

6.21

Reactions of Alkenes with Alkenes:
Polymerization

Polymerization of Alkenes

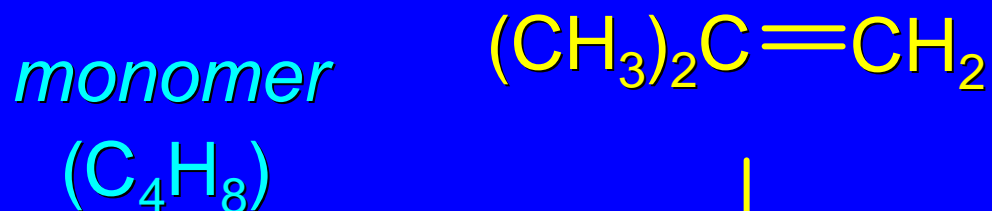
cationic polymerization

free-radical polymerization

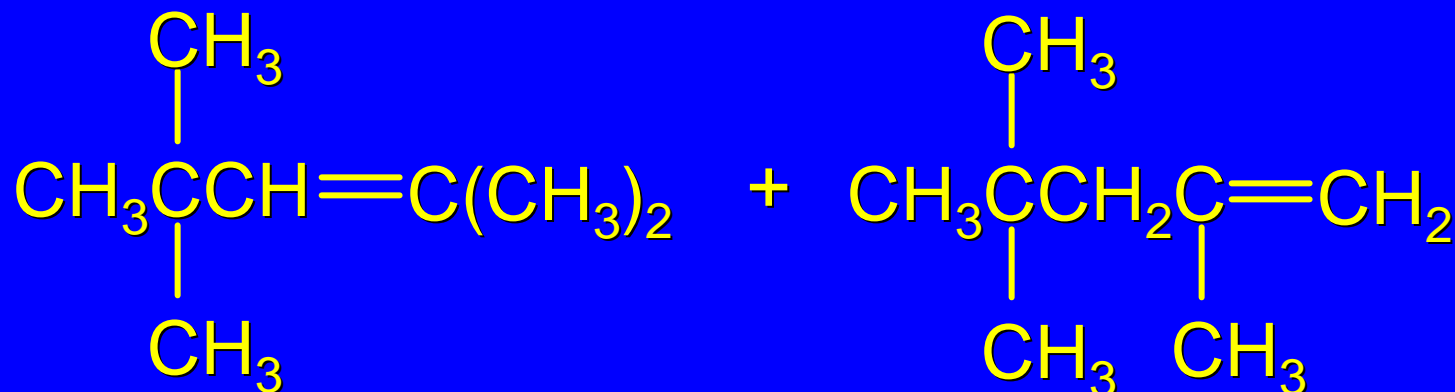
