

INDEX

- Acetylhypofluorite, 139, 141, 143, 144
N-Acetyl-trifluoromethylphenylsulfonilimine, 263
 AgBF₄, 9, 42, 43
 Ag⁺ BrF₄⁻, 9
 Ag(CF₃SO₃), 50
 [Ag(CO)]₂B₁₂F₁₂, 18
 Ag₂CO₃, 9, 10, 88, 179, 260
 AgF, 9, 10, 37–39, 405, 408, 409
 AgF₂, 9, 38, 39, 429, 430
 AgNO₃, 9, 10
 Ag₂O, 9, 10, 38, 43
 AgSCF₃, 26
 aHF, 11–14, 36, 38–45, 64, 428–430
 Al(CF₃SO₃)₃, 46
 Alkanoyl vinylic ether, 300
 Allylic fluoride, 405–408, 410, 411
 Allylic fluorination, 406, 407, 409, 410
 Antimony pentafluoride, 1, 51, 52
 Aqueous HF, 2, 4, 9, 10, 73, 77, 444
 AsF₅, 12, 82, 84–86, 334, 430
 Asymmetric fluorocyclization, 400, 402
 AuF₃, 94–97
 1-(1-Phenylethyl)-2-(trifluoromethyl)aziridine, 377

 B(C₆F₅)₃, 60–64
 Bartlett, 11, 15, 107, 330
 BaSO₄, 8
 [[Difluoro(trimethylsilyl)methyl]seleno]benzene, 352, 353
 1-Benzyl-2-(trifluoromethyl)aziridine, 377
N-Benzyl-2-bromo-3,3,3-trifluoropropan-1-amine, 376
 Benzylperfluorobutanedithioate, 294
 BF₃, 40–43, 60, 61, 67–69, 148, 335, 443
 1,4-Bis(*Z*-2-iodo-1,2-difluoroethenyl)benzene, 246, 247
 Bis[2-(2-fluoroethoxy)ethyl] ether, 130
 BMIM⁺ CF₃SO₂NSO₂C₄F₉⁻, 259

 (2*S*,4*S*)-*N*-Boc-4-trifluoromethylproline, 358, 359
 BrF, 134–136
 BrF₃, 70, 154–170
 1-Bromo-2-pentafluorosulfanylheptyl acetate, 276
 2-Bromo-3,3,3-trifluoro-*N*-(1-phenylethyl)propan-1-amine, 376
tert-Butyldifluoroamine, 127, 128
N-Butyl-*N*-(trifluoromethyl)hexaneamide, 162
N-Butyltrifluorodithioacetate, 294
 Butyl-2-trifluoromethyl-2-*t*-butylacetate, 164

 Calcium gluconate, 36, 37, 40–52, 80, 102, 104–106, 118
 C₇₀(CF₃)₁₀, 447, 448
para-C₆₀(CF₂C₆F₅)₂, 19, 20
para-C₆₀(CH₂Ph)₂, 19
 CeSF₆, 416, 418, 422
 (CF₃)₆P₃N₃, 124, 125
 C₆F₅SiF₃, 65, 66, 68–70
 CF₃SO₂N(Na)SiMe₃, 257, 258
 CF₃SO₂N(Na)SO₂C₄F₉, 257, 258
 CF₃SO₂NHNa, 257, 258
 [C₆F₅Xe][B(C₆F₅)₂F₂], 60, 62
 3-Chlorodifluoromethoxyaniline, 160, 161
 2-Chloro-2-(trifluoromethyl)-3,6-dihydro-2H-thiopyran, 296
 (CH₃)₄NF, 7
 (C₂H₅)₃N·3HF, 39, 55
 ClF₃, 4, 95–97, 100–106, 435–438, 443
 (η⁵-C₅Me₅)TiF₃, 271
 Copper, 3, 19, 20, 25, 26, 34, 36, 38, 39, 47, 48, 58, 99, 136, 140, 153–155, 187, 241, 242, 244, 247, 268, 287, 357, 368, 400, 426, 444
 [CpFe(CO)₂(SO₂)] [AsF₆], 83, 84
 CpTiF₃, 271, 272
 Cs[B(C₆F₅)₄], 63, 64
 Cs₂B₁₂F₁₂, 16, 17
 CsF, 7, 8, 76, 88, 91, 92, 124, 125, 177, 179, 187, 346

