## **Contents of Volume 24**

Pre	eface		iii
Co	ntribut	ors to Volume 24	v
Co	ntents	of Other Volumes	хi
1.	EAR	LY STAGES OF PETROLEUM PITCH	
		BONIZATION—KINETICS AND MECHANISMS	1
		Greinke	*
	I.	Introduction	2
	II.	Analytical Methodology	5
	III.		
		Formation	11
	IV.	Constitution of Coexisting Phases in Mesophase	
		Pitch During Heat Treatment	23
	V.	Mechanism of Mesophase Formation	31
	VI.		
		Formation	35
	VII.	Concluding Remarks	39
		References	39

2.	THERMAL CONDUCTIVITY OF DIAMOND Donald T. Morelli		
		Introduction	46
	II.	Theoretical Background	47
	III.	Single-Crystal Diamond	61
	IV.	Chemically Vapor-Deposited Diamond Films	87
	V.	Final Remarks	103
		References	105
3.	CHE	MISTRY IN THE PRODUCTION AND	
		IZATION OF NEEDLE COKE	111
	Isao N	Aochida, Ken-ichi Fujimoto, and Takashi Oyama	
	I.	Introduction	113
	II.	Graphite Electrodes	117
	III.	Commercial Production of Needle Coke	124
	IV.	Structure and Properties of Needle Coke	130
	V.	Chemistry of Extrusion, Baking, and Graphitization	
		of Needle Coke	139
	VI.		153
	VII.	Phenomenology of Needle Coke Formation	156
	VIII.	Chemical Schemes Involved in Carbonization	
		Leading to Needle Coke	158
	IX.	The Optimization Principle for Needle Coke	
		Production	173
	X.	Cocarbonization Procedures to Produce Better	
		Needle Coke	179
	XI.	Mosaic Coke of Large CTE Produced at the Bottom	
		of the Coker Drum	188
	XII.	Selection, Adjustment, and Modification of Feedstocks	
		for Better Cokes	194
	XIII.	Calcination of Green Coke into Commercial	
		Needle Coke	201
	XIV.		
		Coke Production	206
		References	207

Con	tents	of Vo	lume	24

ix

4.	INTE	RFACIAL CHEMISTRY AND ELECTROCHEMISTRY	?
	OF C	ARBON SURFACES	213
	Carlo	s A. Leon y Leon D. and Ljubisa R. Radovic	
	I.	Introduction	214
	II.	Established Facts About Carbon Surfaces	215
	III.	Contribution by Physical Chemistry to the Study	
		of Carbon Surfaces	221
	IV.	Contribution by Solid-State Chemistry to the Study	
		of Carbon Surfaces	224
	V.	Contribution by Analytical Chemistry to the Study	
		of Carbon Surfaces	231
	VI.	Contribution by Electrochemistry to the Study of	
		Carbon Surfaces	243
	VII.	Importance of Carbon Surface Chemistry in Catalysis	276
	VIII.	Importance of Surface Chemistry in Carbon	
		Gasification	285
	IX.	Concluding Remarks	292
		References	294
Ind	lex		311