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DEPARTMENT: PHARMACY

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1. THE TWO MAJOR CLASSIFICATIONS OF ALKANOLS/ALCOHOLS.
* The first class is based on the number of hydrogen atoms attached to the chain of carbon atoms containing the hydroxyl group.

\*Primary alcohol (1\*) the hydrogen atoms attached to the carbon chain bearing the hydroxyl group are in groups of three or two. EG: methanol

\* Secondary alcohols (2\*) the number of hydrogen atoms attached to the carbon chain bearing the hydroxyl group is just one. EG: propan-2-ol.

\* Tertiary alcohol (3\*) there is no hydrogen atom attached to the carbon chain bearing the hydroxyl group. EG: 2-methylpropan-2-ol.

* The second class is based on the number of hydroxyl groups they possess in the carbon chain.

\*Monohydric alcohols have only on hydroxyl group present in the carbon chain. EG: propanol.

\*Dihydric alcohols have two hydroxyl groups present in the carbon chain.EG: hexane-2, 4-diol.

\*Trihydric alcohols have three hydroxyl groups present in the carbon chain.EG: propane-1, 2, 3-triol.

\*Polyhyrdic alcohols have more than three hydroxyl groups present in the carbon chain.EG: heptane-2, 3, 4, 5, 6-pentanol.

2. CH3(CH2)3-C=O(CH2)2CH3+CH2H5MgBr > C4H9-C3H5-C-C3H2-OmgBr ->(H20/DILUTE ACID) C4H9-C-C3H7-C2H5-OH+ Mg(OH)Br.

1. $Type equation here.$
2. THE INDUSTRIAL MANUFACTURE OF ETHANOL

Starch can be made to yield ethanol by the process of fermentation.

Enzymes found in yeast breaks down the carbohydrate molecules into ethanol to give a yield of 95%.

1. When warming malt with materials containing starch to 60\*c for a specific period of time is then converted into maltose. 2(C6H10O5) +H2O-> C12H22O11 (60⁰C/DIASTASE).
2. The maltose broken down into glucose in addition of yeast which contains maltase and at a temperature of 15\*c. C12H22011+H20->2C6H12O6 (15⁰C/MALTASE).
3. The glucose at a constant temperature of 15\*c is then converted to alcohol by the enzyme zymase which is also in yeast. C6H12O6->2CH3CH2OH+2CO2 (15⁰C/ZYMASE).
4. REDUCTION OF ALKANONES AND ALKANALS

-ALKANONES

EG: The reduction of alkanones gives a secondary alcohol.

2-Butanol+LiAlH4->CH3CHOHCH3

-ALKANALS

The reduction of alkanals gives a primary alcohol

EG: Ethanal+LiAlH4->CH3CH2OH.