OMONKHUA WINNER ONOMENASIKE

*19/ MHS11/111*

*CHM 102 Assignment*

1. *Classification ofAlcohols*
   1. *Classification based on the number of hydrogenatoms attachedtothecarbonatomcontainingtheOHgroup*
      1. *If2or3hydrogenatomsareattachedtothe*

*carbonatombearingtheOHgroup,itiscalled a* primary alcohol(1°).

* + 1. *Ifonehydrogenatomisattached,itiscalleda secondary alcohol(2°).*
    2. *Ifnohydrogenatomisattachedtothecarbon atom, it is a tertiary alcohol(3°).*

*Examples.*

*Methanol CH3OH(1°)*

*Propan2ol CH3CH(OH)CH3 (2°)*

* 1. *Classificationbasedonthenumberofhydroxylgroupsthey possess.MonohydricalcoholhaveoneOHgrouppresentin thealcoholstructure.Dihydricalcoholsarecalledglycols, theyhave2hydroxylgrouppresentinthestructurewhile trihydricalcoholsortriolshave3OHgroupspresentinthe structureofthealcohol.Polydricalcoholsorpolyolshave more than 3 OHgroups.*

*Examples*

*Monohydric alcohol–Propanol CH3CH2CH2OH* Dihydricalcohol–Ethane1,2diol HOCH2-CH2OH

1. *GrignardsynthesisofAlkanols Grignardreagent–C2H5MgBr*

*CH3CH2CH2CH2-C=OCH2CH2CH3 + C2H5MgBr*

*C4H9C3H7C2H5–C–OMgBr———> C4H9C3H7C2H5 –* C – OH +Mg(OH)Br

1. *Industrial manufacturer ofEthanol*

*Carbohydrate such as starch are maj or group of natural* compoundsthatcanbemadetoyieldethanolbythebiological processoffermentation.Thebiologicalcatalysts,enzymesfound inyeastbreakdownthecarbohydratemoleculesintoethanolto giveayieldof95%.Onwarmingstarchwithmaltto60°fora specificperio6oftimeareconvertedintomaltosebytheenzyme diastase contained in themalt.

*2(C6H10O5)n+nH2O. ——> n(C12H22O11)*

*Carbohydrate 60°C/diastase. Maltose*

*The maltose is broken down into glucose on addition of yeast*

*whichcontainsthe enzymemaltaseand ata temperatureof 15°.*

*C12H22O11+H2O. ——–> 2C6H12O6*

*Maltose. 15°C/maltase. Glucose*

*The glucose at constant temperature of 15°C is then converted* into alcohol by the enzyme Zymase contained also in yeast

*C6H12O6. ———> 2CH3CH2OH + 2CO2*

*Glucose. 15°C/Zymase Ethanol*

1. *Alkanone.Reductionofalkanonegivessecondaryalkanols CH3C2H5-C=O ——–> CH3C2H5CHOH (2°)alcohol*

*LiAlH4*

*Alkanals.Reductionofalkanalsgivesprimaryalkanols.* CH3CH2CH=O ——–> CH3CH2CH2OH

*LiAl H4/ H2O*