Preparation of ethers

Controlled catalystic hydration of olefins

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

2-isopropoxypropane

from haloalkane and dry silver(I) oxide

$2RX + Ag_2O \xrightarrow{\text{warm}} R-O-R + 2AgX$

$2CH_3CH_2CH_2Cl + Ag_2O \xrightarrow{\text{warm}} CH_3CH_2CH_2OCH_2CH_2CH_3 + 2AgCl$

Propoxypropane

Uses of ethylene oxide

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

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Chem 102 Assignment

1a) CH_3OCH_3 — methoxymethane
1b) $CH_3CH_2OCH_2CH_3$ — Ethoxyethane
1c) $(CH_3CH_2CH_2CH_2)_2O$ — Butoxymethane
1d) $CH_3CH_2OCH_3$ — methoxyethane
1e) $CH_3CH_2CH_2OCH_2CH_3$ — Ethoxy propane

2) Physical states : At room temperature, ethers are colourless neutral liquids with pleasant odours. the lower aliphatic ethers are highly flammable gases or volatile liquids.
Solubility : Ethers are less soluble in water than in corresponding alcohols. Lower molecular weight ethers such as methoxymethane and methoxyethane are fairly soluble in water since the molecules are able to form hydrogen bond with the water molecules but as the hydrocarbon content of the molecules increases, there is a rapid decline in solubility. they are miscible with most organic solvent
Density : most of the simple ethers ~~[illegible]~~ are less dense than water, although the density increases with increasing relative molecular mass and some of the aromatic ethers are in fact denser with water
Boiling point : Lower molecular mass ethers have a lower boiling point than the corresponding alcohols but those ethers containing alkyl radicals larger than four carbon atoms, the reverse is true
Reactivity : Ethers are inert at moderate temperature. the inertness at moderate temperatures lead to their wide use as reaction media.