

NAME: EKONG, VIVIEN UMOUDOE

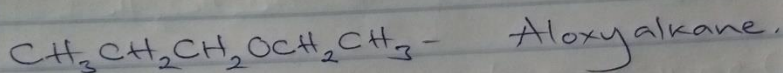
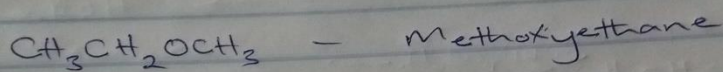
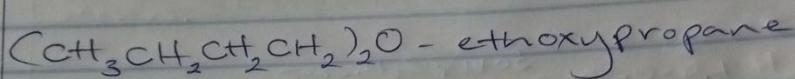
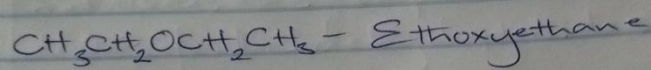
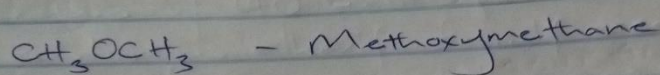
DEPARTMENT: MBBS

COLLEGE: MHS

COURSE CODE: CHM102

MATRIC NO: 19/MHS01/148

1. The IUPAC names are listed below.



2. PROPERTIES OF ETHERS

PHYSICAL PROPERTIES

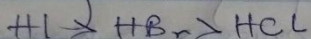
- An ether molecule has a net dipole moment due to the polarity of C-O bonds
- The boiling point of ethers is comparable to the alkanes but much lower than that of alcohols of comparable molecular mass despite the polarity of the C-O bond. The miscibility of ethers with water resembles those of alcohols.
- Ether molecules are miscible in water. This is attributed to the fact that like alcohol, the oxygen atom of ether can also form hydrogen bonds with a water molecule.

CHEMICAL PROPERTIES

Ethers undergo chemical reactions in two ways.

a. CLEAVAGE OF C-O BOND

Ethers are generally very unreactive in nature. When an excess of hydrogen halide is added to the ether, cleavage of C-O bond takes place leading to the order of reactivity is given as



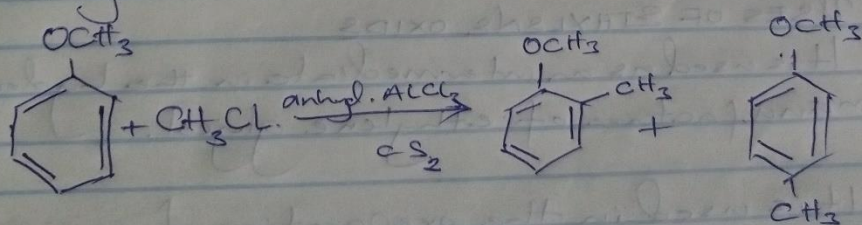
b. Electrophilic Substitution; The alkoxy group in ether activates the aromatic ring at ortho and para positions for electrophilic substitution.

c. HALOGENATION OF ETHERS

Aromatic ethers undergo halogenation, for example, bromination, upon the addition of halogen in the presence or absence of a catalyst.

d. FRIEDEL CRAFT'S REACTION OF ETHERS

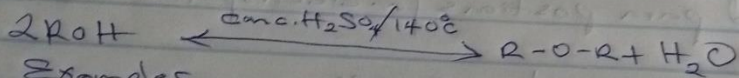
Aromatic ethers undergo Friedel-Craft's reaction for example addition of alkyl or acyl group upon the reaction with alkyl or acyl halide in the presence of a Lewis acid as catalyst.



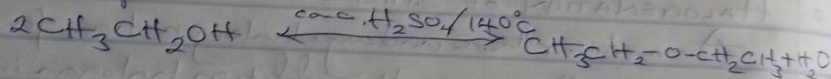
3. METHODS OF PREPARING ETHERS

a. PARTIAL DEHYDRATION OF ALCOHOLS

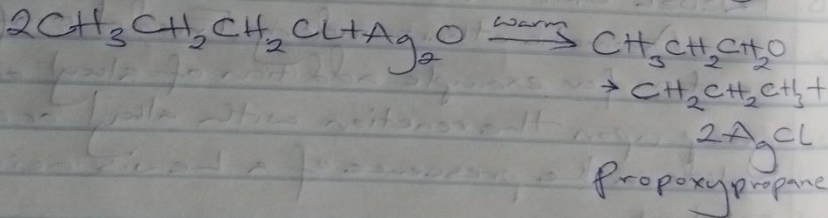
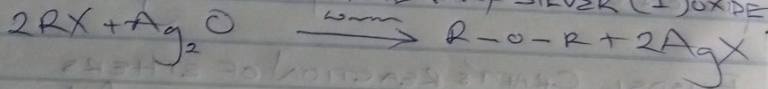
Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphate(VI) acid is heated at a carefully maintained temperature of 140°C . This process is known as continuous etherification. If excess alcohol is not used, the temperature is as high as $170-180^{\circ}\text{C}$, further dehydration to yield alkene occurs.



Examples



b. FROM HALOALKANES AND DRY SILVER (I) OXIDE



4. USES OF ETHYLENE OXIDE

- It is used as an intermediate in the hydrolytic manufacture of ethylene glycol.
- It is used in the preparation of nonionic emulsifying agents, plastics, plasticizers and several synthetic textiles.
- It is used as a gaseous sterilizing agent.