

## 19.8 Introduction to the pH Curve for a Weak Acid/Strong Base Titration (Video)

This project was preformed to supply **Libretext authors** with videos on General Chemistry topics which can be used to enhance their projects. Also, these videos are meant to act as a learning resource for **all General Chemistry students**.

### Video Topics

We can say for every one mole of  $\text{OH}^-$  that is added, one mole of weak acid is used and one mole of conjugate base is made.



There are four points on this curve that are especially important

#### 1) The pH before titration begins:

0 mol  $\text{OH}^-$  has been added. The pH is determined by the  $K_a$  equilibrium of the weak acid.

#### 2) The pH at the midpoint of the titration:

Mol  $\text{OH}^-$  added =  $\frac{1}{2}$  mol weak acid initial

Or mol weak acid = mol conjugate base

pH =  $\text{p}K_a$  of the weak acid.

#### 3) The pH at the equivalence point:

Mol  $\text{OH}^-$  added = mol weak acid initial

The weak acid has been completely converted to its conjugate base.

The pH is determined by the  $K_b$  reaction of the conjugate base.

#### 4) Beyond the equivalence point:

Mol  $\text{OH}^-$  added > mol weak acid initial

Because the amount of  $\text{OH}^-$  produced by the  $K_b$  reaction is small we can say:

$\{\text{OH}^-\} = \text{mol of unreacted } \text{OH}^- / V_{\text{total}}$

### Link to Video

Introduction to the pH Curve for a Weak Acid/Strong Base Titration: <https://youtu.be/Vs5O-HNYo8g>



### Attribution

- Prof. Steven Farmer ([Sonoma State University](#))

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