coordination polymerization

Cationic Polymerization

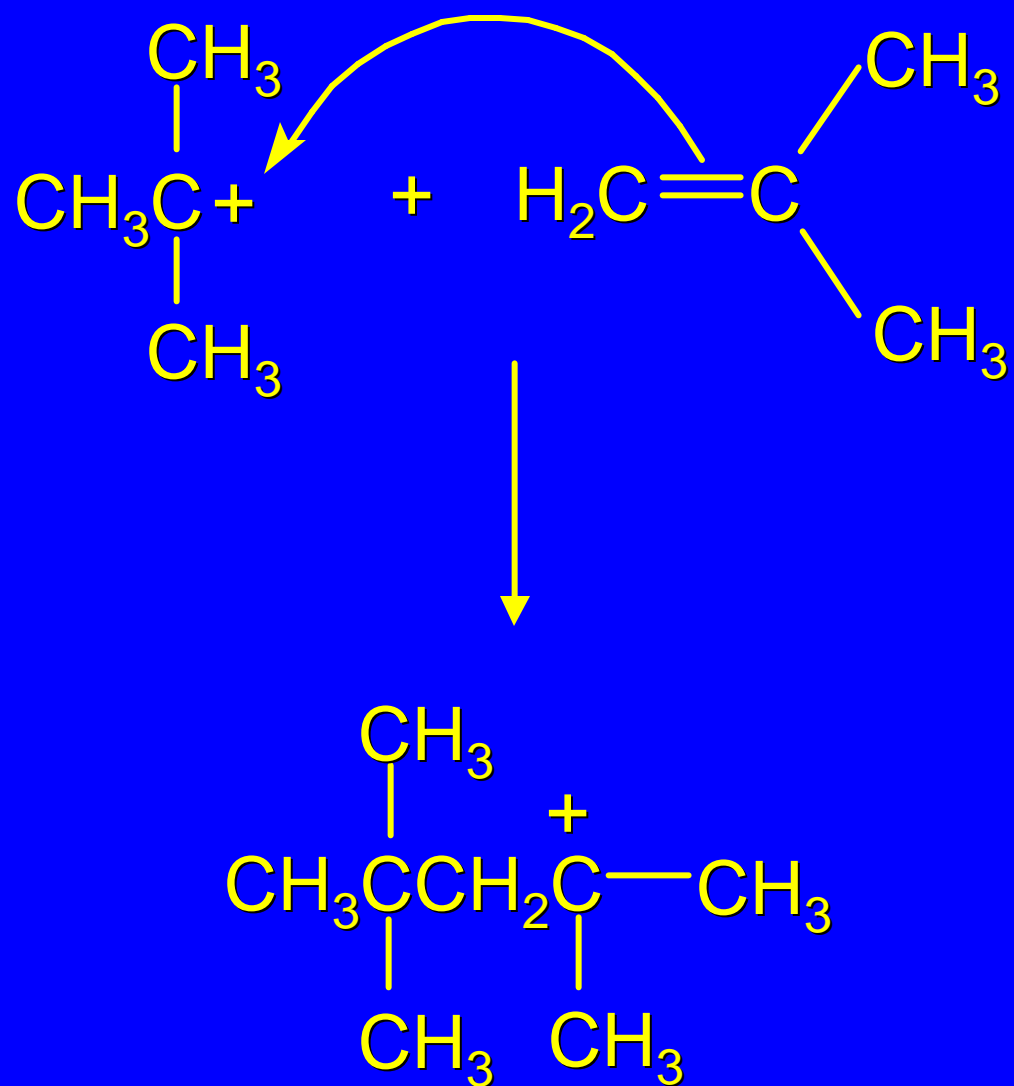
Dimerization of 2-methylpropene



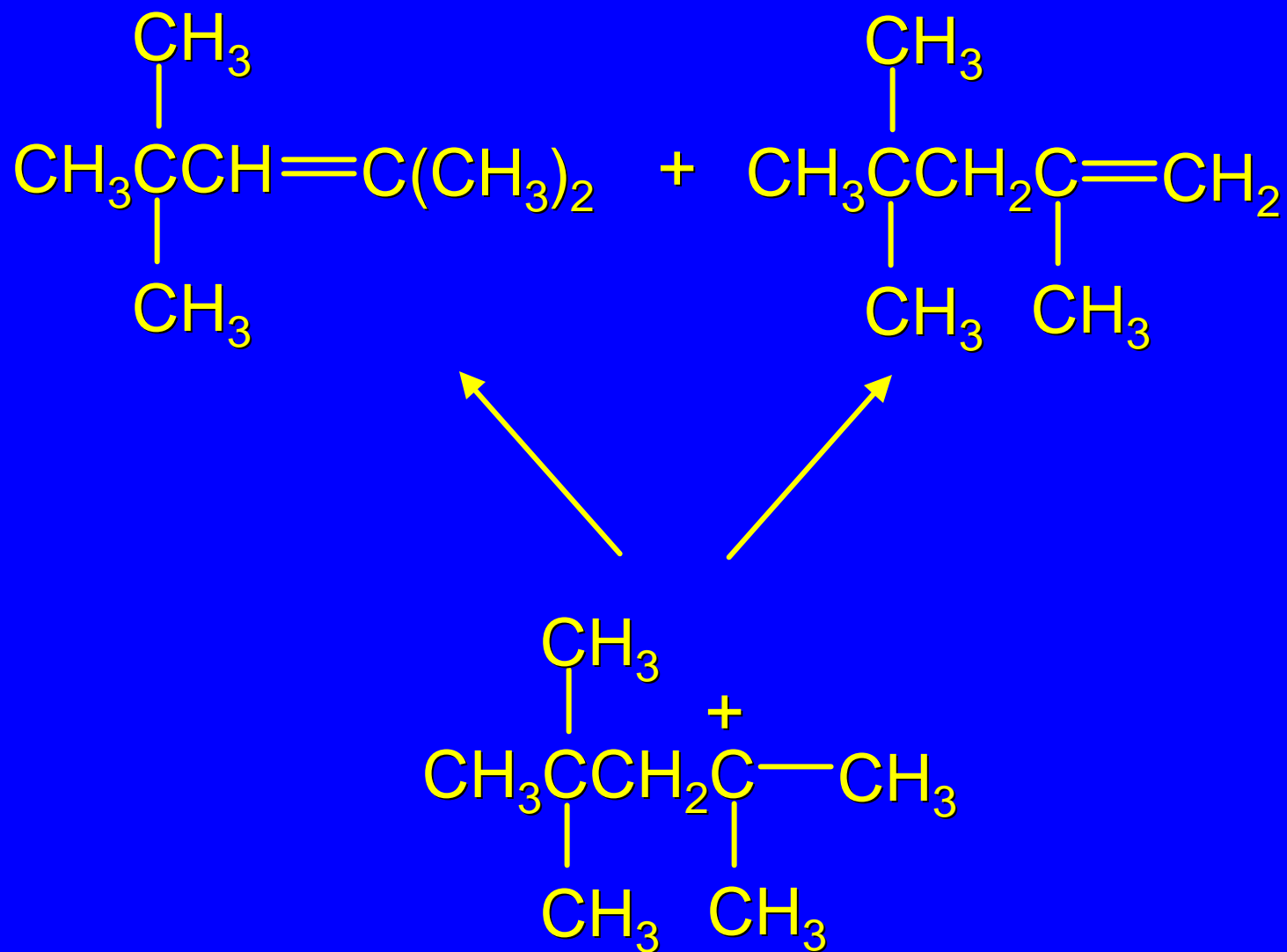
two dimers



