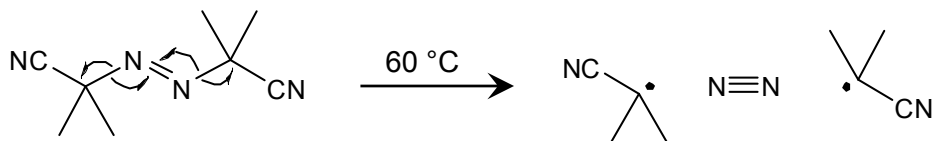


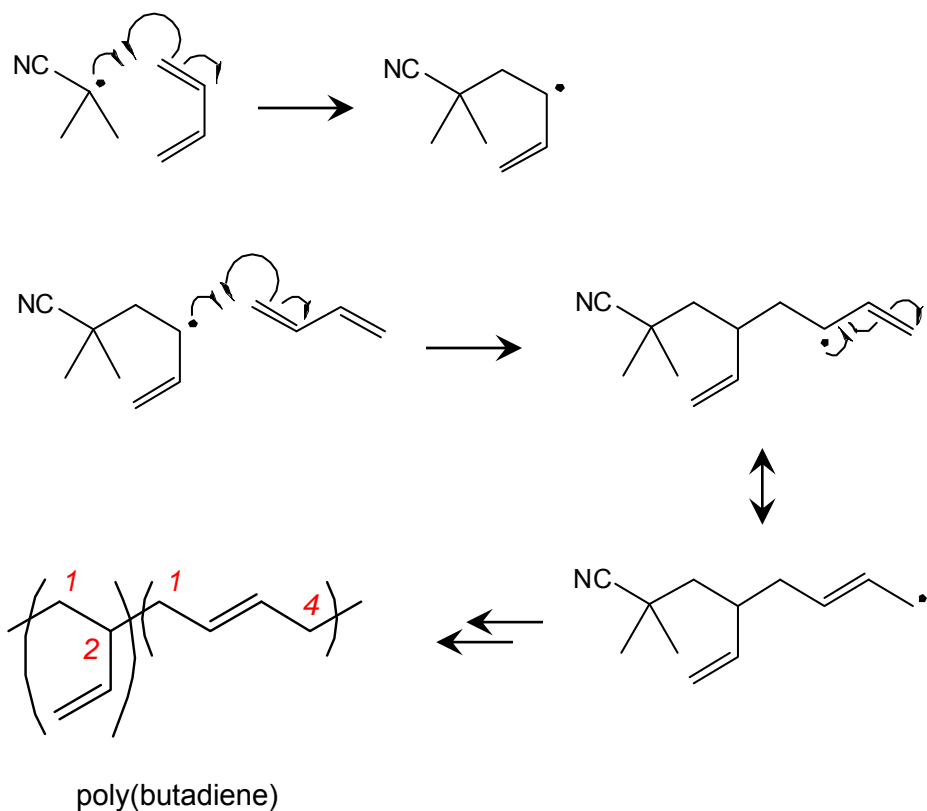
Chemistry 2302

Workshop 26 Solutions Regiochemistry in Butadiene Polymerization

1. Initiation:



Propagation:



2. Of the two regiochemistries, 1,2-addition yields a monosubstituted alkene, and 1,4-addition yields a disubstituted alkene. The 1,4-adduct is thermodynamically more stable, and I would guess it might be kinetically favored as well.

Students often argue that 1,2-addition is favored because it comes from a secondary radical, which is more stable than the other, primary radical. But keep in mind, the

secondary and primary radical structures are resonance structures; by definition, they have the same energy (because they are just two ways of drawing the same thing).