

Table of Contents

Abbreviations	XVIII
Alder ene reaction	1
Aldol condensation	3
Algar–Flynn–Oyamada reaction	5
Allan–Robinson reaction	8
Appel reaction	10
Arndt–Eistert homologation	12
Baeyer–Villiger oxidation	14
Baker–Venkataraman rearrangement	16
Bamberger rearrangement	18
Bamford–Stevens reaction	20
Barbier coupling reaction	22
Bargellini reaction	24
Bartoli indole synthesis	26
Barton radical decarboxylation	28
Barton–McCombie deoxygenation	30
Barton nitrite photolysis	32
Barton–Zard reaction	34
Batcho–Leimgruber indole synthesis	36
Baylis–Hillman reaction	39
Beckmann rearrangement	41
Beirut reaction	43
Benzilic acid rearrangement	45
Benzoin condensation	47
Bergman cyclization	49
Biginelli pyrimidone synthesis	51
Birch reduction	53
Bischler–Möhlau indole synthesis	55
Bischler–Napieralski reaction	57
Blaise reaction	59
Blanc chloromethylation	61
Blum aziridine synthesis	63
Boekelheide reaction	65
Boger pyridine synthesis	67
Borch reductive amination	69
Borsche–Drechsel cyclization	71
Boulton–Katritzky rearrangement	73
Bouveault aldehyde synthesis	75
Bouveault–Blanc reduction	77
Boyland–Sims oxidation	79
Bradsher reaction	81
Brook rearrangement	83
Brown hydroboration	85

Bucherer carbazole synthesis	87
Bucherer reaction	90
Bucherer–Bergs reaction	92
Büchner–Curtius–Schlotterbeck reaction	94
Büchner method of ring expansion	96
Buchwald–Hartwig C–N bond and C–O bond formation reactions	98
Burgess dehydrating reagent	100
Cadiot–Chodkiewicz coupling	102
Camps quinolinol synthesis	104
Cannizzaro disproportionation	107
Carroll rearrangement	109
Castro–Stephens coupling	112
Chan alkyne reduction	114
Chan–Lam coupling reaction	116
Chapman rearrangement	118
Chichibabin pyridine synthesis	120
Chugaev reaction	123
Ciamician–Dennsted rearrangement	125
Claisen condensation	127
Claisen isoxazole synthesis	129
Claisen rearrangement	131
Abnormal Claisen rearrangement	133
Eschenmoser–Claisen amide acetal rearrangement	135
Ireland–Claisen (silyl ketene acetal) rearrangement	137
Johnson–Claisen (orthoester) rearrangement	139
Clemmensen reduction	141
Combes quinoline synthesis	144
Conrad–Limpach reaction	147
Cope elimination reaction	149
Cope rearrangement	151
Oxy-Cope rearrangement	152
Anionic oxy-Cope rearrangement	153
Corey–Bakshi–Shibata (CBS) reduction	154
Corey–Chaykovsky reaction	157
Corey–Fuchs reaction	160
Corey–Kim oxidation	162
Corey–Nicolaou macrolactonization	164
Corey–Seebach dithiane reaction	166
Corey–Winter olefin synthesis	168
Criegee glycol cleavage	171
Criegee mechanism of ozonolysis	173
Curtius rearrangement	175
Dakin oxidation	177
Dakin–West reaction	179
Danheiser annulation	181
Darzens glycidic ester condensation	183

