

pH and Buffers Practice

Find the pH of a 0.25 L solution containing 40 g of acetic acid and 60 g of sodium acetate

What is the pH of a solution containing 75 mM of HPO_4^{2-} and 80 mM H_2PO_4^- ? The total volume of the buffer is 500 ml.

How many grams of sodium succinate and disodium succinate must be added to 0.5 l of water to produce a solution with a pH of 6.0 and a final buffer concentration of 50 mM.

Relate the pH of a solution with the ability for a compound to be a reasonable buffer. Is this different than buffer capacity? What is "buffer capacity"?

Oleic acid, a lipid, will form a micelle in aqueous solutions with a pH greater than 7 but are insoluble in solutions of pH less than 4. The pKa for the fatty acid is about 5. Explain why.

An enzyme-catalyzed reaction was carried out in 50 ml of a 0.10 M lactate buffer, pH 4.10. As a result of the reaction, 0.025 mole/liter of H^+ was produced.

- What was the ratio of conjugate acid to conjugate base at the start of the reaction?
- What are the concentrations of each form of lactate at the start of the reaction?
- What was the pH at the end of the reaction?
- Would you have designed the buffer this way? Why?