452 INDEX

- Cs[1-H-CB₁₁F₁₁], 22–24
 Cs₂SO₄, 8
 Cu(CF₃SO₃)₂, 47
 CuF₂, 36, 37, 55, 179
 CuSCF₃, 26
 Cyclohexylacetyl fluoride, 158
 Cyclotron, 11
- Dehydrofluorination, 148, 275, 306, 315
 Dehydroxyfluorination, 412
 Dibenzosuberenone, 140, 141
 S-(Trifluoromethyl)dibenzothiophenium-3-sulfonate, 280, 283, 284
 S-(Trifluoromethyl)dibenzothiophenium tetrafluoroborate, 280
 S-(Trifluoromethyl)dibenzothiophenium triflate, 280, 282
 2,4-Dibenzoyloxy-5-(perfluoroprop-1-enyl)pyrimidine, 372
 1,1-Dichloropolyfluoroalkylsulfides, 292
 Diethyl-β,β-difluoroglutarate, 170
 Diethyl-1,1(difluoro)-3-hydroxybutylphosphonate, 211
 α,β-Difluoroacrylic acid, 391
 2,2-Difluoroadamantane, 155, 156
 4,4-Difluoro-1-*t*-butylcyclohexane, 138
 2-(Bromomethyl)-1,1-difluorocyclopropane, 338, 339, 341
 2,2-Difluorocyclopropylmethanol, 339, 341
 1,1-Difluoro-2,2-dibutylethane, 168
 2,2-Difluoro-3,3-diiodo butane, 135
 2,2-Difluoro-1,3-dioxolo-4,5-pyridine, 160
 3-Difluoromethoxyaniline, 161
 5-(2,4-Di-*tert*-butoxypyrimidin-5-yl)-4,5-difluoro-2-methyl-4-(trifluoromethyl)isoxazolidine, 367
 1,1-Difluoro-1-methylthioundecane, 163
 1,1-Difluorotridecane, 171
 1,1-Difluoroundecane, 162, 168
 1,1-Dihydropolyfluoroalkylsulfides, 291
 (2*R*)-1,2-Di-*O*-isopropylidene-4,4-difluoro-5-hexen-1,2,3-triol, 350, 351
 Dimethyl-2,2-dibromo-3,3-difluorosuccinate, 136
 1,3-Dimethyl-5-perfluorovinyluracil, 371
 3,7-Dinitro-*S*-(trifluoromethyl)dibenzothiophenium-triflate, 282
 1,3-Dioxolo-4,5-pyridine-2-thione, 160
erythro-1,3-Diphenyl-1-fluoro-2-methoxy-3-propanone, 144
 S-(Trifluoromethyl)diphenylsulfonium triflate, 267, 268
 Diphenyltetrafluoroethane, 151
 (DPTPT), 195
- Electric discharge, 11
 Elemental fluorine, 1, 4–6, 16, 37, 39, 55, 80, 94, 95, 100, 111–113, 127, 142, 148, 150
 Enaminone, 300, 302
 Enantioselective fluorination, 408, 411
 Enantioselective fluorocyclization of indoles, 402
 Ethyl-2,2-difluoro-3-methylundecanoate, 169
 Ethyl(ZZ)-4,4,4-trifluoro-3-iodo-2-butenolate, 354
 Ethyl-2-trifluoromethylcycloheptanoate, 165
- F₂, 1, 3–6, 8, 11–14, 16, 17, 23, 95, 135, 136, 139, 140, 142, 146–153, 155, 173, 273
¹⁸F, 11, 12, 14, 144, 394–397, 403
 4-FC₆H₄IF₄, 72, 73
 Fluoride-intercalated graphite, 425
 Fluorinated γ-alumina, 442–444
 Fluorinated indanones, 400
 Fluorinating agent, 3, 5, 11, 16, 37, 40, 66, 72, 74, 91, 94, 100, 108, 139, 140, 154, 271, 379, 380, 384, 442, 444, 445
 Fluorination of aliphatics, 149
 Fluorination of 4-alkylcyclohexanol, 147
 Fluorination of bicyclic compounds, 149
 Fluorination of steroids, 149
 11β-Fluoro-3-acetoxy-estra-3,5-dien-17-one, 412
 Fluoroalkenes, 74, 202, 203, 243, 315, 316, 365, 368, 369, 385, 386
 4-[¹⁸F]Fluorobenzaldehyde, 397, 398
 Fluorobis(phenylsulfonyl)methane (FBSM), 191, 194
 Fluorodesilylation, 411
 α-Fluoro enamino reagents, 379
 Fluoroethylene/perfluoropropylene copolymer, 3, 11
trans-1-Fluoro-2-iodomenthan, 135
 3-Fluoro-3-methyloxindole, 128
¹⁸F positron emission tomography, 11
 (FPTPT), 196–199
¹⁸F radiosynthesis, 396, 399
 FSO₂N=SF₄, 91
- Gabriel reaction, 375, 378
 Gaseous HF, 9
 Graphite fluorides, 425–427, 432, 441
- Heptafluoropropyl trifluorovinyl ether, 152
 Hexafluorophosphate, 35, 36, 44, 45, 57
 HF, 2–4, 8–11, 13–16, 22–24, 38–44, 55, 62, 67, 68, 70, 72–74, 76, 77, 79–81, 92, 100–106
 HF/H₂O, 8–10