Davis chiral oxaziridine reagent	185
Delépine amine synthesis	187
de Mayo reaction	189
Demjanov rearrangement	191
Tiffeneau–Demjanov rearrangement	193
Dess–Martin oxidation	195
Dieckmann condensation	197
Diels–Alder reaction	199
Dienone–phenol rearrangement	202
Di- π -methane rearrangement	204
Doebner quinoline synthesis	206
Dötz reaction	208
Dowd–Beckwith ring expansion	210
Erlenmeyer–Plöchl azlactone synthesis	212
Eschenmoser–Tanabe fragmentation	214
Eschweiler–Clarke reductive alkylation of amines	216
Evans aldol reaction	218
Favorskii rearrangement and quasi-Favorskii rearrangement	220
Feist–Bénary furan synthesis	222
Ferrier carbocyclization	224
Ferrier glycal allylic rearrangement	227
Fiesselmann thiophene synthesis	230
Fischer indole synthesis	233
Fischer oxazole synthesis	235
Fleming–Tamao oxidation	237
Tamao–Kumada oxidation	239
Friedel–Crafts reaction	240
Friedländer quinoline synthesis	243
Fries rearrangement	245
Fukuyama amine synthesis	247
Fukuyama reduction	249
Gabriel synthesis	251
Ing–Manske procedure	253
Gabriel–Colman rearrangement	255
Gassman indole synthesis	257
Gattermann–Koch reaction	259
Gewald aminothiophene synthesis	261
Glaser coupling	263
Eglinton coupling	265
Gomberg–Bachmann reaction	267
Gould–Jacobs reaction	269
Grignard reaction	271
Grob fragmentation	273
Guareschi–Thorpe condensation	275
Hajos–Wiechert reaction	277
Haller–Bauer reaction	279

Hantzsch dihydropyridine synthesis.....	281
Hantzsch pyrrole synthesis.....	283
Heck reaction	285
Heteroaryl Heck reaction	287
Hegedus indole synthesis	289
Hell–Volhard–Zelinsky reaction.....	291
Henry nitroaldol reaction	293
Hinsberg synthesis of thiophene derivatives	295
Hiyama cross-coupling reaction.....	297
Hiyama–Denmark cross-coupling reaction	299
Hofmann rearrangement.....	302
Hofmann–Löffler–Freitag reaction	304
Horner–Wadsworth–Emmons reaction.....	306
Houben–Hoesch synthesis	308
Hunsdiecker–Borodin reaction.....	310
Hurd–Mori 1,2,3-thiadiazole synthesis	312
Jacobsen–Katsuki epoxidation	314
Japp–Klingemann hydrazone synthesis	316
Jones oxidation.....	318
Julia–Kocienski olefination.....	321
Julia–Lythgoe olefination.....	323
Kahne–Crich glycosidation.....	325
Keck macrolactonization.....	327
Knoevenagel condensation.....	329
Knorr pyrazole synthesis.....	331
Paal–Knorr pyrrole synthesis	333
Koch–Haaf carbonylation	335
Koenig–Knorr glycosidation.....	337
Kolbe–Schmitt reaction.....	339
Kostanecki reaction.....	341
Kröhnke pyridine synthesis.....	343
Kumada cross-coupling reaction.....	345
Lawesson’s reagent	348
Leuckart–Wallach reaction	350
Lossen rearrangement	352
McFadyen–Stevens reduction	354
McMurry coupling	356
MacMillan catalyst.....	358
Mannich reaction.....	361
Marshall boronate fragmentation	363
Martin’s sulfurane dehydrating reagent	365
Masamune–Roush conditions	367
Meerwein–Ponndorf–Verley reduction.....	369
Meisenheimer complex	371
[1,2]-Meisenheimer rearrangement.....	372
[2,3]-Meisenheimer rearrangement.....	374

Meth–Cohn quinoline synthesis	376
Meyers oxazoline method	378
Meyer–Schuster rearrangement	380
Michael addition	382
Michaelis–Arbuzov phosphonate synthesis	384
Midland reduction	386
Mislow–Evans rearrangement	388
Mitsunobu reaction	390
Miyaura borylation	392
Moffatt oxidation	394
Montgomery coupling	396
Morgan–Walls reaction	399
Pictet–Hubert reaction	400
Mori–Ban indole synthesis	401
Mukaiyama aldol reaction	403
Mukaiyama Michael addition	405
Mukaiyama reagent	406
Myers–Saito cyclization	408
Nazarov cyclization	410
Neber rearrangement	412
Nef reaction	414
Negishi cross-coupling reaction	416
Neitzescu indole synthesis	418
Nicholas reaction	420
Nicolaou dehydrogenation	422
Nicolaou hydroxy-dithioketal cyclization	424
Nicolaou hydroxy-ketone reductive cyclic ether formation	426
Nicolaou oxyselelation	428
Noyori asymmetric hydrogenation	430
Nozaki–Hiyama–Kishi reaction	432
Oppenauer oxidation	434
Overman rearrangement	436
Paal thiophene synthesis	438
Paal–Knorr furan synthesis	440
Parham cyclization	442
Passerini reaction	444
Paternó–Büchi reaction	446
Pauson–Khand cyclopentenone synthesis	448
Payne rearrangement	450
Pechmann coumarin synthesis	452
Perkin reaction	454
Petasis reaction	456
Peterson olefination	458
Pictet–Gams isoquinoline synthesis	460
Pictet–Spengler tetrahydroisoquinoline synthesis	462
Pinacol rearrangement	464

