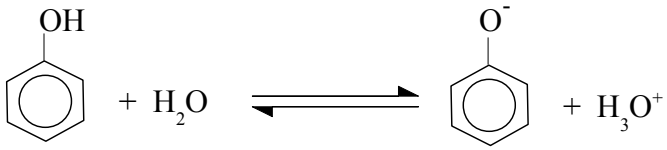
# PHENOL: ACIDITY

1. Phenol, $C_6H_5OH$, and ethanol, $C_2H_5OH$, both contain an OH group attached to a carbon atom. Phenol is weakly acidic, whereas ethanol is so weakly acidic that we virtually ignore it as an acid.

   In the case of phenol, the acidity is shown by this reaction with water, where the position of equilibrium lies well to the left.

   In the case of ethanol, the position of equilibrium lies so far to the left as to give virtually no reaction.

   Explain why phenol is a very weak acid, but nevertheless stronger than ethanol.

2. a) How could solutions of sodium hydroxide and sodium carbonate help you to decide whether a solid substance might be phenol?

   b) If you tested a solution of phenol in water with some litmus paper, why may you not get a convincingly acidic result?

   c) Molten phenol reacts with sodium. Write an equation to show the reaction. (You can write the formula for phenol showing the ring or just as $C_6H_5OH$ as you wish.)