Buffers

Notes



0.450 moles of acetic acid and 0.400 moles of sodium acetate were dissolved in water to make one liter of solution. The pKa for acetic acid is 4.76. What is the pH of the solution?

Henderson-Haselbalch Equation

 pH =

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Formula** | **Ka** | **pKa** |
| Acetic Acid | CH3COOH | 1.76 x 10-5 | 4.75 |
| Benzoic Acid | C6H5COOH | 6.25 x 10-5 | 4.2 |
| Formic Acid | HCOOH | 1.77 x 10-4 | 3.75 |
| Hydrocyanic Acid | HCN | 6.2 x 10-10 | 9.21 |
| Hypochlorous | HClO | 2.9 x 10-8 | 7.54 |
| Propanoic Acid | CH3CH2COOH | 1.4 x 10-5 | 4.85 |

What weak acid and conjugate base would you use to make a buffer with a pH of 3.6?

How many moles of formic acid and how many moles of sodium formate are needed to make a liter of 0.500 M formate buffer with a pH of 3.60?

When strong base is added to a buffer it is neutralized by the weak acid.

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0.0150 moles of NaOH was added to 500 ml of an acetate buffer that was 0.200 M acetic acid and 0.195 M sodium acetate.

The pKa for acetic acid is 4.76.

What was the pH of the original buffer solution?

What was the pH after the NaOH was added?

How many moles of HCl need to be added to 500. ml of a 0.250 M potassium acetate solution to make a buffer with a pH of 4.65? The pKa for acetic acid is 4.76.





What is the pH of a solution made from 0.400 moles of sodium bicarbonate (NaHCO3) and 0.385 moles of sodium carbonate (Na2CO3) in 500. ml of solution?