

INDEX

- A**
- Acrylic Polymers, 35
 - Active carbon bead, 186–187
 - advantages, 186
 - manufacture, 187
 - Additives for polyurethane coating, 30,
 - Additives for PVC, 14–17
 - colorants, 17
 - fillers, 17, 19
 - flame retardants, 17
 - lubricants, 17
 - plasticizers, 14, 16
 - stabilizers, 16–17
 - Additives for rubber, 7–9
 - accelerators, 8
 - antidegradants, 8
 - cross-linking agents, 8
 - fillers, 8
 - Adhesive treatment, 35–40, 101–103
 - mechanisms, 35–36, 101–102
 - adsorption, 36
 - diffusion, 36
 - electrostatic attraction, 36
 - mechanical, 36
 - types of bonding agents, 36–39, 102–103
 - Air bag fabrics, 164–166
 - neoprene coating, 165
 - silicone coating, 165–166
 - uncoated fabric, 166
 - Automotive applications, 164–168
 - air bag fabrics, 166–168
 - car seat covers, 166–168
 - head liner, 168
 - Aqueous dispersion of polyurethane, 31–33
 - emulsifiers, 31–32
 - film properties, 33
 - preparation, 32–33,
 - acetone process, 32
 - melt dispersion process, 32–33
 - Architectural textiles, 153–158
 - advantages of, 153–154
 - air supported structure, 156
 - flexible barrier storage system, 157
 - material requirements, 154–155
 - PTFE coated glass fabric, 155
 - PVC coated fabrics, 155
 - tension structure, 158
 - Awnings and canopies, 159
 - fabric properties, 159
 - types of fabric, 159
- B**
- Bema coater, 30, 91
- C**
- Calendering, 84–91
 - calenders, 85–87
 - configurations, 86
 - equipment, 84–85
 - operation, 85
 - roll bending, 87
 - roll crossing, 87
 - roll crowning, 87
 - coating and lamination, 87–89
 - against calender roll, 87
 - against steel belt, 88
 - in line lamination, 88
 - nip coating, 87,
 - of elastomers, 89
 - coating defects, 90
 - comparison with other methods, 90
 - post calender section, 89–90
 - pre-calender section, 85
 - Camouflage nets, 188–191
 - IR reflectance of objects, 189
 - radar camouflage nets, 190
 - sensors, 188
 - snow camouflage nets, 190
 - thermal camouflage, 191
 - visual and near IR nets, 188–190
 - Carpet backing, 169–170
 - adhesives used, 169
 - foam backing, 169
 - secondary backed carpet, 169
 - unitary backing, 169
 - Chemical exposure risks, 182–183
 - requirements for protection, 182–183
 - Chemical protective clothing (CPC), 183–188
 - impermeable CPC, 183–185
 - barrier materials, 184–185
 - permeable CPC, 185–188
 - bonded spherical carbon, 186
 - carbon impregnated non woven, 186
 - carbon impregnated PUfoam, 186
 - charcoal fabric, 187
 - Chemical warfare agents, 181–182,
 - S mustard, 182, 184
 - sarin, 182
 - tabun, 182
 - VX, 182
 - Clothing comfort, 123–125
 - perspiration level of various

- activities, 124,
- Woodcock's equation, 123–124
- Coating methods, 69–96
 - calendaring, 84–91
 - dip coating, 81–82
 - knife coating (*see also* knife coating), 72–77
 - post and premetering, 72
 - roll coating (*see also* roll coating), 77–81
 - rotary screen printing, 84
 - transfer coating, 82–83

- Compounding of rubber, 9–12
 - internal mixer, 10–11
 - mastication, 9–11
 - mixing mill, 9–10
 - spreading dough, 12
- Compounding of solid PVC, 20–21
 - batch type mixer, 21
 - continuous mixer, 21
 - dry blending, 21
 - melt compounding, 20–21
 - sintered dry blends, 21

