

pH and Protein Solubility Demonstration Worksheet

Data Table

Chemical Added to Casein	Observations	Approximate pH
25 mL Sodium Hydroxide		
1–2 mL Hydrochloric Acid		
2–3 mL Hydrochloric Acid		
2–3 mL Sodium Hydroxide		
1–2 mL Sodium Hydroxide		

Discussion Questions

- Casein has both acidic side chains and basic side chains. At a high (basic) pH, ionization occurs in the acidic chains. At a very low (acidic) pH, protonation occurs in the basic chains. Do you think casein is most soluble with a net charge that is positive, negative, or around zero? Why?

- A protein's isoelectric point is the pH at which the protein has a net charge of zero. Approximate the isoelectric point of casein.