



# COMPETING REACTIONS WITH OH<sup>-</sup>

ALCOHOL	
Structure of alcohol	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_3 \\   \\ \text{OH} \end{array}$
Name of alcohol	<b>2-methylbutan-2-ol</b>
Balanced equation	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_3 \\   \\ \text{Br} \end{array} + \text{NaOH} \longrightarrow \begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_3 \\   \\ \text{OH} \end{array} + \text{NaBr}$
Name of mechanism	<b>nucleophilic substitution</b>
Outline of mechanism	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_3 \\   \\ \text{Br} \end{array} + \text{:OH}^\ominus$
Role of OH <sup>-</sup> ion	<b>nucleophile</b>
Reagent and conditions to favour this reaction	<b>warm, aqueous NaOH</b>

ALKENE 1	
Structure of alkene	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}=\text{CH}_2 \end{array}$
Name of alkene	<b>2-methylbut-1-ene</b>
Balanced equation	$\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_3 \\   \\ \text{Br} \end{array} + \text{KOH} \longrightarrow \begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3-\text{CH}_2-\text{C}=\text{CH}_2 \end{array} + \text{KBr} + \text{H}_2\text{O}$
Name of mechanism	<b>elimination</b>
Outline of mechanism	$\begin{array}{c} \text{CH}_3 \quad \text{H} \\   \quad   \\ \text{CH}_3-\text{CH}_2-\text{C}-\text{CH}_2 \\   \\ \text{Br} \end{array} + \text{:OH}^\ominus$
Role of OH <sup>-</sup> ion	<b>base</b>
Reagent and conditions to favour this reaction	<b>hot, ethanolic KOH</b>

## ALKENE 2

Structure of alkene	$\text{CH}_3-\text{CH}=\overset{\text{CH}_3}{\text{C}}-\text{CH}_3$
Name of alkene	<b>2-methylbut-2-ene</b>
Balanced equation	$\text{CH}_3-\text{CH}_2-\overset{\text{CH}_3}{\underset{\text{Br}}{\text{C}}}-\text{CH}_3 + \text{KOH} \longrightarrow \text{CH}_3-\text{CH}=\overset{\text{CH}_3}{\text{C}}-\text{CH}_3 + \text{KBr} + \text{H}_2\text{O}$
Name of mechanism	<b>elimination</b>
Outline of mechanism	
Role of OH <sup>-</sup> ion	<b>base</b>
Reagent and conditions to favour this reaction	<b>hot, ethanolic KOH</b>