 125
dielectric, 4
 breakdown, 120, 166, 170, 176,
 184, 186, 189, 200, 334
 relaxation, 79, 87-90, 215
 strength, 167
direct methanol fuel cells (DMFC),
 436
disorder, 30-32

E

eco-design, 560, 569
electric
 charges, 8, 11
 field, 3, 5-8, 11, 15
electrical
 ageing, 189, 195, 197, 199, 207
 ageing models, 206
 breakdown, 190
 characteristics, 384
 stresses, 200
 tree, 171
electroacoustic, 551-552
electroconvection, 380
electrokinetic effects, 379-380

electroluminescence, 477-478, 482-485
 electrolytic capacitors, 403, 406, 408-411, 414, 417, 423-429, 431-432
 electron irradiation, 135-136, 140-141, 146-154, 157, 159
 electronic paramagnetic resonance, 333
 electrorheological
 effect
 fluids, 382, 385, 387
 electrorheology, 380-381
 electrostatic, 103, 115
 phenomena, 496, 503
 electroviscous effects, 379-380

F

ferroelectricity, 538, 540, 546
 fire point, 370-371
 FLAMM, 251-254
 flash point, 356, 370-371
 FLIMM, 251-255, 258, 261-269
 fluorescence microscopy, 329
 forbidden band, 219
 fuel cells, 435-442, 450, 452, 457, 473

G, H

gap, 218
 genotoxicity, 372
 giant, 387, 396
 Havriliak and Negami equation, 85, 86, 92
 hopping, 37, 43, 53-62, 66, 68, 70
 hydrophones, 532, 551-556

I

incineration, 526
 infrared spectrophotometry, 334

insulating
 liquids, 348-350, 360, 367, 370, 396
 material, 17-18, 31
 oils, 347, 356-357, 370, 373
 insulator, 120-121, 125, 136, 138, 141, 145, 147, 151-158, 234, 271-275, 279-284, 289-292, 296-298, 303, 309, 311-312, 315, 328, 331
 internal electric field, 289, 294, 299, 300, 312
 intrinsic conduction, 213, 218-219
 isolant, 211-216, 219-227

L, M

laser induced pressure pulse method (LIPP), 271, 276
 leakage current, 422, 425, 427, 430-431, 565
 mechanical, 522
 mechanisms, 388
 membranes, 551
 mineral oil, 347-349, 352-353, 358-362, 365, 370, 373, 392, 566
 mirror effect, 149-150, 153-154, 159
 mobility, 17-18, 25-27, 31-32, 141, 146, 213, 219-220, 222
 molecular mobility, 91, 94-98
 MOS structure, 300, 315, 318, 321

N, O

natural ester, 350, 357, 373
 non-destructive technique, 289, 321
 non-destructive testing (NDT), 555
 organic
 materials, 166, 171, 173
 semiconductor, 477-481, 489, 491

P

partial discharges, 243, 285, 327

penetration depth, 136-137
 photovoltaics, 477-480, 486-488, 491
 piezoelectric effect, 531, 545-552
 plastic, 515-516, 519, 522, 529-530
 polarization, 3-27, 120, 124, 145,
 213-217, 221, 226, 231, 274, 294,
 300
 electronic, 27
 energy, 23
 mechanisms, 79, 80
 polaron, 19-28, 33, 71
 poly(vinylidene fluoride –
 trifluoroethylene) P(VDF-TrFE),
 535, 541, 543, 550, 556
 poly(vinylidene fluoride) PVDF,
 531-544, 548, 550-556
 polyamides, 532, 535-537, 540-543
 polychlorobiphenyls (PCB), 348-350,
 357, 363, 366-367, 371, 376
 polyelectrolyte membrane fuel cells
 (PEMFC), 436, 440
 polymeric, 559
 polymers, 531, 557-558
 Poole–Frenkel, 54-58
 potential and limitations, 527
 potential decline, 241
 power cables, 302
 precursors, 169, 173, 176, 178-179
 proton conductivity, 436-437, 440,
 442, 450, 464
 proton exchange membranes (PEM),
 436

R

recyclability, 569
 recycling
 relaxation mode, 92-98
 rheological characteristics, 382

S

SCLC, 54-58, 221
 secondary emission, 135, 138-139,
 142, 146-147, 159
 semi-crystalline polymers, 81, 89, 92,
 96
 silicone oil, 348, 350, 361, 363-365,
 396
 solid insulating materials, 321
 space charge, 120, 213, 215, 219-
 222, 226, 282-284, 309, 315
 measurement, 289, 309, 260, 262,
 264, 268
 space environment, 495-497, 502,
 513
 stationary, 225
 supercapacitor, 432
 surface
 charges, 285
 potential, 141, 147, 150, 153, 155-
 156, 212, 213, 216
 suspensions, 379-381, 384-388, 392,
 396-397
 synthetic ester, 348, 358, 361, 363

T

thermal
 control, 495-496, 498, 501, 513
 step method, 289
 thermostimulated currents, 340
 thin film deposition, 481
 toxicity, 348, 356, 366, 370-373
 transient conduction currents, 294
 transmitting, 549
 transducers, 551, 555
 transport
 dispersive, 221
 number, 448-449, 453, 455-460,
 467

trapping
 breakdown, 220, 222-223, 225-226
triboelectrification, 103

waste, 521
water trees, 175, 177, 181, 185, 332
Williams–Landel–Ferry, 91

U, V, W

ultrasonic, 552
vegetable oil, 348