Chain Growth Polymerisation

Ionic Processes

(Cationic polymerisation of vinyl monomers

(Radical chain growth similar; initiation \(\rightarrow\) stable Byproduct)

Growth profile: rapid, \(\text{Mw} \rightarrow \text{monomer scarred}\)

Polymer chains are entangled - physical properties
correlate to \(\text{Mw}\)

Radicals can recombine

or abstract \(\text{C}^\bullet\) \(\rightarrow\) disproportionation

Polydispersity:

\[ D = \frac{\text{Mw}}{\text{Mn}} \rightarrow \text{Closer to Gaussian distribution} \]

\(\text{Mn}\) - number average molecular weight

\(\text{Mw}\) - weight average molecular weight

Cationic Polymerisations

Initiation occurs via addition of an electrophile to the vinyl monomer. - Mineral acids, strong Lewis acids

Alt. initiator - ionic soluble initiator

Markownikoff's rule about stability or cleavage

Mechanism debatable!