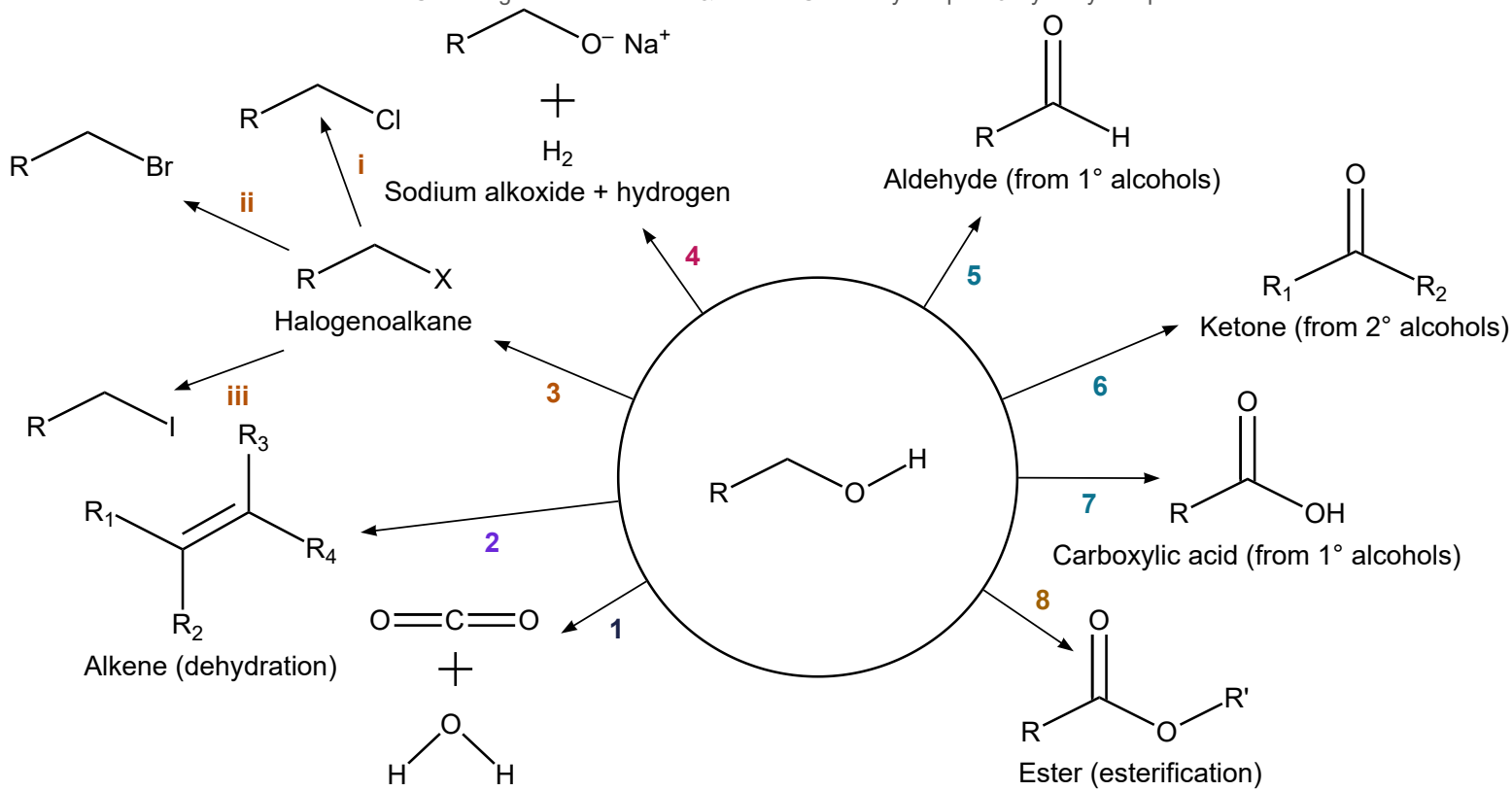
Alcohols Map

Cambridge International AS & A Level Chemistry · Topic 16 Hydroxy compounds



1 combustion: $O_2(g)$, burn

2 elimination (dehydration): heated Al_2O_3, or conc. H_2SO_4, heat

3 substitution:
- **i** PCl_5; PCl_3 and heat; $SOCl_2$; KCl with conc. H_2SO_4 or conc. H_3PO_4; or HCl(g), room temperature unless stated
- **ii** HBr(g)
- **iii** HI(g)

4 redox: Na(s), room temperature; effervescence

5 oxidation: [O]; acidified $K_2Cr_2O_7$ or acidified $KMnO_4$, distil off as it forms; orange → green

6 oxidation: [O]; acidified $K_2Cr_2O_7$ or acidified $KMnO_4$, heat (distil); orange → green

7 oxidation: [O]; acidified $K_2Cr_2O_7$ or acidified $KMnO_4$, heat under reflux; orange → green

8 condensation (esterification): carboxylic acid (or acyl chloride, A Level)
- **i** carboxylic acid, conc. H_2SO_4 catalyst, heat
- **ii** acyl chloride, room temperature

Tertiary alcohols cannot be oxidised: the dichromate stays orange.

Test for $CH_3CH(OH)$–: alkaline $I_2(aq)$ gives a yellow precipitate of CHI_3.

Acidity: water > ethanol (alkoxide ion destabilised by the alkyl group).

combustion · elimination · substitution · redox · oxidation · condensation

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