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- ① CH_3OCH_3 - Methoxy methane
 $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxy ethane
 $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Butoxy butane
 $\text{CH}_3\text{CH}_2\text{OCH}_2$ - Methoxy ethane
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxy propane

2) PHYSICAL STATES: At room temperatures, 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 alcohol. Lower molecular weight ethers are more soluble in water due to easy formation of hydrogen bond than ethers with higher hydrocarbon content.

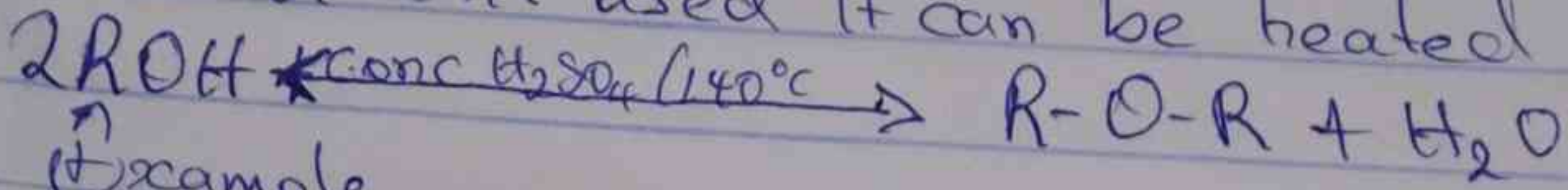
* DENSITY: Most of the simple ethers are less denser than water but ethers with increasing RMM and some aromatic ethers are denser than water.

* BOILING POINT: Low 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. The boiling point of ethers tend to approximate those of hydrocarbons of same molecular mass from which it can be concluded that the molecules are not associated in the liquid phase as there are no suitable available hydrogen

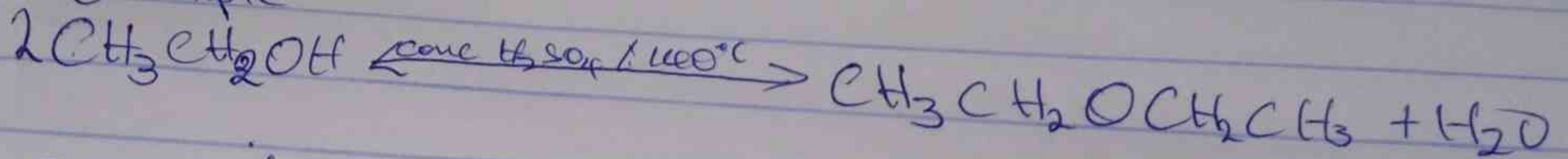
for association through hydrogen bonds
* REACTIVITY: Ethers are inert at moderate temperature. Their inertness at moderate temperatures leads to their wide use as reaction media

3) Partial Dehydration of Alcohols

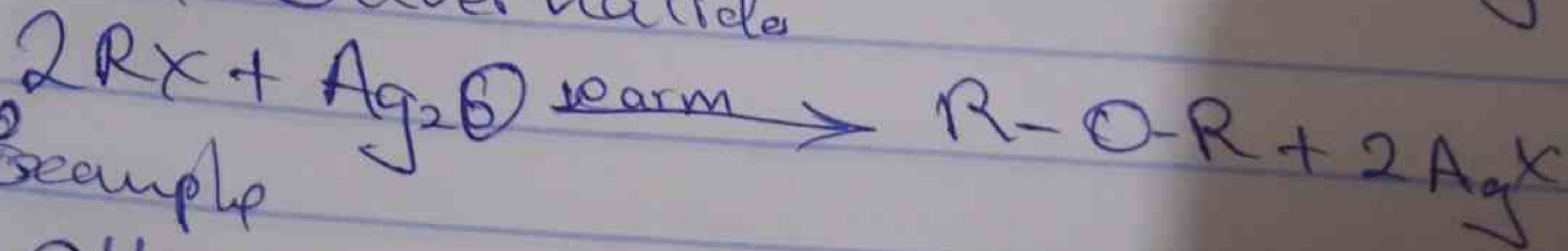
Excess alcohol and conc. tetraoxosulphate(VI) acid is ste heated at a steady temperature of 140°C . If excess alcohol isn't used it can be heated up as high as $170-180^{\circ}\text{C}$



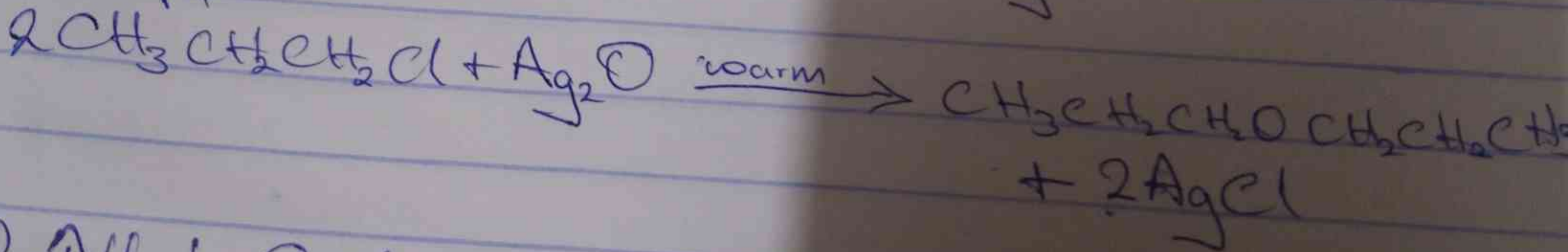
Example



A) From haloalkanes and dry silver oxide
Haloalkanes are warmed with Ag_2O to give ethers and silver halide



Example



4) Ethylene Oxide Can be used to

- * Sterilize Medical equipment
- * Produce industrial chemicals eg ethylene glycol
- * Fumigate certain agricultural products.