CHAPTER OVERVIEW

18: REACTIONS OF AROMATIC COMPOUNDS

LEARNING OBJECTIVES

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

- propose mechanisms for Electrophilic Aromatic Substitution Reactions (EAS): halogenation, nitration, sulfonation, and Friedel-Crafts Alkylation & Acylation (sections 18.1 to 18.5)
- predict products and specify reagents for Electrophilic Aromatic Substitution Reactions (EAS): halogenation, nitration, sulfonation, and Friedel-Crafts Alkylation & Acylation (sections 18.1 to 18.5)
- draw resonance structures of the sigma complexes resulting from EAS rxns of substituted aromatic rings (sections 18.1 to 18.5)
- draw reaction energy diagrams for EAS reactions (sections 18.1 to 18.5)
- explain why substituents are activating or deactivating and o,p-directors or m-directors (section 18.6)
- list the major substituents in their EAS activation “pecking order” (section 18.6)
- predict the products of side chain reactions: oxidation of catechols and alkyl substituents, bromination of benzylic carbons, S_N1 and S_N2 rxns at the benzylic carbon, reduction of carbonyls, and reduction of nitro groups (sections 18.7 and 18.12)
- design multiple step syntheses that use substituent effects to create the desired isomers of multi-substituted aromatic compounds (sections 18.8 and 18.9)
- predict the products of Nucleophilic Aromatic Substitution Reactions (NAS): addition-elimination and elimination-addition (benzyne) (sections 18.10 and 18.11)
- propose mechanisms for Nucleophilic Aromatic Substitution Reactions (NAS): addition-elimination and elimination-addition (benzyne) (sections 18.10 and 18.11)

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