Reaction

REACTANTS: Alcohol

CONDITIONS: Heat, Acid Catalyst (concentrated H₂SO₄ or concentrated H₃PO₄)

PRODUCT: Alkene

REACTION TYPE: Elimination Reaction, dehydration

REACTION: (example of ethanol) H - C - C - H H - C - C - H H - C - C - H H - C - C - HAlkene

Mechanism (simplified)

-OH group on alcohol accepts a H⁺ ion from acid*, becoming **-OH**₂⁺ (alcohol is 'protonated'). The carbon-oxygen bond breaks, forming a water molecule and a positively charged carbon atom (carbocation). A neighbouring carbon-hydrogen breaks, giving an electron pair to the carboncation, forming a carbon-carbon double bond. H⁺ is released. H₂O is 'removed' from the alcohol - dehydration. *Elimination reaction*.

Notes:

- The mechanism shown is a simplification as it is highly unlikely a primary carbocation would form (due to its instability as an intermediate).
- *It must be noted the H⁺ ion comes from the concentrated acid (not shown in the mechanism), either H₂SO₄ or H₃PO₄.
- The removal of a water molecule makes this a dehydration reaction.

