

Chemistry

Ethers

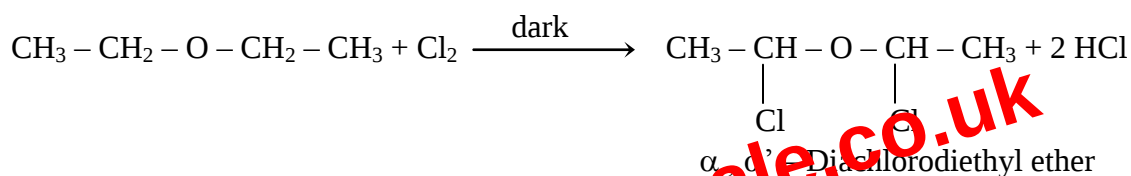
Answer in detail:

1. Discuss the chemical properties of ethers.

Owing to the absence of active groups and multiple bonds, ethers are comparatively inert substances. They are not easily attacked by alkalis, dilute acids, PCl_5 metallic sodium etc. They undergo chemical reaction under specific conditions. Some of the reactions of ethers are due to:

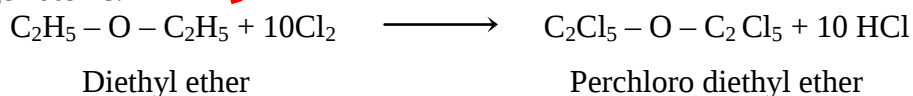
(a) Reactions due to the alkyl group:

Halogenations: Ethers react with chlorine or bromine in the dark to give substituted products at a carbon atoms.



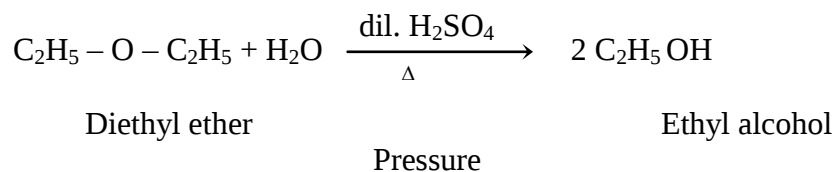
Note:

1. The carbon attached with the functional group is called α – carbon.
 2. If two carbons are attached on either side of the functional group, then they are named as α – carbon and α' – carbon.
- In the presence of sunlight, all the hydrogens of the ether are substituted by halogen atoms.



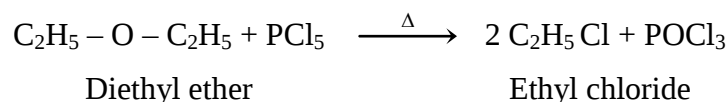
(b) Reaction due to cleavage of C – O bond

(i) *Reaction with dilute sulphuric acid:* When an ether is heated with dilute sulphuric acid under pressure alcohols are formed.



(ii) *Reaction with phosphorus Pentachloride:*

When an ether is heated with phosphorus pentachloride, alkyl halides are formed.



Note: In case, PCl_5 has no action on ether.