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2.1.4 Step Addition Syntheses2.2 Chain Polymerizations; 2.2.1 Radical Polymerizations; 2.2.2 Cationic Polymerizations; 2.2.3 Anionic Polymerizations; 2.3 Ring-Opening Polymerizations; 2.3.1 Metal-Coordination ROP; 2.3.2 Organometallic ROP; 2.3.3 Main Group ROP; 2.4 Reductive Coupling and Other Redox Polymerization Reactions; 2.4.1 Reductive Coupling; 2.4.2 Oxidative Addition Polymerizations; 2.5 Condensation (Desolvation) Oligomerizations/Polymerizations; 2.5.1 Cationic Aggregations; 2.5.2 Anionic Aggregations; 2.5.3 Desolvation at Elevated Temperature; 2.5.4 Solvolysis-Desolvation Reactions
2.6 Miscellaneous Synthesis Comments2.6.1 Solubility; 2.6.2 Telechelic Polymers; 2.6.3 Catalyzed Dehydrogenation Reactions; References; Exercises; 3 INORGANIC POLYMER CHARACTERIZATION; 3.1 Average Molecular Masses and Degrees of Polymerization; 3.2 Methods of Characterizing Average Molecular Masses; 3.2.1 Gel Permeation Chromatography; 3.2.2 Viscosity; 3.2.3 Universal Calibration; 3.2.4 Light Scattering for Absolute Molecular Mass and Size Measurements; 3.2.5 Colligative Properties (Vapor Pressure Lowering, Boiling Point Elevation, Melting Point Lowering, and Osmotic Pressure)
3.2.6 End-Group Analyses3.2.7 Mass Spectroscopy; 3.2.8 Ultracentrifugation; 3.3 Determinations of Thermal Parameters; 3.3.1 Glass Transition Temperature Measurements; 3.3.2 Other Thermal Parameters; 3.4 Spectroscopic Characterizations Specific to Inorganic Polymers; 3.4.1 Nuclear Magnetic Resonance Spectroscopy; 3.4.2 Electron Paramagnetic Resonance Spectroscopy; 3.4.3 Electronic Spectroscopies; 3.4.4 Vibrational Spectroscopies; 3.4.5 Mossbauer Spectroscopy; 3.4.6 Other Spectroscopic Methods; 3.5 Viscoelasticity Measurements; 3.6 Crystallization Characterization; 3.6.1 Birefringent Microscopy
3.6.2 Wide-Angle X-Ray Scattering

Sommario/riassunto

A balanced and concise coverage of inorganic polymers Inorganic polymers contain elements other than carbon as part of their principal backbone structure and are known to exhibit a wide range of composition and structure. Emphasizing physical properties, chemical synthesis, and characterization of inorganic polymers, Inorganic and Organometallic Polymers presents valuable and informative coverage of the field. With numerous examples of real-world practical applications and end-of-chapter exercises, Inorganic and Organometallic Polymers is suitable for use as a text in special topics