- Conductive polymer coating, 200

- Cotton spinning, 53–57
 - blow room, 53
 - carding, 54–55
 - combing, 55–56
 - drawing, 56
 - flow chart, 54
 - ginning, 53
 - lap formation, 55
 - ribbon lap, 55
 - sliver lap, 55
 - newer methods of spinning, 57
 - ring spinning, 56
 - speed frame / fly frame, 56

D

- Degradation of PVC, 16–17
 - polyene formation, 16
 - UV absorbers, 17,
- Designing of waterproof breathable fabrics, 126–131
 - repellency, 130–131
 - (*see also* repellent treatment)
 - techniques adopted, 131
 - water vapor diffusion, 127–128
 - water vapor transport, 128–129

- Dip coating, 81–82

- Dry bonding system, 37–38

E

- EMI shielding, 198–199
 - shielding efficiency, 199

F

- Fabric preparation, 66–67
 - heat setting, 66–67
 - scouring, 66
- Features of polyurethane coating, 33–35,
 - structure property relationship, 34–35
- Fire fighting suits, 197
 - approach suits, 197
 - entry suits, 197
 - proximity suits, 197
 - thermal protection index, 197
- Flocking, 170–171
- Fluid coating, 69–72
 - accumulator, 70, 71
 - coating head, 70
 - coating thickness, 70
 - common features, 69–70
 - drying oven, 70
 - fabric let off, 70
 - winding, 70
- Fluid containers, 159–162
 - collapsible liquid containers, 162,
 - designing of inflatables, 161–162
 - hot air balloons, 161
 - inflatable buoys, 161
 - life jackets, 159
 - rafts, 159–160
- Foams, 40–41
 - closed cell, 40
 - methods of manufacture, 40–41
 - open cell, 40
 - polyolefine foam, 41
 - polyurethane foam, 41
 - polyvinyl chloride foam, 41
- Foam coating, 94
- Foam finishing, 95
- Foul weather clothing, 124–125
 - breathable coated fabric, 124
 - (*see also* water proof breathable fabric)
 - impermeable coating, 125,
- Fragrance fabrics, 180
 - microcapsules, 180
 - uses, 180–181
- Fusible interlining, 171

G

- Goretex laminates, 133, 136–137, 143, 153

H

- Health care garments, 132–133
 - for burn injury, 133
 - surgical gowns, 132–133
- Heat stabilizers of PVC, 16–17
 - barium compounds, 17
 - lead compounds, 17

