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How Electricity Changes pH

The purpose of this project was to measure the change in pH of two magnesium salt solutions, connected by a permeable membrane as electricity is passed through them. During this experiment, we think that when the solutions are connected to a 9 volt battery in a circuit with a salt bridge the two solutions will change pH; one will become more basic and the other more acidic, due to the electric current releasing ions. As a result, the pH will change enough to be observable with the universal indicator.

The procedure that we used is as follows: first, we heated water; poured it over red cabbage; let it cool; and then filled a beaker with the juice. Next, we dissolved Epsom salts into the juice and poured the solution into two small bowls. By placing a 7 cm² paper towel in both solutions we created a salt bridge. Then we check the starting pH of the solution using the pH paper and recorded the data. After that, we set the two electrodes into the solutions so that there was a separate electrode in each of the two bowls. We started the stopwatch and checked the solutions' pH every ten minutes; noted the color changes, bubble formations, and graphed the pH vs. time for each solution.

In conclusion, we proved our hypothesis. The pH did change with the introduction of an electric current through a salt bridge. The positive and negative electrodes produced an acid and base respectively.