

S3 Chemistry

Unit 2.1c Alkenes

14a 15a	Alkenes undergo addition reactions with hydrogen forming alkanes, known as hydrogenation. $ \begin{array}{c} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}=\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & & & \text{H} \end{array} + \text{H}-\text{H} \rightarrow \begin{array}{c} \text{H} & \text{H} & \text{H} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} $ $\text{C}_4\text{H}_8 + \text{H}_2 \rightarrow \text{C}_4\text{H}_{10}$		☹	☺	☺
14b 15b	Alkenes undergo addition reactions with halogens forming dihaloalkanes $ \begin{array}{c} \text{H} & \text{H} \\ & \\ \text{H}-\text{C}-\text{C}-\text{C}=\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} + \text{Br}-\text{Br} \rightarrow \begin{array}{c} \text{H} & \text{H} & \text{Br} & \text{Br} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} $ $\text{C}_4\text{H}_8 + \text{Br}_2 \rightarrow \text{C}_4\text{H}_8\text{Br}_2$		☹	☺	☺
14c 15c	Alkenes undergo addition reactions with water forming alcohols, known as hydration. $ \begin{array}{c} \text{H} & \text{H} \\ & \\ \text{H}-\text{C}-\text{C}-\text{C}=\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} + \text{H}-\text{O}-\text{H} \rightarrow \begin{array}{c} \text{H} & \text{H} & \text{H} & \text{OH} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} $ or $ \begin{array}{c} \text{H} & \text{H} & \text{OH} & \text{H} \\ & & & \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ & & & \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} $ $\text{C}_4\text{H}_8 + \text{H}_2\text{O} \rightarrow \text{C}_4\text{H}_9\text{OH}$		☹	☺	☺