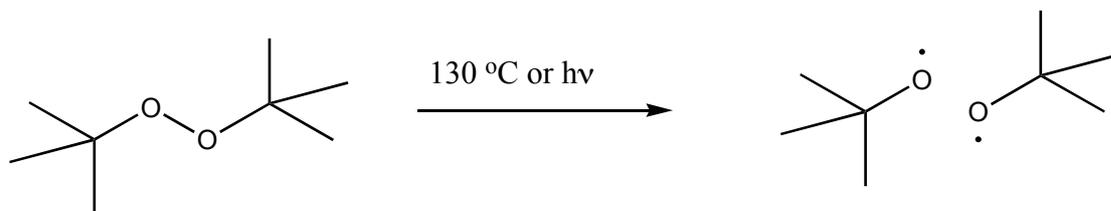


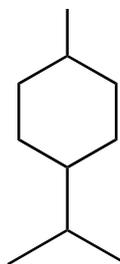
Alkanes, Alkenes and Alkynes Tutorial Problems
Lecture 3

1. *tert* - Butyl peroxide is a stable liquid that serves as a convenient source of radicals:

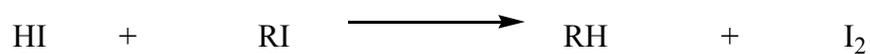


A mixture of 2-methylpropane and carbon tetrachloride (CCl_4) is stable at 130 °C. If a small amount of the above peroxide is added a reaction occurs to give (mostly) *tert* - butyl chloride and chloroform(CHCl_3). Write a reasonable mechanism for this reaction.

2. Predict the major products of the free-radical mono-bromination of menthane (note the n in the name) shown below:



3. In the presence of a radical initiator hydrogen iodide reduces alkyl iodides to the parent alkanes:



Write a mechanism for this process and give a reason for it based on free energies.