

CHAPTER OVERVIEW

14: REACTIONS OF ALCOHOLS

Learning Objectives

After reading this chapter and completing ALL the exercises, a student can be able to

- predict the products, specify the reagents, and determine the mechanism of the reactions of alcohols with
 - a. hydrohalic acids (refer to section 14.1)
 - b. phosphorous halides (refer to section 14.2)
 - c. thionyl chloride (refer to section 14.2)
 - d. carboxylic acids, acid chlorides, and tosyl chloride (refer to section 14.3)
 - e. dehydrating reagents – H_2SO_4 /heat or POCl_3 /pyridine (refer to section 14.4)
 - f. oxidizing agents (refer to section 14.6)
 - g. sodium and potassium (refer to section 14.11)
- apply the most efficient and effective oxidizing agents (refer to section 14.6)
- determine the alcohol classification using laboratory experiments (refer to section 14.7)
- predict the products and specify the reagents of alcohol protecting group reactions (refer to section 14.9)
- predict the products and specify the reagents for diol cleavage reactions (refer to section 14.10)
- predict the products, specify the reagents for alkoxide ion reactions (refer to section 14.11)
- describe selected alcohol oxidation reactions in biology (refer to section 14.12)
- determine multiple-step synthetic pathways using alcohols (chapters 1-10 and 13-14)

[14.1: Reactions of Alcohols with Hydrohalic Acids](#)

[14.2: Reactions with Phosphorus Halides and Thionyl Chloride](#)

[14.3: Alcohol conversion to Esters - Tosylate and Carboxylate](#)

[14.4: Dehydration Reactions of Alcohols](#)

[14.5: Oxidation States of Alcohols and Related Functional Groups](#)

[14.6: Oxidation Reactions of Alcohols](#)

[14.7: Determining Alcohol Classifications in the Lab - alternate reactions](#)

[14.8: Protection of Alcohols](#)

[14.9: Cleavage of Diols](#)

[14.10: Reactions of Alkoxides](#)

[14.11: Biological Oxidation - An Introduction](#)

[14.12: Additional Exercises](#)

[14.13: Solutions to Additional Exercises](#)

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