- Hg(NSF₂)₂, 89–91
 HMGF, 220, 221
 H₂O₂, 2, 17, 292
 HPF₆, 43–46
 HSbF₆, 51
 Hydrogen fluoride, 13–15, 38, 39, 41, 42, 55, 64,
 72, 81, 102, 105, 106, 111, 117

 IF, 134–138, 155
 IF₅, 70, 72–75, 78
 (Z)-2-Iodo-1,2-difluorostyrene, 243, 244
 1-Iodo-1,2,2-trifluoro-1,2-dichloroethane, 391
 Ionic liquids, 46, 57, 200, 256, 260, 261, 284,
 334, 337, 389

 K[AsF₅OH], 118
 K₂B₁₂F₁₂, 16, 17
 K[C₆F₅BF₃], 66, 67
 Kel-F, 12, 13, 80, 84, 91, 92
 Kel-F valve, 12
 Ketosulfones, 202, 295
 KF, 2, 7, 16, 17, 95, 96, 179, 187, 188, 222, 241,
 243, 244, 246, 249
 KHF₂, 16
 K₂MnF₆, 1, 2, 4
 KMnO₄, 2, 277, 345
 K₂NiF₆, 37, 80, 428, 430
 KPF₆, 45, 46

 La₂O_{1.5}FS, 416, 419–423
 LaSF, 416, 418–420, 422, 423
 [LCaF(thf)]₂, 272, 273
 LiBF₄, 40, 41, 56
 Li(CF₃SO₃), 49, 58
 LiPF₆, 44, 57

 Magic acid, 51, 59
 Me₃SnF, 270–273
 Mesoporous fluorocarbon, 433, 435, 439
 Metal vacuum, 12, 79, 100, 443
 2-Methoxy-6-(trifluoromethyl)-3,4-dihydro-2H-
 thiopyran-3,4-diol, 299
 2-Methoxy-6-trifluoromethyl-2H-thiopyran, 297,
 298
 (2,2-Difluorocyclopropyl)methyl benzoate,
 340
 Methyl-3,3-dimethyl-2-fluorobutyrate, 143
 Methyl glutaroyl fluoride, 157
 MnF₃, 1
 Moissan, 1, 5, 146, 370
 Monel, 4, 16, 37–39, 94–97, 100, 103–105, 111,
 136, 140, 148, 153, 155, 309, 312, 416, 435,
 443, 444

