Equilibrium and Acid Reactions

CH12-12

4 inquiry questions · 17 dot points

1 What happens when chemical reactions do not go through to completion?

- conduct practical investigations to analyse the reversibility of chemical reactions, for example:...
- model static and dynamic equilibrium and analyse the differences between open and closed systems
- analyse examples of non-equilibrium systems in terms of the effect of entropy and enthalpy, for example:...
- investigate the relationship between collision theory and reaction rate in order to analyse chemical equilibrium reactions

2 What factors affect equilibrium and how?

- investigate the effects of temperature, concentration, volume and/or pressure on a system at equilibrium and explain how Le Chatelier's principle can be used to predict such effects, for example:...
- explain the overall observations about equilibrium in terms of the collision theory
- examine how activation energy and heat of reaction affect the position of equilibrium

3 How can the position of equilibrium be described and what does the equilibrium constant represent?

- deduce the equilibrium expression (in terms of Keq) for homogeneous reactions occurring in solution
- perform calculations to find the value of Keq and concentrations of substances within an equilibrium system, and use these values to make predictions on the direction in which a reaction may proceed
- qualitatively analyse the effect of temperature on the value of Keq
- conduct an investigation to determine Keq of a chemical equilibrium system, for example:...
- explore the use of Keq for different types of chemical reactions, including but not limited to:...

4 How does solubility relate to chemical equilibrium?

- describe and analyse the processes involved in the dissolution of ionic compounds in water
- investigate the use of solubility equilibria by Aboriginal and Torres Strait Islander Peoples when removing toxicity from foods, for example:...
- conduct an investigation to determine solubility rules, and predict and analyse the composition of substances when two ionic solutions are mixed, for example:...
- derive equilibrium expressions for saturated solutions in terms of Ksp and calculate the solubility of an ionic substance from its Ksp value
- predict the formation of a precipitate given the standard reference values for Ksp