CHAPTER OVERVIEW

20: AMINES

LEARNING OBJECTIVES

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

- describe the structure and physical properties of amines and ammonium salts (section 20.1)
- explain and predict the relative basicity of amines using resonance, hybridization, substituent effects, and aromaticity (section 20.2)
- determine the structure of amines from their elemental analysis and spectral data (MS, IR ^{1}H NMR & ^{13}C NMR) (section 20.3)
- predict the products and specify the reagents to synthesize amines (section 20.4)
- predict the products and specify the reagents to synthesize primary amines (section 20.5)
- predict the products and specify the reagents for reactions of amines with
  - aldehydes & ketones (section 20.6)
  - alkyl halides and tosylates (section 20.6)
  - acyl chlorides (section 20.6)
  - sulfonyl chlorides (section 20.6)
  - nitrous acid (section 20.7)
  - oxidizing agents via Cope Elimination (section 20.9)
- explain the activating effects of aryl amines during electrophilic aromatic substitution reactions (section 20.7)
- use amides as protecting groups in multiple step synthesis (section 20.7)
- use diazonium salts to design multiple step syntheses using the Sandmeyer reactions (section 20.7)
- specify the reagents and predict the products for Hofmann Elimination reactions (section 20.8)
- Specify reagents for chemical transformations using all of the reactions studied to date
- combine the reactions studied to date to develop efficient and effective multiple-step synthesis including the use of amides as protecting groups

Please note: IUPAC nomenclature and important common names of amines were explained in Chapter 3.

Topic hierarchy

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