

CHEMISTRY OF POLYMERS

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- I. Historical background & Basics
 - A. Polymers (natural, artificial, synthetic). Polymer science. Modern polymers.
 - B. Macromolecules : Structure, characteristics and properties
 - C. Classification of polymers
 - D. Molecular weights
- II. Polymerization processes
 - A. Classification (Carothers and Flory)
 - B. Step-growth polymerization
 1. Linear/non-linear polymerization, cyclization
 2. Linear polycondensation
 3. Linear polyaddition
 4. Non-linear step-growth polymerization
 5. Concept of equal reactivity of functional groups
 - C. Chain-growth polymerization
 1. Radical polymerization
 2. Ionic polymerizations
 - D. Coordination polymerization
 1. Ziegler-Natta
 2. Metallocenes et post-metallocenes
 3. Chromium-based catalysts
 4. Metathesis polymerization
 5. Catalysts based on the VIII-th group metals
 6. Main-group metals catalysts