Chemistry Review

Preparation of Ethers

↳ Williamson Ether Synthesis

R-OH $\xrightarrow[2)\ R\text{-}X]{1)\ NaH}$ R-O-R

- first step, alcohol is deprotonated to form alkoxide ion
- 2nd step alkoxide functions as a nucleophile in an Sn2 reaction.
- since 2nd step is Sn2, steric effects must be considered.

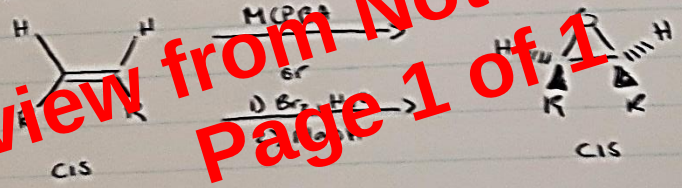
Reaction of Ethers

↳ Acidic Cleavage

R-O-R $\xrightarrow[\text{heat}]{\text{excess HX}}$ R-X + R-X + H_2O

- when ethers are heated with a concentrated solution, they undergo acidic cleavage.
  - ↳ the ether is then converted to two alkyl halides.
  - ↳ the process involves two substitution reactions

Preparation of Epoxides

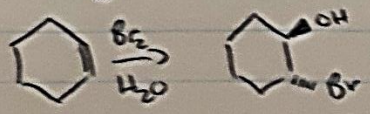


First: Alkenes can be converted into epoxides upon treatment with peroxy acids (MCPBA)

Second: Epoxides can be formed from halohydrins

→ alkenes become halohydrins when treated with a halogen in the presence of water

→ halohydrin converted to epoxide in the presence of a strong base

1. 

+ Enantiomer

2.