

Natural Indicators

Post-Lab Questions

1. Assume that the pH 2 color of the natural indicator represents its most acidic form (HIn).
 - a. What is the pH range in which the most acidic form predominates?

 - b. Calculate the lowest H_3O^+ concentration (highest pH) at which the indicator still exists in the HIn form.

2. Assume that the pH 12 color of the natural indicator represents its most basic form (In^-).
 - a. What is the pH range in which the most basic form predominates?

 - b. Calculate the highest H_3O^+ concentration (lowest pH) at which the indicator still exists in the In^- form.

3. For one of the unknown acid–base solutions that were tested, explain why you chose the combination of indicators you did to determine the pH value of the solution. What is the advantage of using multiple indicators, rather than a single indicator, to determine the pH of a substance?

4. Construct a Results Table to summarize the properties of the unknowns.
 - a. Estimate the pH value of each unknown.
 - b. Classify each solution as acidic or basic.
 - c. Within each class of unknowns—acids and bases—arrange the solutions in order from least acidic to most acidic and least basic to most basic, respectively.