
Volume Editor's Preface

This volume concerns the synthesis of functional groups in which carbon has four bonds to heteroatoms. This represents an enormously diverse range of chemistry, and a correspondingly wide variety of functionality, from highly unsaturated systems such as heterocumulenes (e.g., carbon dioxide) to compounds with no π -bonds, such as carbon tetrafluoride. Despite this diversity, much of the chemistry is dominated by that of the carbonyl group and its direct heteroatom analogues, such as the imino and thiocarbonyl groups. A central role is played by phosgene (COCl_2) which, despite its toxicity, is a useful precursor to many of the other functional groups in Volume 18. While most of the compound classes have been known for a very long time, some have proven more elusive and have only recently been prepared and identified, through advances in synthetic methodology and spectroscopic techniques. Such compounds include phosphalkene and phosphalkyne derivatives, and several selenium- and tellurium-based functional groups.

The structure of this volume follows that established in the other volumes of **Science of Synthesis**, i.e. the material is organized into methods for the synthesis of the product class in question, with each method usually including a discussion of the scope of the method, examples, and an experimental procedure. Occasionally, this structure has been modified in order to present the material in a more succinct and reader-friendly way. The product classes are ordered according to the **Science of Synthesis** guidelines. When the product subclass is employed as a reagent or catalyst in organic transformations, a further section titled *Applications [of the Product Class] in Organic Synthesis* is included.

Finally, I would like to thank everyone who has been involved in the creation of this volume. In particular, I thank the authors for the very considerable time and effort that they devoted to producing a series of thorough and well-written sections, Dr Joe P. Richmond for valuable help in planning the volume, Dr M. Fiona Shortt de Hernandez, Dr Christabel Carter, Dr Karen Muirhead, Leigh Murray, and the other members of the team at Thieme for their hard work, patience, and attention to detail throughout.

Volume Editor

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J. G. Knight