 Monel U-tube, 3, 4
 4-[2-Hydroxy-2-phenyl-2-(trifluoromethyl)
 acetyl]morpholine, 123, 124

 Na[SbF₅OH], 119
 NbCl₄F, 111, 112, 115
 NbF₅, 112, 336, 431
 [N(CH₃)₄]F, 76–78
 [N(C₂H₅)₄][SbF₆], 118, 119
 [N(C₂H₅)₄][SbF₅OH], 119
 (NF₄)₂MnF₆, 3
 Nickel, 3, 6, 12, 13, 37, 39, 164, 166, 236, 313,
 331, 416, 426, 429, 431, 435, 436, 444, 445
 7-Nitro-S-(trifluoromethyl)dibenzothiophenium-
 3-sulfonate, 280, 284
 [NMe₄]SCF₃, 27, 28
 [NMe₄]SeCF₃, 27–29
 [NMe₄]TeCF₃, 31, 33
 NO₂BF₄, 41, 43
 Noble-gas compounds, 11
 NSF, 85, 86, 88, 90–92

 Octafluorocyclooctatetraene, 308, 312–314
 1,1,2,2,9,9,10,10-Octafluoroparacyclophane, 343
 Octyltrifluoromethyl ether, 158

 [PBr₄][PF₆], 110, 115
 PCl₄F, 114, 115
 [PCl₄][PF₆], 109
trans-[Pd(H)-(4-C₅NF₄)(Pi-Pr₃)₂], 238
 5,5,6,6,6,6-Pentafluorohexane-3-ol, 207
 2,2,3,3,3-Pentafluoro-1-phenylpropan-1-ol, 206
 1,1,3,3,3-Pentafluoropropene (PFP), 379
 1,1,3,3,3-Pentafluoropropenemorpholine adduct
 (PFPMor), 379
 2-Pentafluorosulfanylheptanal, 277
 2-Pentyl-β,β-difluoroacrylate, 166
 Perfluoroalkyliodide, 386
 Perfluoro *n*-butylsulfonyl fluoride (nonaflyl
 fluoride), 412
 Perfluoromethyl vinyl ether, 385, 389, 390, 394
 Perfluoro[2.2]paracyclophane, 343–348
 Perfluoropropylene copolymer, 11
 PF₅, 45, 109, 110, 112–115, 334
 (Z)-*N*-Phenyl-2,3-difluoro-3-(triethylsilyl)
 acrylamide 249
 PhSCF₃, 178, 180, 182
 PhSCH₂F, 187, 188, 190
 PhSO₂CF₂H, 181–186
 PhSO₂CF₂TMS, 184–187
 S-(Difluoromethyl)-S-phenyl-2,3,4,5-
 tetramethylphenylsulfonium tetrafluoroborate,
 195

454 INDEX

- S*-(Fluoromethyl)-*S*-phenyl-2,3,4,5-tetramethylphenylsulfonium tetrafluoroborate, 196
 PhSO₂CF₃, 176, 178, 180–182
 PhSO₂CH₂F, 187–195
 Polyethylene beaker, 2
 Potassium hexafluoromanganate, 1
 4-[(*E*)-1-Chloro-2-(pentafluoro-λ⁶-sulfanyl)vinyl]-4'-propyl-1,1'-bi(cyclohexyl), 215
 4-[(Pentafluoro-λ⁶-sulfanyl)ethynyl]-4'-propyl-1,1'-bi(cyclohexyl), 216
 Pyrazoles, 301, 306, 307
 Pyrimidines, 302, 307, 365, 368, 369, 371

 Radical copolymerization, 385, 388–392, 394, 395
 Raman, 13–15, 80, 97–99, 106, 107, 111, 335, 336
 [Re(CO)₅(NSF)][AsF₆], 85, 86
 ReF₆, 101, 103, 104, 107
 ReOF₅, 100–104
 ReSF₅, 79
 [Rh(Bpin)(PEt₃)], 235
 Ruppert–Prakash reagent, 174–182, 186, 199, 200

