

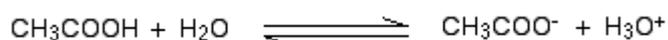
Chemguide – questions

INTRODUCING CHEMICAL EQUILIBRIA

1. A and B react reversibly to give C and D, and in a closed system a state of dynamic equilibrium is eventually reached.



- a) What is a “closed system”?
- b) What do you understand by the term “a state of dynamic equilibrium”?
- c) What can you say about the rates of the forward and back reactions when a state of dynamic equilibrium is reached? Explain how, if you start with only A and B, the system will automatically get to this point.
2. When ethanoic acid is mixed with water, the following dynamic equilibrium is set up:



The H_3O^+ ion is the hydroxonium ion, and can be thought of as a hydrogen ion attached to a water molecule. CH_3COO^- ions are ethanoate ions.

- a) The position of equilibrium lies well to the left-hand side. Explain what that means in terms of the proportions of ethanoic acid and ethanoate ions present in the equilibrium mixture.
- b) *This question isn't covered in the page you have just read. You will have to work out the answer for yourself.*

Suppose you had a solution of ethanoic acid in water, and you added some sodium hydroxide solution to it. Hydroxide ions react with hydroxonium ions to make water. What would happen to the position of equilibrium if you did this? Explain your answer.