

The Addition of Strong Acids or Bases to Buffers

Example One

A 2.00 L buffer solution contains 1.000 mol formic acid HCOOH and 0.500 mol sodium formate NaHCOO . The 50.0 mL of 2.00 M HCl is added to the solution. What is the pH of the new mixture?

The K_a for formic acid is 1.77×10^{-4}

Example Two

If 0.010 mol of NaOH is added to 0.500 L of a buffer that is 0.30 M NH_3 and 0.20 M NH_4Cl , what is the pH of the new mixture?

The K_b for NH_3 is 1.8×10^{-5}

Example Three

If 0.020 mol of HCl is added to 0.250 L of a buffer that is 0.200 M NH_3 and 0.200 M NH_4Cl , what is the pH of the new mixture?

The K_b for NH_3 is 1.8×10^{-5}