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1.

NAME	IUPAC NAME
CH_3OCH_3	Methoxymethane
$CH_3CH_2OCH_2CH_3$	Ethoxyethane
$(CH_3CH_2CH_2CH_2)_2O$	Butoxybutane
$CH_3CH_2OCH_3$	Methoxyethane
$CH_3CH_2CH_2OCH_2CH_3$	Ethoxypropane

2.

Properties Of Ethers

Ethers are colourless, neutral liquids with pleasant odours. They are less soluble in water than their corresponding alcohols. They are also less dense than water.

Ethers with lower molecular masses have a lower boiling point than the corresponding alcohols however, those which contain alkyl radicals larger than four carbon atoms, have a higher boiling point.

At room temperature, ethers are inert / unreactive.

3.

TWO METHODS OF PREPARING ETHERS.

Ethers are prepared by:

(1) Controlled catalytic hydration of Olefins.

$$2CH_3CH=CH_2 + H_2O \quad (CH_3)_2CH-O-CH(CH_3)_2$$

2 - isopropoxypropane.

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(11)

Partial dehydration of alcohols.

Catalytic dehydration of alcohols produces simple ethers. Concentrated H_2SO_4 acid is then heated together with the excess alcohol at a temperature of 140°C in a process known as continuous Esterification. In a case where the excess alcohol is not used, the temperature required will be as high as 170–180°C further dehydration to form alkenes occurs

$$2ROH \xrightarrow[\text{conc. } H_2SO_4]{140^\circ C} R-O-R + H_2O$$

e.g.

$$2CH_3CH_2OH \xrightarrow[\text{conc. } H_2SO_4]{140^\circ C} CH_3CH_2-O-CH_2CH_3 + H_2O$$

4.

USES OF ETHYLENE OXIDE.

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