

# Contents

<b>1</b>	<b>Introduction</b>	1
1.1	Preserving the Environment	1
1.2	Sustainable and Green Chemistry	5
	References	8
<b>2</b>	<b>Green Metrics, an Abridged Glossary</b>	11
2.1	Environmental Parameters for a Chemical Reaction	11
2.1.1	Mass Metrics	12
2.1.2	Environmental Metrics	18
2.1.3	Energy Metrics	20
	References	23
<b>3</b>	<b>Activation of Chemical Substrates in Green Chemistry</b>	25
3.1	Methods of Activation	25
3.2	Carbon-Heteroatom Bond Formation	29
3.2.1	Oxidation/Reduction	29
3.2.2	<i>N</i> -Acylation and Alkylation	36
3.2.3	<i>O</i> -Acylation and Alkylation	41
3.3	Carbon–Carbon Bond Formation	43
	References	56
<b>4</b>	<b>Renewable Resources: From Refinery to Bio-refinery</b>	63
4.1	Shifting to Renewable	63
4.2	Chemicals from the Biorefinery	65
4.2.1	Alcohols, Glycols and Epoxides	65
4.2.2	Aldehydes, Ketones and Derivatives	68
4.2.3	Carboxylic Acids and Derivatives	70
4.2.4	Hydrocarbons	73
	References	74
<b>5</b>	<b>The Solvent Issue</b>	77
	References	84

<b>6</b>	<b>Process Intensification in Organic Synthesis . . . . .</b>	<b>87</b>
6.1	Green Chemical Engineering and Green Chemistry . . . . .	87
6.2	Progress Intensification . . . . .	89
	References . . . . .	101
<b>7</b>	<b>Conclusions and Outlook . . . . .</b>	<b>105</b>
	References . . . . .	106
	<b>Index . . . . .</b>	<b>107</b>

Paradigms in Green Chemistry and Technology

Albini, A.; Protti, S.

2016, VIII, 108 p. 82 illus., 11 illus. in color., Softcover

ISBN: 978-3-319-25893-5