Marks

- Write a balanced chemical equation representing the dissolution of $FeCO_3$ in water at pH 7. **4**

Ignoring any hydrolysis of the ions, calculate the solubility (in g L^{-1}) of $FeCO_3$ in water at pH 7. The solubility product constant, K_{sp}, for $FeCO_3$ is 2.1×10^{-11}.

Answer:

- The concentration of iron in the ocean is one of the primary factors limiting the growth rates of some basic life forms. The pH of the oceans before the Industrial Revolution was around 8.22. What was the maximum concentration of $Fe^{3+}(aq)$ in the ocean at this pH? The K_{sp} of $Fe(OH)_3$ is 1×10^{-39}. **4**

Answer:

Industrialisation has led to an increase in atmospheric CO_2. What effect has this had on the amount of $Fe^{3+}(aq)$ in sea water?