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CHM 102

1 Give the IUPAC name of the following compounds

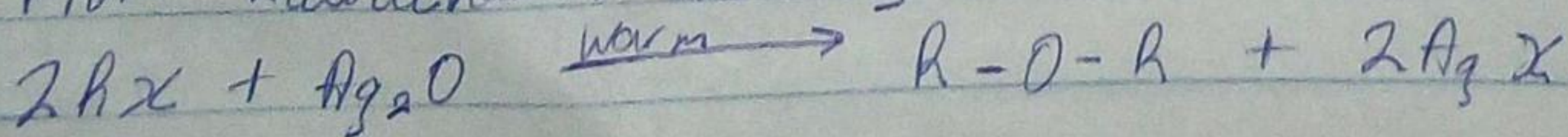
- i CH_3OCH_3 - Methoxy methane
- ii $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxy ethane
- iii $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_2\text{O}$ - Butoxy methane
- iv $\text{CH}_3\text{CH}_2\text{OCH}_3$ - Methoxy ethane
- v $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$ - Ethoxy propane

2 Properties of ethers

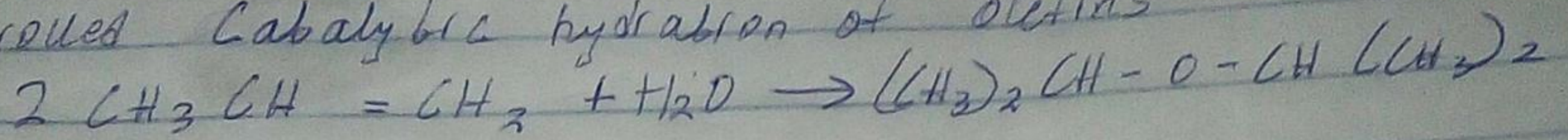
- i Physical state: Ethers are colourless, neutral liquids with pleasant odours. Lower aliphatic ethers are highly flammable gases or volatile liquids
- ii Density: Most simple ethers are less dense than water, density increases with increasing relative molecular mass and some aromatic ethers are denser than water
- iii Boiling Point: Low molecular mass ethers have a lower boiling point than the corresponding alcohol
- iv Reactivity: Ethers are inert at moderate temperatures. Their inertness at moderate temperatures lead to their wide use as reaction media. Some are not found commonly in nature but their ether linkage is present in such natural products as sugar, starches and cellulose

3 Preparation of ethers

i From Haloalkanes and dry silver(I) oxide



ii) Controlled Catalytic hydration of olefins



4 Uses of ethylene oxide

- i) Used as an intermediate in the hydrolytic manufacture of ethylene glycol
- ii) Used as a gaseous sterilizing agent