

POLYHYDROXY COMPOUNDS ^{1.}

Deg-I (Hons.) Lecture-5 12/06/2021

Paper-II Group-B Chapter-3

Topic :- Properties of Ethylene Glycol

Physical Properties

- * Glycol is colourless, viscous liquid.
- * B.P = 197°C , m.p = -11.5°C
- * It has sweet taste.
- * Miscible with water and ethyl alcohol in all proportions but is insoluble in ether.
- * It is as toxic as methyl alcohol when taken orally.

Chemical Properties

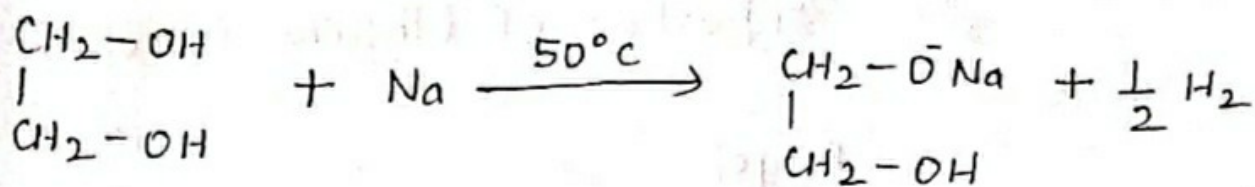
- * Ethylene glycol molecule contains two primary -OH groups.

Its chemical reaction is therefore, those of primary alcohols twice over.

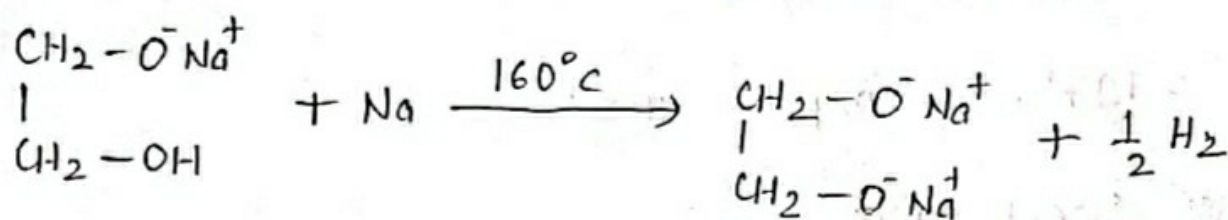
- * Generally one -OH group is attacked completely before the other reacts.

More vigorous conditions are sometimes needed for reaction of the second of the two -OH groups.

Reaction with Na :-



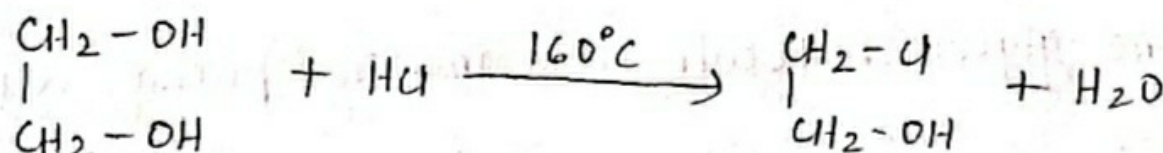
Monoalkoxide



Dialkoxide

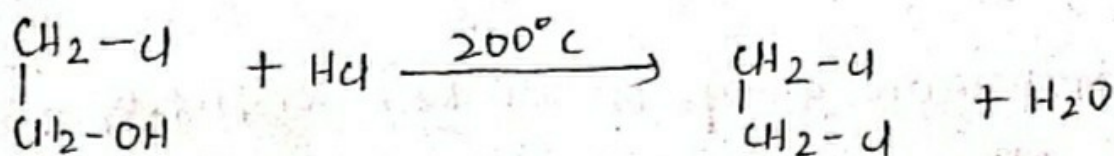
Reaction with HCl :-

Hydrogen chloride reacts with ethylene glycol in two steps.



Ethylene glycol

Ethylene chlorohydrin
(2-chloroethanol)



1,2-dichloroethane

Contd...