

CONTENTS

Chapter 1 Introduction	1
Chapter 2 The Sulfur-Silicon Bond	3
I. Silicon-Sulfur Compounds with Sulfur in the Oxidation State+6	3
II. Silicon-Sulfur Compounds with Sulfur in the Oxidation State+4	5
III. Silicon-Sulfur Compounds with Sulfur in the Oxidation State-2	5
IV. Physical Data and Structures of Silicon-Sulfur Compounds	9
References	10
Chapter 3 The Sulfur-Nitrogen Bond	13
I. Introduction	13
II. Cyclic Sulfur –Nitrogen Compounds and Their Reactions	14
III. Acyclic Sulfur-Nitrogen Compounds and Their Reactions	21
References	33
Chapter 4 The Sulfur-Phosphorus Bond	39
I. Introduction	39
II. The Sulfur-Phosphorus Bonding Types and Reactivity in Compounds of Monocoordinate and Dicoordinate Phosphorus; Reactivity of Compounds	43
III. The Sulfur-Phosphorus Bonding Types and Reactivity in Compounds of Tricoordinate Phosphorus	44
IV. The Sulfur-Phosphorus Bonding Types and Reactivity in Compounds of Tetracoordinate Phosphorus	65
V. The Sulfur-Phosphorus Bonding Types and Reactivity in Compounds of Pentacoordinate Phosphorus	93
References	95
Chapter 5 The Sulfur-Oxygen Bond	107
I. Introduction	107
II. Occurrence of Sulfur-Oxygen Bonds	112
III. Estimation of Sulfur-Oxygen Bond Orders Based on Stretching Frequencies	112
IV. The Effect of Structural Changes on the Apparent Bond Order of Sulfur-Oxygen Bonds	124
V. Some Other Evidence in Favor of the Variable Character of Sulfur-Oxygen Bonds	135
References	148

Chapter 6 The Sulfur-Sulfur Bond	153
I. Introduction	154
II. Physical Characteristics and Properties of Sulfur-Sulfur Bonds	155
III. Thermal Homolytic Dissociation of Sulfur-Sulfur Bonds	158
IV. Some Important Homolytic Displacement Reactions Involving Sulfur-Sulfur Bonds	167
V. Nucleophilic Cleavage of Sulfur-Sulfur Bonds	175
VI. Electrophilic Catalysis of the Cleavage of Sulfur-Sulfur Bonds	195
VII. Abnormal Reactivity of 1,2-Dithiacyclopentanes	201
References	204
Chapter 7 The Sulfur-Fluorine Bond	209
I. Introduction	209
II. Sulfur in the Oxidation States +1 and +2	210
III. Sulfur in the Oxidation State +4	211
IV. Sulfur in the Oxidation State +6	217
References	231
Chapter 8 The Sulfur-Chlorine Bond	239
I. Physical Chemistry of the Sulfur-Chlorine Bond	240
II. Formation of the Sulfur-Chlorine Bond	243
III. Chemical Behavior of the Sulfur-Chlorine Bond	247
References	256
Chapter 9 The Sulfur-Bromine Bond	261
I. Introduction	262
II. Sulfur Bromides	263
III. Thiocyanogen Bromide	269
IV. Thiohypobromous Acid	270
V. Thionyl Bromide	271
VI. Sulfuryl Bromides	277
VII. Bromosulfonic Acid	277
VIII. Sulfur Bromide Pentafluoride	279
IX. Sulfenyl Bromides	279
X. Sulfinyl Bromides	300
XI. Bromosulfites	302
XII. Sulfonyl Bromides	303
XIII. Bromosulfonium Salts	316
References	321

Chapter 10 The Sulfur-Iodine Bond	327
I. Inorganic Compounds	327
II. Donor-Acceptor Compounds	329
III. Organic Sulphenyl Iodides	331
IV. Organic Sulfonyl Iodides	336
References	337
 AUTHOR INDEX	 341
SUBJECT INDEX	367