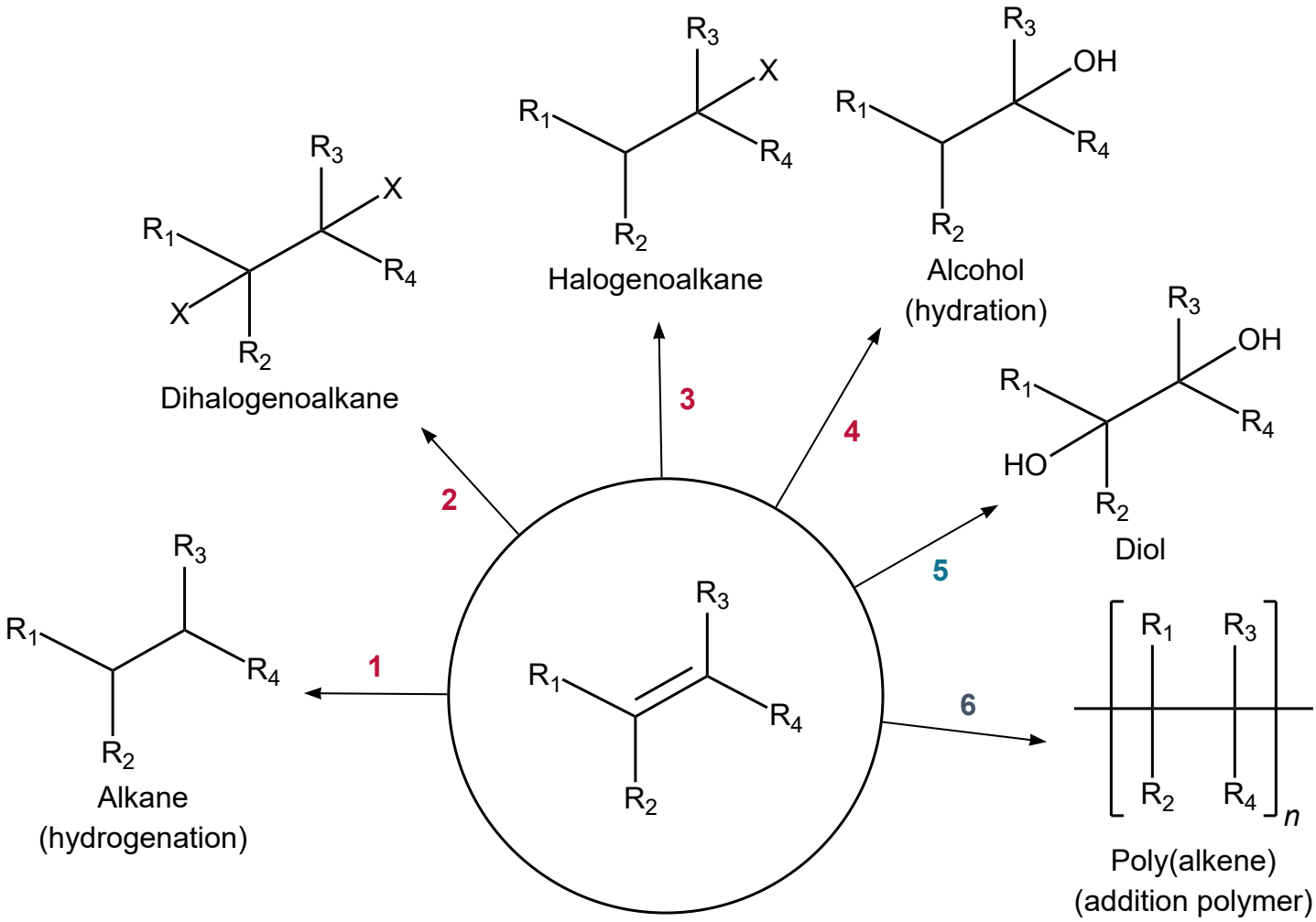
Alkenes Map

Edexcel International A Level Chemistry · Unit 1 · Topic 5



1 addition: $H_2(g)$, nickel catalyst, about 150 °C

2 addition: Br_2 or Cl_2, room temperature; bromine water turns orange → colourless

3 addition: HBr, HCl or HI, room temperature; major product from the more stable carbocation

4 addition: steam, $H_2O(g)$, H_3PO_4 catalyst, about 300 °C, 60 atm

5 oxidation: [O]; $KMnO_4$ and dil. H_2SO_4, room temperature; purple → colourless

6 polymerisation: many alkene molecules, high pressure and heat with an initiator, or a catalyst

Test for C=C: bromine water turns from orange to colourless.
With unsymmetrical alkenes, HX gives the major product through the more stable carbocation (tertiary > secondary > primary).

addition oxidation polymerisation

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