

15/11/2019
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Medicine and Surgery
Medicine and Health Science
General Chemistry II (CHM109)
Assignment II

1) Discuss the two major classification of Alcohols. Give two example each for each class.

Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group is the numbers of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are two. It is called a primary alcohol (1°). If it is one hydrogen atom it is called secondary alcohol (2°) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group it is called tertiary alcohol (3°).
Examples are: Methanol, propan-2-ol.

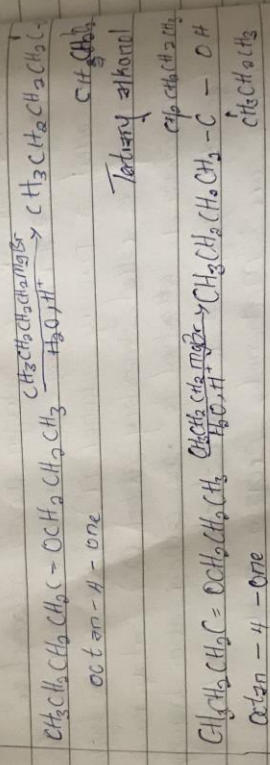
2) Classification based on the number of hydroxyl groups they possess. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohol have two hydroxyl groups present in the alcohol structure. While trihydric alcohols have

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3) In the Grignard synthesis of alcohols react a name Grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCl} = \text{Oct-2-CH}_2\text{CH}_3$

Show the reaction steps
Grignard reagent (e.g. $\text{CH}_3\text{CH}_2\text{CH}_2\text{MgBr}$) reacts with dihaloacetic acid to give a tertiary alcohol as shown below.



3) Discuss the industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature of reaction.
There are basically two methods of preparing ethanol

Alkanols are reduced to primary alkanols and alkanones
 do secondary alkanols by strong reducing agents such
 as lithium tetrahydridoaluminate (iii),
 LiAlH_4 and sodium tetrahydroborate (iii), NaBH_4 .

