

Preface

The book gives equal weight to each of the fundamental aspects of quinoxaline chemistry: synthesis, reactions, mechanisms, structure, properties, and uses. The first four chapters present a survey of the developments in quinoxaline chemistry since the publication of the monograph on “Condensed Pyrazines” by Cheeseman and Cookson in 1979. These chapters give a comprehensive coverage of the important quinoxaline-containing ring systems such as thiazolo[3,4-*a*]-, pyrrolo[1,2-*a*]-, imidazo[1,5-*a*]-, pyrano[2,3-*b*]quinoxalines, etc. Chapter five describes many new methods for the construction of quinoxaline macrocycles, which are important because of their application to optical devices and materials. The remaining sixth chapter gives a review of all the previously known rearrangements of heterocyclic systems that lead to benzimidazole derivatives. A critical analysis of these transformations reveals novel acid-catalyzed rearrangements of quinoxalinones giving 2-heteroaryl benzimidazoles and 1-heteroaryl benzimidazolones in the presence of nucleophilic reactants. The Appendix gives X-ray crystallographic data for a number of quinoxaline derivatives (41 samples) synthesized in the Laboratory of the Chemistry of Heterocyclic Compounds of the A.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Scientific Centre of the Russian Academy of Sciences. The literature has been covered up to the end of 2013, with some additional data from publications in 2014 and 2015.

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