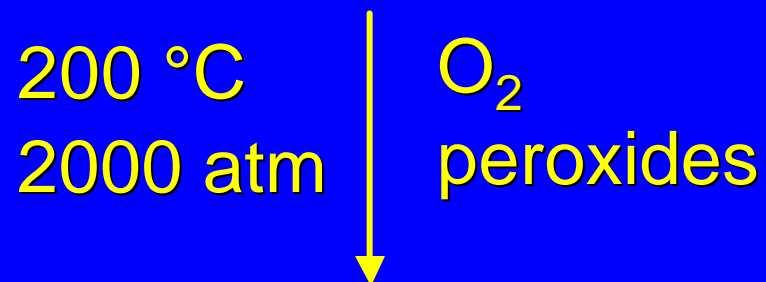
Mechanism of Dimerization



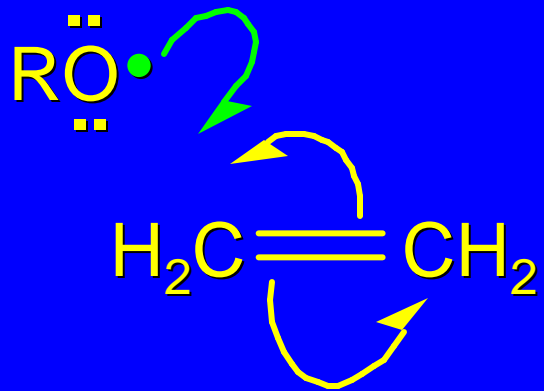
Mechanism of Dimerization



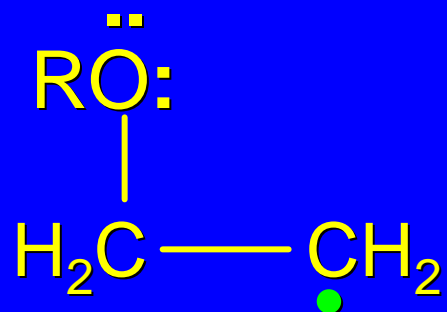
Free-Radical Polymerization of Ethylene