- organo tin compounds, 17
 - High visibility garments, 191
 - Hot melt adhesives, 39–40
 - limitations, 40,
 - merits, 40
 - Hot melt coatings and films, 91–94
 - engraved roller melt printing, 93–94
 - extrusion coating, 91–92
 - powder dot coating, 93
 - scatter coating, 93
 - Hydrodynamic analysis of coating, 119–121
 - coated film thickness, 121
 - Navier Stokes equation, 120
 - Hydrogels, 203–205
 - (see also smart polymer coating)
 - breathability change, 205
 - coated textiles, 204
 - swelling, 203
 - Hydrophilic coating and films, 139–141
 - advantages, 141
 - polyester based, 141
 - polyetherimide, 141
 - polyurethanes, 139–140
- I**
- Impermeable coated fabric for apparel, 125
 - Intumescent coating, 191–193
 - char bonding, 193
 - components, 192
 - steps of formation, 192
 - uses, 192
 - IR decoy, 200
 - Isocyanates, 22–25
 - basic reactions, 22–24
 - blocked isocyanates, 25
 - polyisocyanate synthesis, 24
 - isocyanate bonding system, 39
- K**
- Knife coating, 72–77
 - arrangements of, 73–74
 - floating knife, 73–74
 - knife over blanket, 74
 - knife over roll, 74
 - Mascoe's trough, 76–77
 - influence of web tension, 76
 - knife profiles, 75–76,
 - bull nose, 75
 - knife type, 75
 - shoe type, 75
 - twin knife, 76
 - V type, 75
 - role of rolling bank, 76–77
 - Knitted fabric, 62–64
 - characteristics, 62
 - courses, 62
 - wales, 62
 - warp knitted structure, 63–64
 - Raschel knit, 63
 - tricot knit, 63
 - weft knitted structures, 63
 - jersey knit, 63
 - purl knit, 63
 - rib knit, 63
- L**
- Lamination, 39–41, 87–89, 95–96, 166–167
 - adhesives, 39–40, 167
 - flame lamination, 167
 - foams, 40–41
 - Looms, 61–62
 - air jet looms, 62
 - projectile looms, 62
 - rapier looms, 62
 - shuttle looms, 61
 - water jet looms, 61
- M**
- Metal coating, 193–199
 - methods of coating, 194–197
 - coating with binder, 194
 - electroless plating, 195–197
 - sputter coating, 194–195
 - vacuum deposition, 194
 - uses, 197–200
 - EMI shielding, 198–200
 - protective clothing, 197
 - radar responsive fabric, 198
 - static electricity control, 198
 - Metering of coating, 72
 - post metering, 72
 - pre metering, 72
 - Method of preparation of polyurethanes, 27–28
 - one shot process, 28
 - prepolymer process, 28
 - Microencapsulation, 175–176
 - complex coacervation, 175
 - in situ* polymerization, 175
 - interfacial polymerization, 175
 - Microporous coatings and laminates, 134–139
 - extraction of soluble polymer component, 138–139
 - microporous polyamide, 135
 - microporous polyurethanes, 134–136
 - aqueous dispersion, 136
 - phase separation, 134–136
 - wet coagulation, 134–135
 - (see also poromerics)
 - microporous PTFE, 136–137
 - perforation of compact coating, 138
 - UV/E beam polymerization, 137

- against laid mustard drops, 225
 - resistance to water penetration, 221
 - stiffness of fabric, 214–215
 - water repellency –spray rating, 220–221
 - water vapor permeability, 223–224
 - desiccant method, 223
 - water method, 223–224
- Textile fibers, 48–53
 - aramids, 52–53
 - cotton, 48–51
 - nylons, 51–52
 - polyester, 52
 - rayon, 51
 - polypropylene, 52
 - properties of fibers, 49–50
 - chemical, 50
 - physical, 49
- Textile substrate for coated fabric, 47–67
 - materials and trends, 47–48
- Thermochromic fabrics, 176–177
- thermochromism, 176
 - liquid crystals, 176
 - overcrowded ethylenes, 176
 - tautomeric dyes, 176
 - temperature-indicating paint, 176
- Thermoplastic polyurethane elastomer, 29
- Toxic chemicals, 181
- Transfer coating, 82–83
 - process, 82
 - steps, 82–83
 - uses, 83
- Typical coating formulations, 229–230

V

- Ventile fabrics, 133

- Vulcanization of rubberized fabrics, 12–13
 - rotocure, 12
 - steam autoclave, 12–13

W

- Waterproof breathable fabrics, 123–143
 - designing, 126
 - ensemble for apparel, 131–132
 - evaluation, 142–143
 - parameters required, 125–126
 - types, 133
 - uses of, 131–133
 - cold weather clothing, 131–132
 - health care garments, 132–133
- Water vapor diffusion, 127–128,
 - through fabric, 127
 - through membranes, 128
- Water vapor transport, 128–129
- Weaves, , 59–61
 - basket weave, 59
 - oxford weave, 60
 - plain weave, 59
 - satin weave, 60
 - twill weave, 60
- Weaving, 58–59
 - beating up, 59
 - cloth take up, 59
 - picking, 59
 - shedding, 58
 - warp let off, 59
- Welding, of coated fabric, 96

Z

- Zimmer coating, 30, 91