

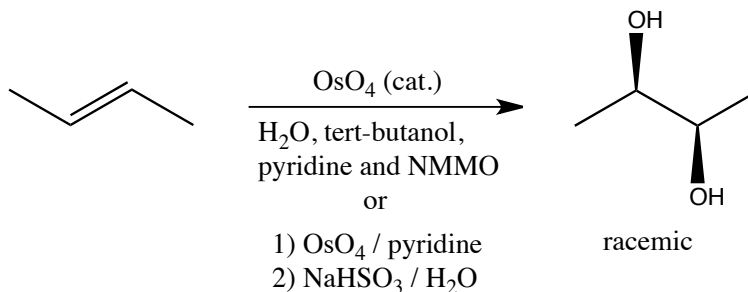
## Chem 343 – Organic Reactions

### Chapter 11

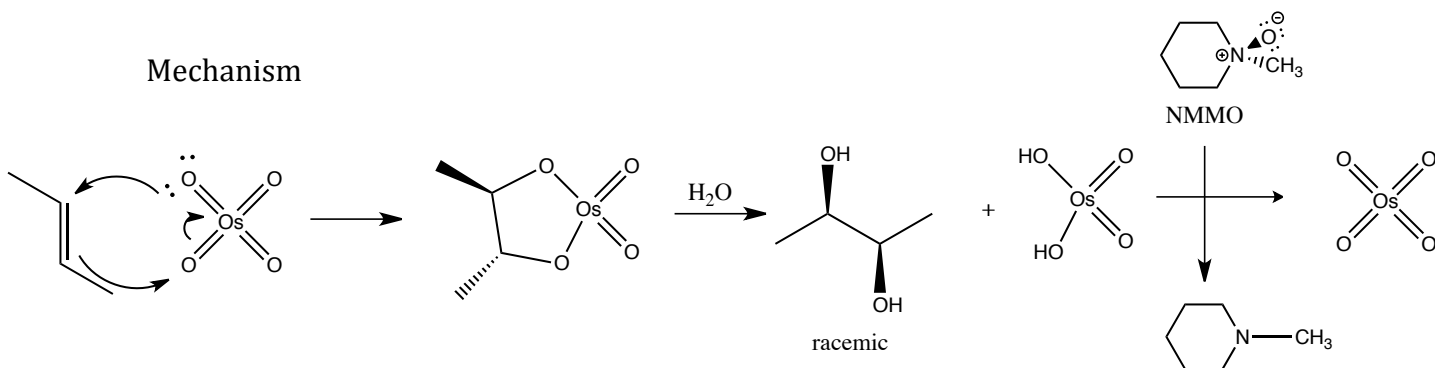
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<http://www.chem.wisc.edu/areas/clc> (Resource page)

#### Alkene Reactions #11: 1,2-Diol (Glycol) Formation from Alkenes



#### Mechanism



Using  $\text{OsO}_4$  as a catalyst will require just  $10^{-4}$  moles in a mixture of alcohols and amines. The osmium (VI) formed is then recycled to osmium (VIII) in the reaction mixture by the use of an amine oxide (shown above). If this mixture of reagents is not used then a whole equivalent of osmium tetroxide is needed and the osmate ester is then reduced to  $(\text{OH})_2\text{OsO}_2$  along with the 1,2-diol.

The mechanism of this reaction is concerted, that is, both  $-\text{OH}$  groups are added at the same time. The reaction is also stereospecific; *syn* hydroxylation.