polyethylene

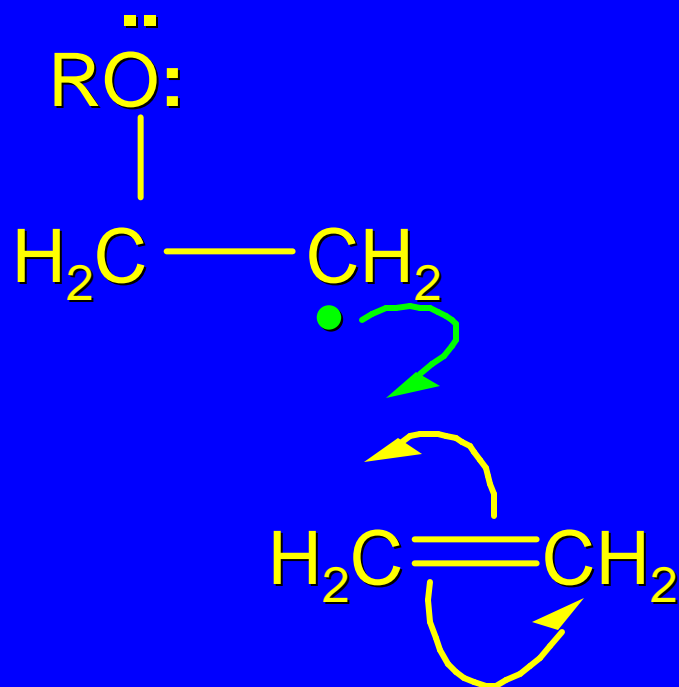


Mechanism

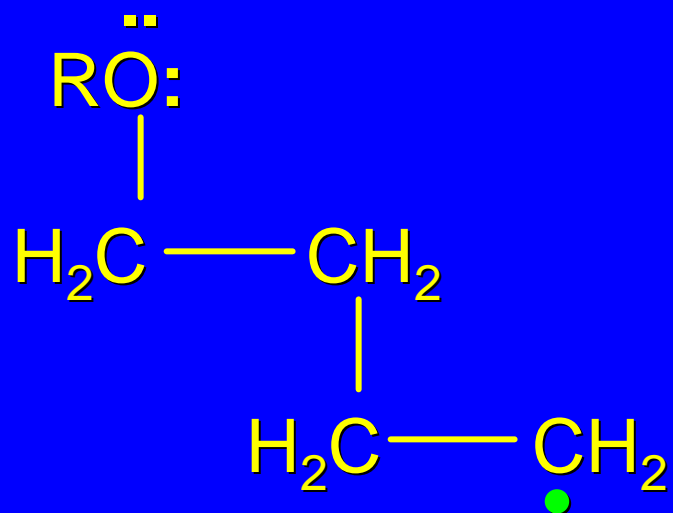


Mechanism

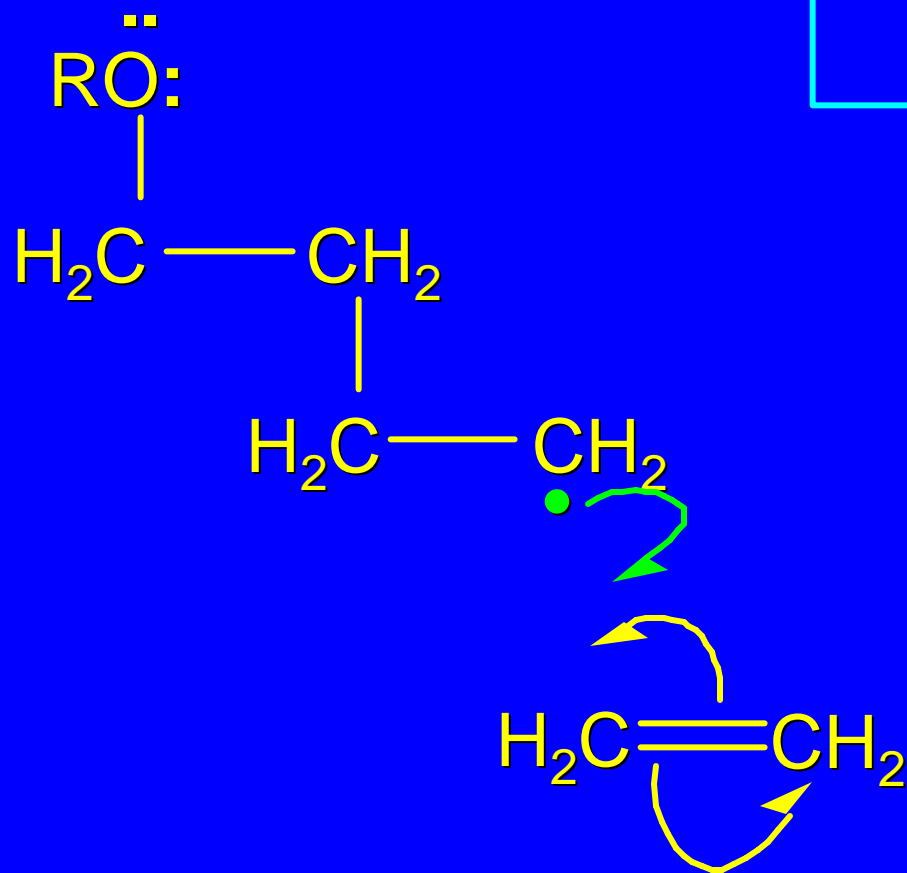
Mechanism



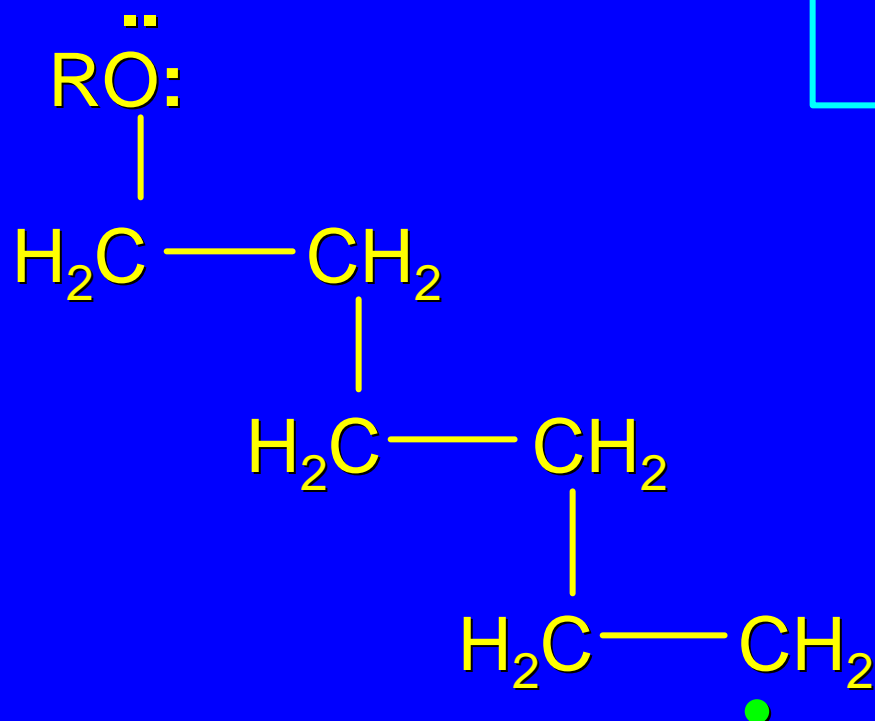
