

## 547.2 CAR 4<sup>th</sup> ed.

### CONTENTS

<b>1. Formation of carbon-carbon- single bonds</b>	<b>1</b>
1.1 Main-group chemistry	1
1.2 Transition-metal chemistry	75
<b>2. Formation of carbon-carbon double bonds</b>	<b>105</b>
2.1 B-Elimination reactions	105
2.2 Pyrolytic <i>syn</i> eliminations	111
2.3 Fragmentation reactions	118
2.4 Alkenes from hydrazones	120
2.5 Alkenes from 1,2-diols	123
2.6 Alkenes from alkynes	125
2.7 The Wittig and related reactions	132
2.8 Alkenes from sulfones	144
2.9 Alkenes using titanium or chromium reagents	148
2.10 Alkenes metathesis reactions	151
<b>3. Pericyclic reactions</b>	<b>159</b>
3.1 The Diels-Alder cycloaddition reaction	159
3.2 [2+2] Cycloaddition reactions	211
3.3 Cycloaddition reactions with allyl cations and allyl anions	219
3.4 1,3-Dipolar cycloaddition reactions	222
3.5 The ene reaction	231
3.6 [3,3] – Sigmatropic rearrangements	238
3.7 [2,3] – Sigmatropic rearrangements	253
3.8 Electrocyclic reactions	259
<b>4. Radical and carbene chemistry</b>	<b>268</b>
4.1 Radicals	268
4.2 Carbenes	280
<b>5. Functionalization of alkenes</b>	<b>315</b>
5.1 Hydroboration	315
5.2 Epoxidation and aziridination	331
5.3 Dihydroxylation	349
5.4 Oxidative cleavage	360
5.5 Palladium-catalysed oxidation of alkenes	365
<b>6. Oxidation</b>	<b>370</b>
6.1 Oxidation of hydrocarbons	370
6.2 Oxidation of alcohols	378
6.3 Oxidation of ketones	394
<b>7. Reduction</b>	<b>405</b>
7.1 Catalytic hydrogenation	405
7.2 Reduction by dissolving metals	422
7.3 Reduction by hydride-transfer reagents	434
7.4 Other methods of reduction	454
<b>Index</b>	<b>487</b>

