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Nota di contenuto	Fullerenes; Foreword; Preface; Preface of "The Chemistry of the Fullerenes" by Andreas Hirsch (1994); Contents; Abbreviations; 1 Parent Fullerenes; 1.1 Fullerenes: Molecular Allotropes of Carbon; 1.2 Discovery of the Fullerenes; 1.3 Fullerene Production; 1.3.1 Fullerene Generation by Vaporization of Graphite; 1.3.1.1 Resistive Heating of Graphite; 1.3.1.2 Arc Heating of Graphite; 1.3.1.3 Solar Generators; 1.3.1.4 Inductive Heating of Graphite and Other Carbon Sources; 1.3.2 Fullerene Synthesis in Combustion; 1.3.3 Formation of Fullerenes by Pyrolysis of Hydrocarbons 1.3.4 Generation of Endohedral Fullerenes1.3.5 Total Synthesis Approaches; 1.3.6 Formation Process; 1.4 Separation and Purification; 1.5 Properties; 1.5.1 Structures; 1.5.2 Physical and Spectroscopic Properties; References; 2 Reduction; 2.1 Introduction; 2.2 Fulleride Anions; 2.3 Reductive Electrosynthesis; 2.3.1 Electrocrystallization; 2.3.2 Electrophilic Additions to Fulleride Anions; 2.4 Reduction with Metals; 2.4.1 Alkali Metal Fullerides; 2.4.1.1 Generation in Solution and Quenching Experiments; 2.4.1.2 Synthesis and Properties of Alkali

Metal Fulleride Solids

2.4.2 Alkaline Earth Metal Fullerides2.4.3 Reduction with Mercury; 2.5 Reduction with Organic Donor Molecules; References; 3 Nucleophilic Additions; 3.1 Introduction; 3.2 Addition of Carbon Nucleophiles; 3.2.1 Hydroalkylation and Hydroarylation of C(60) and C(70); 3.2.2 Cyclopropanation of C(60) and C(70); 3.2.3 Addition of Cyanide; 3.3 Addition of Amines; 3.4 Addition of Hydroxide and Alkoxides; 3.5 Addition of Phosphorus Nucleophiles; 3.6 Addition of Silicon and Germanium Nucleophiles; 3.7 Addition of Macromolecular Nucleophiles - Fullerene Polymers; References; 4 Cycloadditions

4.1 Introduction4.2 [4+2] Cycloadditions; 4.3 [3+2] Cycloadditions; 4.3.1 Addition of Diazomethanes, Diazoacetates and Diazoamides; 4.3.2 Addition of Azides; 4.3.3 Addition of Trimethylenemethanes; 4.3.4 Addition of Azomethine Ylides; 4.3.5 Addition of Nitrile Oxides and Nitrile Imines; 4.3.6 Addition of Sulfinimides and Thiocarbonyl Ylides; 4.3.7 Addition of Carbonyl Ylides; 4.3.8 Addition of Nitrile Ylides and Isonitriles; 4.3.9 Addition of Disiliranes; 4.4 [2+2] Cycloadditions; 4.4.1 Addition of Benzyne; 4.4.2 Addition of Enones; 4.4.3 Addition of Electron-rich Alkynes and Alkenes

4.4.4 Addition of Ketenes and Ketene Acetals4.4.5 Addition of Quadricyclane; 4.4.6 Photodimerization of C(60); 4.5 [2+1] Cycloadditions; 4.5.1 Addition of Carbenes; 4.5.2 Addition of Nitrenes; 4.5.3 Addition of Silylenes; References; 5 Hydrogenation; 5.1 Introduction; 5.2 Oligohydrofullerenes C(60)H(n) and C(70)H(n) (n = 2-12); 5.2.1 Hydrogenation via Hydroboration and Hydrozirconation; 5.2.2 Reduction with Reducing Metals (Zn/Cu); 5.2.3 Hydrogenation with Hydrazine and with Organic Reducing Agents; 5.2.4 Theoretical Investigations; 5.3 Polyhydrofullerenes C(60)H(n) and C(70)H(n) (n = 14-60)

5.3.1 Birch-Huckel Reduction

Sommario/riassunto

In this handbook, the leading experts in the field presents important and fundamental aspects of the organic and organometallic chemistry of fullerenes. Naturally they also cover the applications in material and medicinal science for these fascinating molecules. Completely self-contained, the book is logically arranged such that information is easy to retrieve, and the style lends itself to effortless reading and to learning more about the chemical properties of this family of molecules.A definitive ""must"" for everyone working in this ever-expanding sphere.