Mechanism



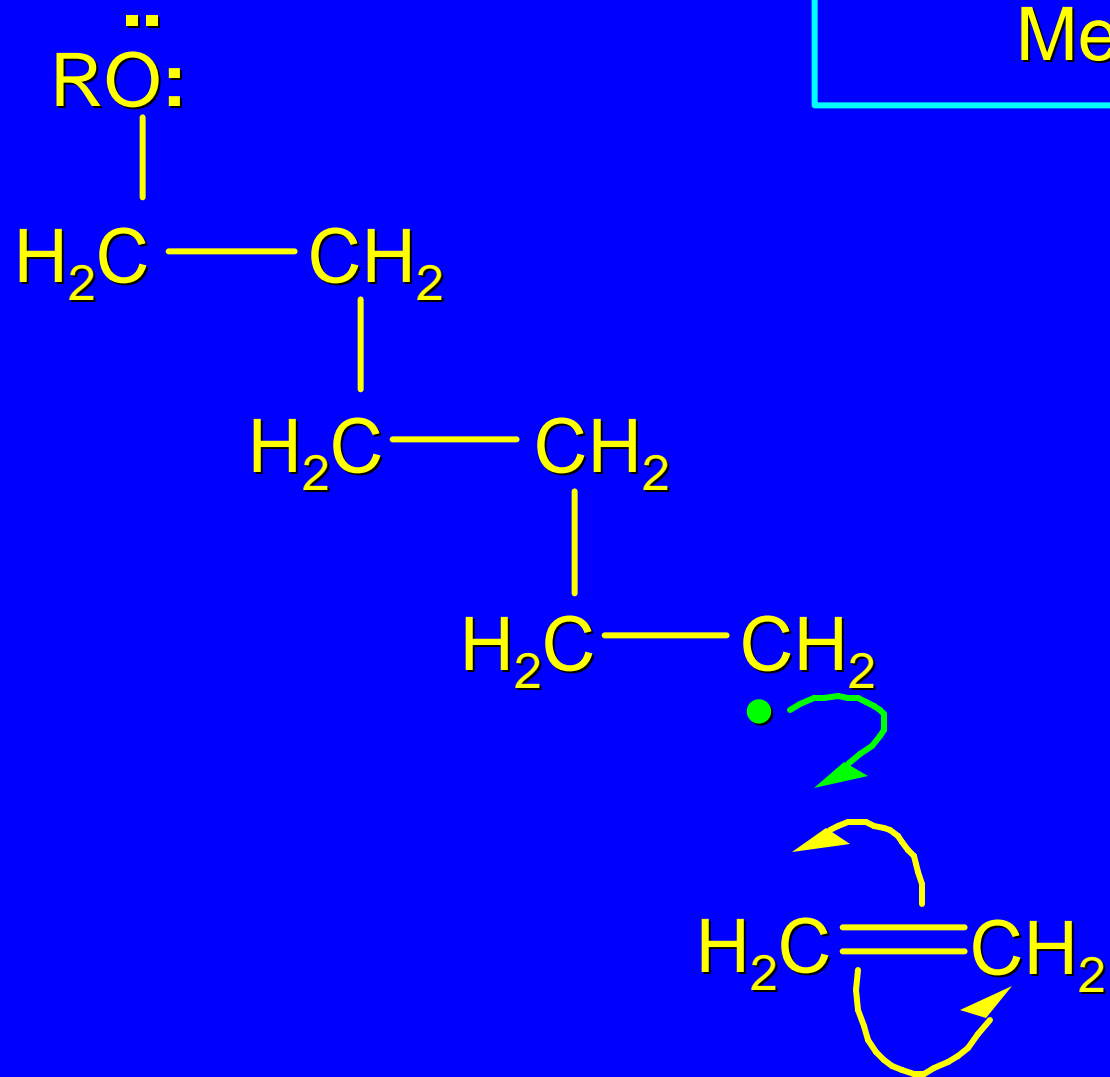
Mechanism



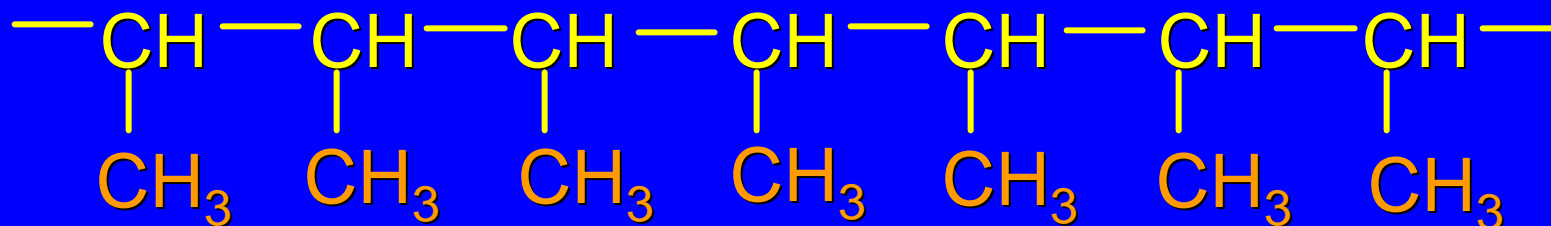
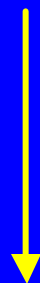
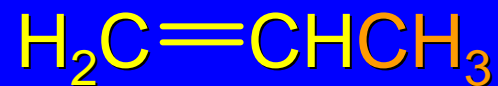
Mechanism



