

Chap 8

8.1 Preparing Alkenes: A Preview of Elimination Reactions

Problems: 8-1, 8-2 We will look at this in Chap 11

8.2 Halogenation of Alkenes: Addition of X_2 245

Problems: 8-3, 8-4, 8-26, 8-32, 8-40b, 8-41c, 8-46a

Predict the outcome of halogenation reactions

Describe how the intermediate control the stereochemical outcome of the reaction

Explain why carbocation rearrangements do not occur in halogen initiated electrophilic addition reactions

8.3 Halohydrins from Alkenes: Addition of HO-X

Problems: 8-5, 8-6, 8-33 (challenging), 8-34, 8-38, 8-40d

Predict the outcome of hydrohalogenation reactions

Explain why the added nucleophile can outcompete the halide ions produced during the reaction's first step

Describe how the intermediate control the stereochemical outcome of the reaction

8.4 Hydration of Alkenes: Addition of H_2O by Oxymercuration

Predict the outcome of oxymercuration demercuration reactions

Describe the negative aspects of the reaction with respect to ecological concerns

Explain why carbocation rearrangements do not occur in Hg^{2+} initiated electrophilic addition reactions

Problems: 8-36, 8-37 (challenging), 8-41e, 8-42d

8.5 Hydration of Alkenes: Addition of H_2O by Hydroboration

Worked examples 8.1 and 8.2

Problems: 8-9 through 8-11, 8-23, 8-24, 8-27, 8-39, 8-42c, 8-44, 8-46d

Predict the outcome of hydroboration-oxidation reactions

Explain the "anti-Markovnikov" regiochemistry of the reaction

Explain why the hydroboration reaction occurs as a syn addition

Time permitting

8.6 Reduction of Alkenes: Hydrogenation

Explain why the reactions occur via syn addition

Problems: 8-12, 8-30a, 8-40a, 8-41abe

Skipping

8.7 Oxidation of Alkenes: Epoxidation and Hydroxylation

Problems: 8-13, 8-14, 8-25, 8-28, 8-29, 8-30b, 8-40c, 8-46c

8.8 Oxidation of Alkenes: Cleavage to Carbonyl Compounds

Problems: 8-15, 8-16, 8-22, 8-30c, 8-42a,b

8.9 Addition of Carbenes to Alkenes: Cyclopropane Synthesis

Problems: 8-17, 8-35, 8-45, 8-46e

8.10 Radical Additions to Alkenes: Chain-Growth Polymers

Problems: 8-18, 8-19

8.11 Biological Additions of Radicals to Alkenes

Not skipping

8.12 Reaction Stereochemistry: Addition of H_2O to an Achiral Alkene

8.13 Reaction Stereochemistry: Addition of H_2O to a Chiral Alkene

Problems: 8-20, 8-21, 8-31

Chemistry Matters—Terpenes: Naturally Occurring Alkenes

Additional Problems: 8-41d (last chapter), 8-43, 8-46b