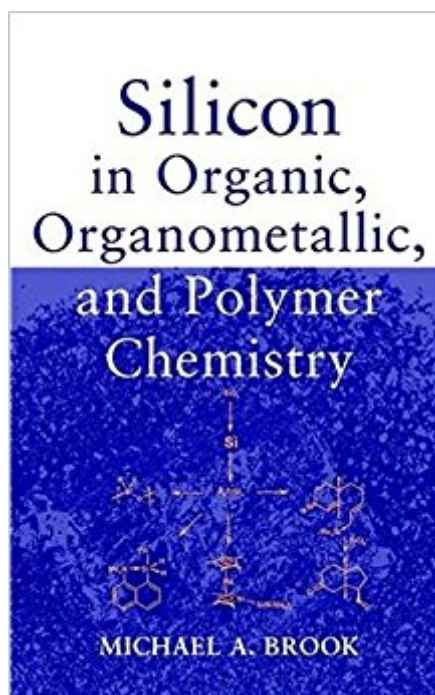


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Silicon In Organic, Organometallic, And Polymer Chemistry



Synopsis

A comprehensive, up-to-date reference to synthetic applications of organosilicon chemistry Organic, organometallic, and polymer chemistry as well as materials science all utilize silicon in various forms, yet there is little cross-fertilization of ideas and applications among the disciplines. This book presents a much-needed overview of silicon chemistry, allowing fundamental and applied scientists to take full advantage of progress made within and outside their primary fields of expertise. With an emphasis on the preparation and reactivity of silicon compounds in organic, organometallic, and polymer chemistry, the author examines a broad range of useful topics-from mechanisms to syntheses of and syntheses using different organofunctional silanes. Numerous schemes as well as up-to-date examples from academia and industry will help readers to solve current synthetic problems and explore ideas for future research. Clear, concise coverage includes: * The mechanistic basis for the development of new silicon-based reactions * Formation and cleavage of silane reagents and functional siliconheteroatom compounds * Silicones, silica, polysilanes, and other silicon-containing polymers * Properties of molecules containing silicon, including bioactivity * Methods for the preparation of Si-C compounds * Silicon in organic synthesis * An extensive functional group index for easy access to functional group transformations

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Customer Reviews

"...this book provides a good 'state-of-the-art' compilations and evaluation at the turn of the century. This work should be included in any chemistry reference collection." (Choice, Vol. 38, No. 8, April

2001) "This book was a pleasure to read. It is very well written in a relaxed chatty style that conveys the obvious deep interest and delight the author brings to the subject...the book can quite rightly claim to be the 'Eaborn' of the 2000s." (Journal of the American Chemical Society, Vol. 123, No. 5, November 2000) In recent years there have been several books published that describe the various topical uses of silicon in organic synthesis. All of these books have been useful, but they did not present the broader picture of how the chemistry of the element silicon has had a major impact on many technologies. The author refers to some earlier "classical" books on silicon chemistry, particularly Eaborn's text of the 1960s, that set a very high and comprehensive standard by which to be judged. Without a doubt, Michael Brook has met this standard. This book was a pleasure to read. It is very well written in a relaxed and chatty style that conveys the obvious deep interest and delight the author brings to the subject. There are an impressive number of references to substantiate this scholarly text. One minor point that might (subjectively) make the book even better would be to place Chapter 14 (Electronic Effects of Silyl Group) earlier since it so germane to all of the book. The price is high, but not unreasonably so, and the book can quite rightly claim to be the "Eaborn" of the 2000s. (Phillip Magnus, University of Texas at Austin) "...Brook discusses selected topics regarding synthesis he considers of most use to graduate students and practicing chemists." (SciTech Book News, Vol. 24, No. 4, December 2000) "...this is a completely successful book..." (Angewandte Chemie - International Edition, 3rd November 2000)

A comprehensive, up-to-date reference to synthetic applications of organosilicon chemistry Organic, organometallic, and polymer chemistry as well as materials science all utilize silicon in various forms, yet there is little cross-fertilization of ideas and applications among the disciplines. This book presents a much-needed overview of silicon chemistry, allowing fundamental and applied scientists to take full advantage of progress made within and outside their primary fields of expertise. With an emphasis on the preparation and reactivity of silicon compounds in organic, organometallic, and polymer chemistry, the author examines a broad range of useful topics-from mechanisms to syntheses of and syntheses using different organofunctional silanes. Numerous schemes as well as up-to-date examples from academia and industry will help readers to solve current synthetic problems and explore ideas for future research. Clear, concise coverage includes: * The mechanistic basis for the development of new silicon-based reactions * Formation and cleavage of silane reagents and functional siliconheteroatom compounds * Silicones, silica, polysilanes, and other silicon-containing polymers * Properties of molecules containing silicon, including bioactivity * Methods for the preparation of Si-C compounds * Silicon in organic synthesis * An extensive

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