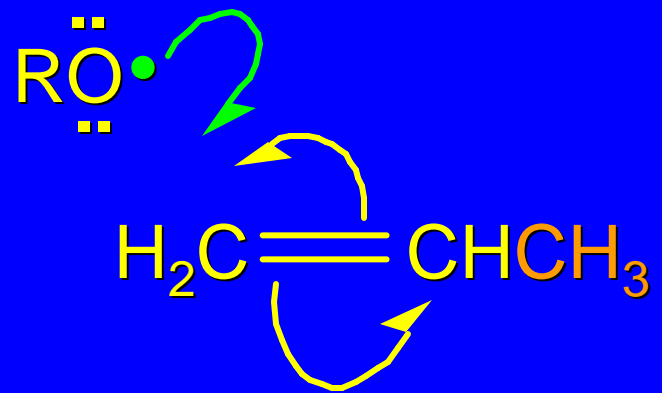
Mechanism



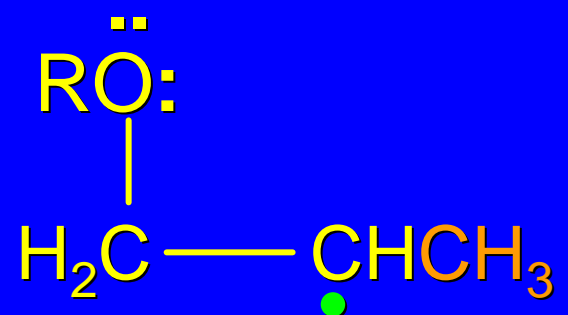
Free-Radical Polymerization of Propene



polypropylene

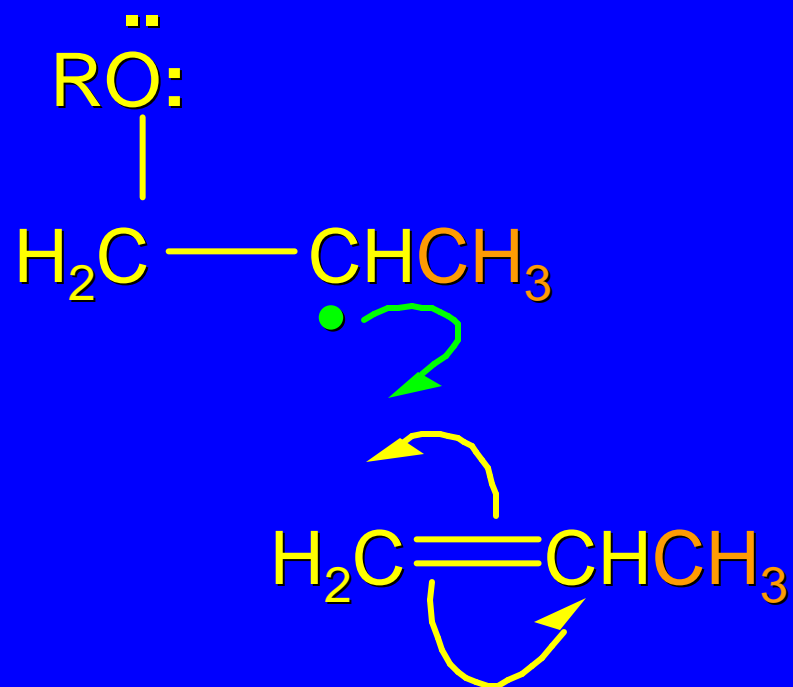


Mechanism

