

Tutorial 2 “Polymer Synthesis 1”

Dr. Eva Blasco
Dr. Hatice Mutlu
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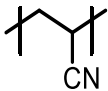
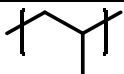

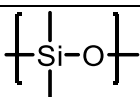
Nomenclature, Molecular Weight, Basic Types of Polymerization Mechanisms

(A) Nomenclature:

- Draw structural formulas corresponding to the following names.

Name	Chemical Structure
Polypropylene	
PMMA	
poly(styrene)	
Polyacrylonitrile	
PVC	

- Give the IUPAC name (source-based and structure-based) for each of the following polymers.

Chemical Structure	Name
	
	
	
	



(B) Molecular Weight Distribution

- Explain the differences between M_n , M_w and M_z
- Define polydispersity

(C) Types of Polymerization

- Compare step-growth (e.g. condensation) versus chain (e.g. free radical) polymerization; comment on:
 - a) what types of molecule react,
 - b) presence of monomer with reaction time,
 - c) when does polymer form,
 - d) reaction time vs polymer molecular weight,

- How do you determine molecular weight as a function of conversion in step-growth polymers?
- Name some examples of step-growth polymers and depict their synthesis