

1. Record Nr.	UNINA9911019419303321
Autore	Ishikawa Tsutomu
Titolo	Superbases for organic synthesis : guanidines, amidines and phosphazenes and related organocatalysts // editor, Tsutomu Ishikawa
Pubbl/distr/stampa	Chichester, UK, : John Wiley & Sons, 2009
ISBN	9786612690525 9781282690523 1282690523 9780470740859 047074085X 9780470740866 0470740868
Descrizione fisica	1 online resource (346 p.)
Disciplina	541.395 547.2
Soggetti	Amidines Guanidines Phosphazo compounds Organic bases
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Superbases for Organic Synthesis: Guanidines, Amidines, Phosphazenes and Related Organocatalysts; Contents; Preface; Acknowledgements; Contributors; 1. General Aspects of Organosuperbases; References; 2. Physico-Chemical Properties of Organosuperbases; 2.1 Introduction; 2.2 Proton Sponges; 2.2.1 'Classical' Proton Sponges; 2.2.2 Proton Sponges with Other Aromatic Backbones; 2.2.3 Polycyclic Proton Sponges; 2.3 Amidines; 2.4 Guanidines; 2.5 Phosphazenes; 2.6 Guanidinophosphazenes; 2.7 Other Phosphorus Containing Superbases : Verkade's Proazaphosphazanes; 2.8 Theoretical Methods 2.9 Concluding RemarksReferences; 3. Amidines in Organic Synthesis; 3.1 Introduction; 3.2 Preparation of Amidines; 3.2.1 Alkylation of Amidines; 3.2.2 Condensation of 1,2-Diamine; 3.2.3 Coupling of

Imines (Isoamarine Synthesis); 3.2.4 Modification of Amide Derivatives; 3.2.5 Multi-Component Reaction; 3.2.6 Oxidative Amidination; 3.2.7 Oxidative Cyclization to Bisamidine; 3.2.8 Ring Opening of Aziridine; 3.3 Application of Amidines to Organic Synthesis; 3.3.1 Acetoxybromination; 3.3.2 Aldol -Like Reaction; 3.3.3 Azidation; 3.3.4 Aziridination; 3.3.5 Baylis-Hillman Reaction 3.3.6 Cycloaddition3.3.7 Dehydrohalogenation; 3.3.8 Deprotection; 3.3.9 Deprotonation; 3.3.10 Displacement Reaction; 3.3.11 Horner-Wadsworth-Emmons Reaction; 3.3.12 Intramolecular Cyclization; 3.3.13 Isomerization; 3.3.14 Metal -Mediated Reaction; 3.3.15 Michael Reaction; 3.3.16 Nef Reaction; 3.3.17 Nucleophilic Epoxidation; 3.3.18 Oxidation; 3.3.19 Pudovik-phospha-Brook Rearrangement; 3.3.20 [1,4]-Silyl Transfer; 3.3.21 Tandem Reaction; 3.4 Amidinium Salts: Design and Synthesis; 3.4.1 Catalyst; 3.4.2 Molecular Recognition; 3.4.3 Reagent Source; 3.5 Concluding Remarks; References

4. Guanidines in Organic Synthesis4.1. Introduction; 4.2. Preparation of Chiral Guanidines; 4.2.1 Polysubstituted Acyclic and Monocyclic Guanidines; 4.2.2 Monosubstituted Guanidines (Guanidinylation); 4.2.3 Bicyclic Guanidines; 4.2.4 Preparation Based on DMC Chemistry; 4.3 Guanidines as Synthetic Tools; 4.3.1 Addition; 4.3.2 Substitution; 4.3.3 Others; 4.4 Guanidinium Salt; 4.4.1 Guanidinium Ylide; 4.4.2 Ionic Liquid; 4.4.3 Tetramethylguanidinium Azide (TMGA); 4.5 Concluding Remarks; References; 5. Phosphazene: Preparation, Reaction and Catalytic Role; 5.1 Introduction

5.2 Deprotonative Transformations Using Stoichiometric Phosphazenes5.2.1 Use of P1 Base; 5.2.2 Use of P2 Base; 5.2.3 Use of P4 Base; 5.2.4 Use of P5 Base; 5.3 Transformation Using Phosphazene Catalyst; 5.3.1 Addition of Nucleophiles to Alkyne; 5.3.2 Catalytic Activation of Silylated Nucleophiles; 5.4 Proazaphosphatrane Base (Verkade's Base); 5.4.1 Properties of Proazaphosphatrane; 5.4.2 Synthesis Using Proazaphosphatrane; 5.5 Concluding Remarks; References; 6. Polymer-Supported Organosuperbases; 6.1 Introduction; 6.2 Acylation Reactions; 6.3 Alkylation Reactions; 6.4 Heterocyclization 6.5 Miscellaneous

Sommario/riassunto

Guanidines, amidines and phosphazenes have been attracting attention in organic synthesis due to their potential functionality resulting from their extremely strong basicity. They are also promising catalysts because of their potential for easy molecular modification, possible recyclability, and reduced or zero toxicity. Importantly, these molecules can be derived as natural products - valuable as scientists move towards "sustainable chemistry", where reagents and catalysts are derived from biomaterial sources. Superbases for Organic Synthesis is an essential guide to these important