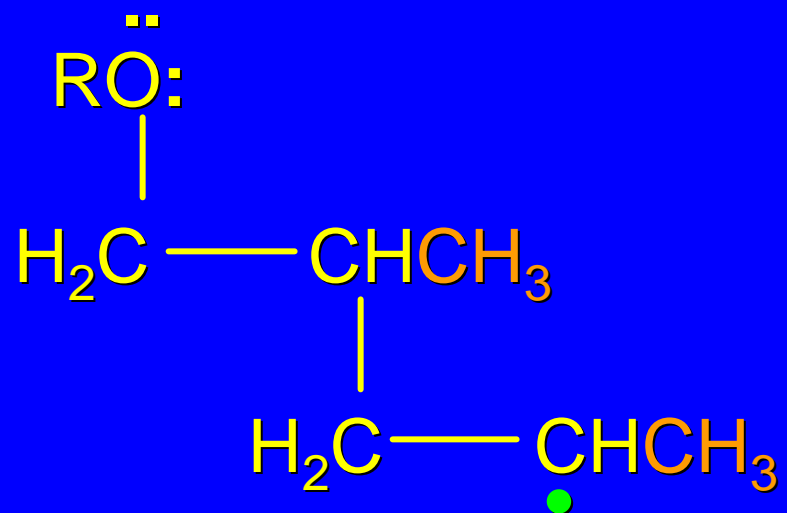


Mechanism

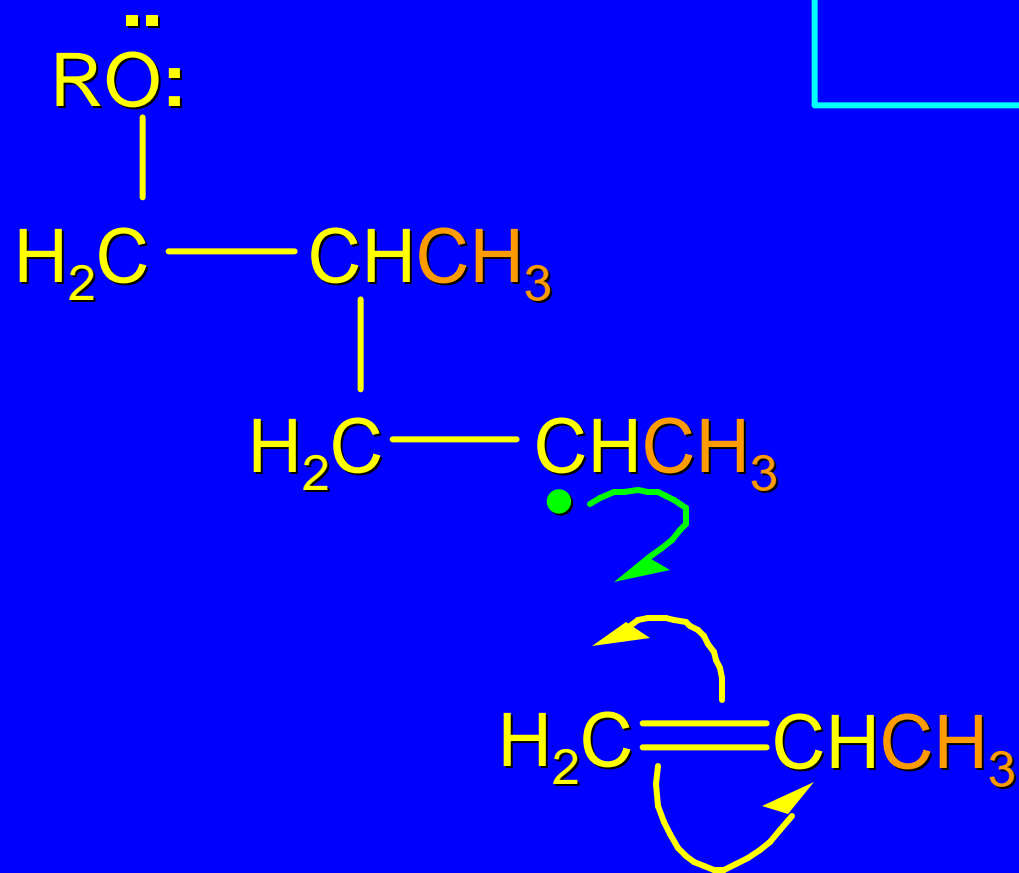
Mechanism



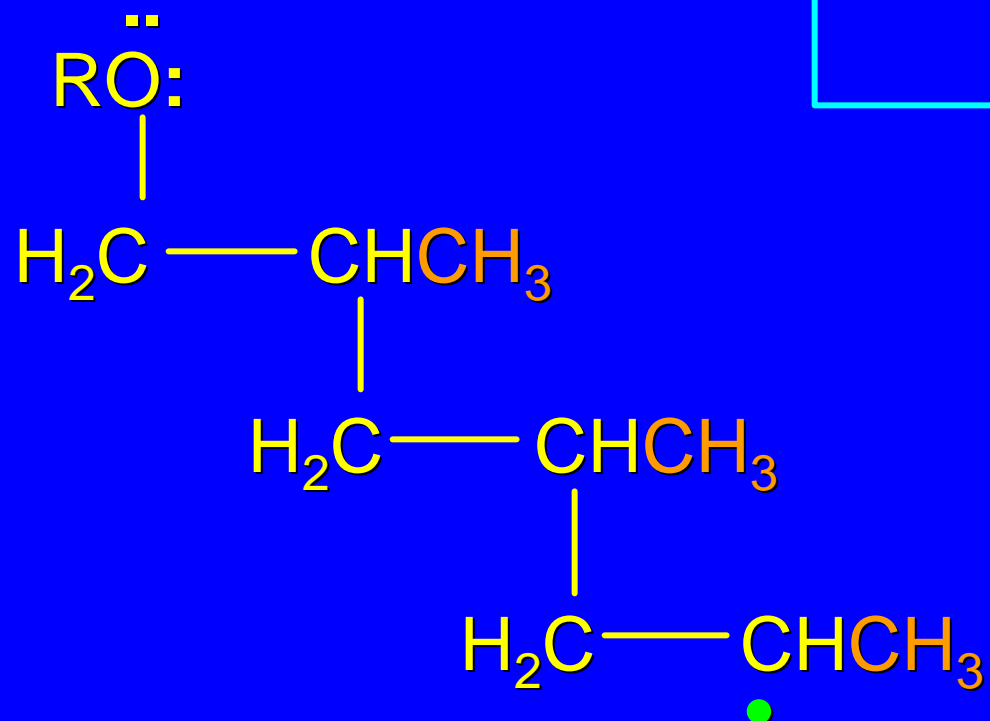
Mechanism



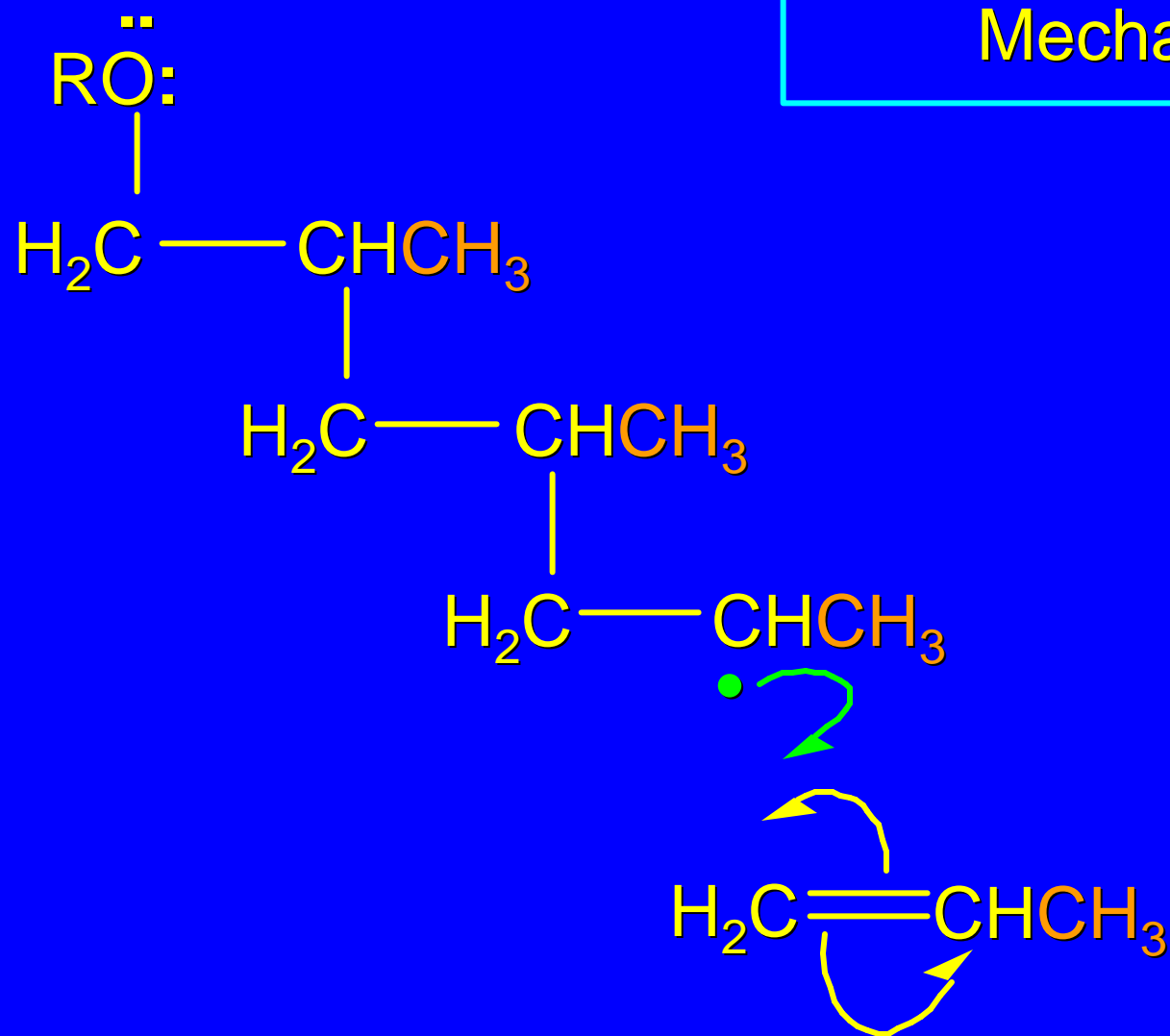
Mechanism



Mechanism



Mechanism



Likewise...

$\text{H}_2\text{C}=\text{CHCl}$	∅	polyvinyl chloride
$\text{H}_2\text{C}=\text{CHC}_6\text{H}_5$	∅	polystyrene
$\text{F}_2\text{C}=\text{CF}_2$	∅	Teflon