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Level: 100  
Department: Medical Laboratory Science  
College: Medicine and Health Science  
Course code: Chemistry 102  
Assignment Title: Assignment on Ethers

1) Give the IUPAC names of the following organic compounds

$\text{CH}_3\text{OCH}_3$  → Dimethyl ethers

$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$  → Ethoxy methane

$(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$  → Butoxymethane

$\text{CH}_3\text{CH}_2\text{OCH}_3$  → methoxy ethane

$\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$  → Ethoxypropane

2) Discuss the properties of ethers

i) Physical state: At room temperature, ethers are colourless neutral liquid with pleasant odours. The lower aliphatic ethers are highly flammable gases or volatile liquid.

ii) Solubility: Ethers are less soluble in water than are the corresponding alcohols.

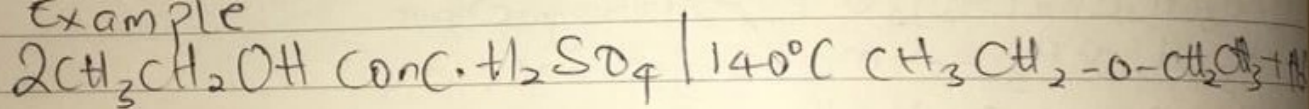
iii) Density: Most of the simple ethers are less dense than water, although the density increase with increasing relative molecular mass and some of the aromatic ethers are in fact denser than water.

iv) Reactivity: Ethers are inert at moderate temperature. Their inertness at moderate temperature leads to wide use as reaction media.

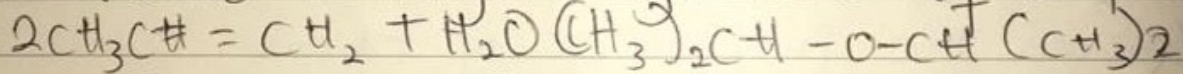
### 3. Methods of preparing ethers

- partial dehydration of Alcohols  
Simple ethers are manufactured from alcohols by catalytic dehydration. The alcohol in excess and concentrated tetraoxosulphuric acid is heated at a carefully maintained temperature of  $140^{\circ}\text{C}$ . 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 alkenes occurs.

Example

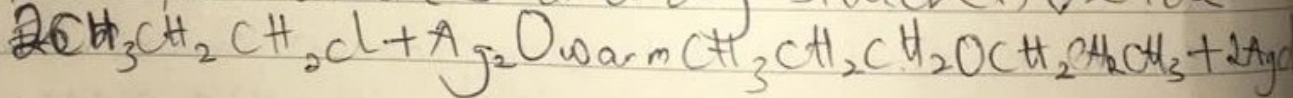


- controlled catalytic hydration of Olefins



2-Isopropoxypropane

From Haloalkanes and dry silver(I) oxide



4) state 3 uses of ethylene oxide

i) Ethylene oxide is used as an intermediate in the hydrolytic manufacture of ethylene glycol

ii) Ethylene oxide is used in the preparation of non-ionic emulsifying agents, plastics, plasticizers and several synthetic textiles

iii) Ethylene oxide is used as a gaseous sterilizing agent.