 SbCl₄F, 110, 111, 113, 115
 SbF₅, 1–4, 51, 52, 82, 111, 120, 428–430
 SF₆, 5, 107, 276
 Sibunit, 433–435, 437–439
 Silver monofluoride, 9
 SmSF, 416, 418, 422
 Stainless steel, 3, 8, 12, 45, 67, 80, 100–106, 335, 426, 443
S-(Phenyl)-*S*-(trifluoromethyl)sulfoximine, 263
 Superstoichiometric fluorocarbon, 433, 435, 436, 439, 440

 TaCl₄F, 112, 113, 115
 TaF₅, 113, 334
 Tandem Nazarov-fluorination, 400–402
 Teflon, 2–5, 12, 16, 36, 37, 39–52, 61–63, 67, 72, 73, 76, 83, 85, 91, 92, 101–106, 154, 240, 257–259, 310, 366, 428, 429, 448
 Tefloncoated, 2, 36, 37, 40–44, 46–51, 240, 243, 246, 250, 258
 Teflon-FEP, 3–5
 TESCF₃, 179
 Tetrafluoroallene, 316–318, 330, 331
 Tetrafluorocatechol, 252, 254, 255
 1,1,2,2-Tetrafluoro-1,2-diphenylethane, 131
 2,3,5,6-Tetrafluoropyridine, 237, 239
 Thiazolidinone, 305
 6-(Trifluoromethyl)-2H-thiopyran, 297
 TMSCF₃, 174–182, 186, 199, 200
p-Tolyltrifluorodithioacetate, 293
 Triazoles, 303, 304, 307
 (*Z*)-1-(4-Heptafluorotolyl)-2-triethylsilyl-1,2-difluoroethene, 241
 Triflate, 35, 36, 46–51, 54, 57–59, 196, 198, 199, 267, 268, 280, 282, 285, 287
 (*E*)-4,4,4-Trifluoro-2-buten-1-ol, 359, 360
 2-(Ethoxyoxalyl-amino)-3,3,3-trifluoro-2-hydroxypropionic acid methyl ester, 229
 (2*S*,4*S*)-4-Trifluoromethylpyroglutamic acid, 359
 Trifluoromethane, 121, 122, 126
 2-Trifluoromethylimidazoline, 306
 4,5,5-Trifluoro-2-methyl-3-phenyl-4-(trifluoromethyl)isoxazolidine, 366
 2-Trifluoromethylpyrrole, 122, 123
 2-Trifluoromethylthiopyrylium tetrafluoroborate, 298
 2-Trifluoromethyl-3,3,3-trifluoropropanal, 250
 2-[*N*-(2-Ethoxyoxalyl)imino]-3,3,3-trifluoropropanoate, 230
 Trifluorothioacetamide, 304–306
 Trifluorothioacetylchloride, 293, 297
 (3,3,3-Trifluoropropyl)trimethoxysilane, 232–234
 Trimethylsilyl-2,2-difluoro-2-(fluorosulfonyl)acetate, 339
 Tris(tetramethylguanido)sulfoniumchloride, 223, 224

 UF₃, 94, 95, 97
 UF₆, 5, 94, 96–99, 107, 336, 337
 N¹-(Perfluoroprop-1-enyl)uracil, 373

 van de Graff accelerator, 11
 Vinylidene fluoride, 385, 388, 390, 394, 395
 4-Vinyltetrafluoropyridine, 237–239

 WSF₄, 79–81

 Xe, 11–14, 39
 Xe(C₆F₅)₂, 78
 XeF₂, 11–14, 39, 60, 62, 68, 78, 142
 XeF₄, 11, 68
 XeF₆, 11
 Xenon difluoride, 11–14, 39, 70, 75
 Xenon tetrafluoride, 14

 Zinc bars, 10