

Marks
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- Often pH is used to characterise acidic solutions. Give a brief definition of pH.

pH is a measure of the $H^+(aq)$ ion concentration in a solution and is defined using the equation:

$$pH = -\log_{10}[H^+(aq)]$$

Describe the difference between a strong acid and a weak acid.

A strong acid dissociates completely in water. For example:



A weak acid dissociated only slightly in water. For example:



The pH of a solution of a strong acid depends on its concentration and a strong acid can give a high pH (corresponding to low $[H^+(aq)]$) if the acid is present in a low concentration.

In general, can pH be used to define the strength of an acid? Explain your answer.

No.

The pH of a solution of a strong acid depends on its concentration. Thus, the pH of a 0.1 M solution of HCl is 1.0 and the pH of a solution of 10^{-6} M HCl is 6.0.

A low pH can arise from a solution of a strong acid or a more concentrated solution of a weak acid.

A high pH can arise from a weak solution of a strong acid or from a stronger solution of a weak acid.

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