Pinner reaction	466
Polonovski reaction.....	468
Polonovski–Potier rearrangement	470
Pomeranz–Fritsch reaction.....	472
Schlittler–Müller modification.....	473
Prévost <i>trans</i> -dihydroxylation.....	475
Woodward <i>cis</i> -dihydroxylation.....	476
Prins reaction	478
Pschorr cyclization.....	480
Pummerer rearrangement.....	483
Ramberg–Bäcklund reaction.....	485
Reformatsky reaction	487
Regitz diazo synthesis.....	489
Reimer–Tiemann reaction.....	492
Reissert aldehyde synthesis.....	494
Reissert indole synthesis	497
Ring-closing metathesis	499
Ritter reaction.....	501
Robinson annulation	503
Robinson–Gabriel synthesis.....	505
Robinson–Schöpf reaction	507
Rosenmund reduction	509
Rubottom oxidation.....	511
Rupe rearrangement	513
Saegusa oxidation	515
Sakurai allylation reaction.....	518
Sandmeyer reaction.....	520
Schiemann reaction	522
Schmidt reaction	524
Schmidt's trichloroacetimidate glycosidation reaction	526
Shapiro reaction	529
Sharpless asymmetric amino hydroxylation.....	531
Sharpless asymmetric epoxidation	533
Sharpless asymmetric dihydroxylation	536
Sharpless olefin synthesis	540
Simmons–Smith reaction	543
Skraup quinoline synthesis.....	545
Doebner–von Miller reaction	547
Smiles rearrangement.....	549
Newman–Kwart reaction	551
Truce–Smile rearrangement.....	553
Sommelet reaction.....	555
Sommelet–Hauser rearrangement	557
Sonogashira reaction	559
Staudinger ketene cycloaddition	561
Staudinger reduction	563

Sternbach benzodiazepine synthesis	565
Stetter reaction	567
Still–Gennari phosphonate reaction	569
Stille coupling	571
Stille–Kelly reaction.....	573
Stobbe condensation.....	575
Stork enamine reaction.....	577
Strecker amino acid synthesis	579
Suzuki coupling.....	581
Swern oxidation	583
Takai iodoalkene synthesis.....	585
Tebbe olefination	587
Petasis alkenylation.....	587
TEMPO-mediated oxidation	589
Thorpe–Ziegler reaction.....	592
Tsuji–Trost allylation	594
Ugi reaction.....	596
Ullmann reaction.....	599
van Leusen oxazole synthesis	601
Vilsmeier–Haack reaction	603
Vilsmeier mechanism for acid chloride formation.....	605
Vinylcyclopropane–cyclopentene rearrangement	606
von Braun reaction	608
Wacker oxidation	610
Wagner–Meerwein rearrangement.....	612
Weiss–Cook reaction	614
Wharton oxygen transposition reaction.....	616
Willgerodt–Kindler reaction	618
Wittig reaction.....	621
Schlosser modification of the Wittig reaction	622
[1,2]-Wittig rearrangement.....	624
[2,3]-Wittig rearrangement.....	626
Wohl–Ziegler reaction	628
Wolff rearrangement	630
Wolff–Kishner reduction.....	632
Yamaguchi esterification.....	634
Zincke reaction.....	637
Subject Index.....	641