

Advanced Chemistry: Ch 14 Overview and Notes

1. List the functional groups that contain either oxygen or sulfur. Be sure to include the name of the functional group and the name of the family of compounds that contain each functional group
2. List the rules that one should follow when naming alcohols, phenols & thiols
3. The common name for a diol is? Examples
4. Compare/Contrast the properties of the alcohols to that of the parent alkanes
5. What chemical property causes the change in properties between alkanes and their alcohols? Explain
6. In aqueous solutions, do alcohols behave more as an acid or more as a base? Explain
7. Explain how alcohols function as bases in the presence of strong acids
8. Write a mechanism for the dehydration of an alcohol via acid catalysis
9. Explain why there is a specificity about the product formed via acid catalyzed dehydration of an alcohol
10. Describe the reaction between an alcohol and an active metal (Na, Li, K, etc.).
11. Write the mechanism for the reaction between an alcohol and a haloacid.
12. What specificity is seen in the production of the alkyl halide from #11
13. Describe the oxidation of 1°, 2°, & 3° alcohols with chromic acid
14. Describe how a thiol is produced using hydrogen sulfide and NaOH_(aq)
15. Compare the acidity of thiols versus an alcohol
16. Describe how two thiols are oxidized forming a disulfide
17. Draw the general structure for an ether and give the rules for naming them
18. How do the properties of ethers compare to the properties of alcohols
19. Describe how an ether can be synthesized from each of the following pathways
 - a. Williamson Ether synthesis
 - b. Acid-Catalyzed Dehydration of an Alcohol
 - c. Acid-Catalyzed Addition of Alcohols to Alkenes
20. Describe the general mechanisms and predict products for ethers (sulfides) that undergo
 - a. Acid-Catalyzed Cleavage by Concentrated HX
 - b. Oxidation of Ethers
 - c. Oxidation of Sulfides
21. Describe what an epoxide is