**supplement #14: *A GLOBAL SUMMARY MAJOR REACTIONS OF ALKENES (mostly additions)***

***CHEMISTRY 3514 ORGANIC CHEMISTRY I***

**some thing**

***conditions***

**something + C = C C C**

**via carbocation via bridgehead cation via free radical**

**(`halonium’ cation)**

\*adds **HX Mark.**  \*adds **X2**  \*adds **HBr w/peroxide present** (not in text)

\*adds **OH & X** \*adds to **self...polymerization**

\*adds **alkenes** (can be done with NBS in DMSO -adds **CH2 ...carbene insertion** CH2N2 Hv/Cu



\*adds **H2O**   and H2O too,) CHCl3 + OH- + >C=C<🡪

(industrial route to ROH

(w/H3PO4 or H2SO4 )

-adds **freons w/ peroxide present** (not in text)

peroxide

C=C **+ CCl4 -------> Cl**-C-C**-CCl3. , Cl2C-C-CCl3**...etc

**-substitutes Br allylic** 🡪 Br-C-C=C using NBS in CCl4

**with help of organometallics &redox reagents**

-adds **H2  with Pt, Pd**.

\*adds **OH with B2H6/ basic H2O2 {hydroboration}** *(adds anti-mark.)*

\*adds **OH with Hg(OAc)2 /NaBH4** **{oxymercuration/de-mercuration**) (adds *mark.)*

\*adds **CH2**bridgehead: (Simmons-Smith) organo zinc methylene insertion (CH2I2 + C=C w/Zn(Cu)--> ZnI2 +cyclopropane

- adds **two OH with cold KMnO4** **or OsO4** **{ *syn* hydroxylation}**

-adds **two OH via halohydrin addition followed by NaOH/H2O to epoxide then H+ {*anti* hydroxylation}**

-adds two OH via formic acid/H2O2 to then acid {anti hydroxylation }

\***adds O3(ozone)** to form molozonide...then scissions alkene in an **ozonolysis.** [1/3 of Doc’s Ph. D thesis)

**We will try to discuss mechanisms for starred (\*) reactions**