Acid in Carbonated Beverages Report

Methods

In Procedure 1, 40 mL of 7-Up was diluted to 100 mL. 0.0491 M NaOH solution was filled to 0.00 mL in a buret. Since the soda was clear, phenolphthalein was used as the indicator dye. The end point was determined using a rapid titration. The soda was then titrated 5 times. When finished, molarity of NaOH was used to determine molarity of citric acid. Mean and standard deviation of molarity were determined for the titrations that used the phenolphthalein indicator dye.

In Procedure 2, 20 mL of Jones Green Apple was diluted to 100 mL. The soda was green so titration had to be done using a pH electrode. Electrode was first calibrated and then set up was the same as procedure 1 except the indicator dye wasn't added and a magnet was used to stir the soda in the flask while a clamp held the pH electrode in place. The soda was titrated 3 times. When finished, concentration was determined.

Results

Procedure #1

Titration using 7-Up

Molarity:

First, find moles of NaOH

Titration 1	NaOH - 0.0491 M Volume – 18.19 mL $18.19mL \times \frac{1}{1000mL} = .01819L \times 0.0491 = 8.93 \times 10^{-4} mol$ NaOH
Titration 2	NaOH - 0.0491 M Volume – 18.90 mL $18.90mL \times \frac{1}{1000mL} = .01890L \times 0.0491 = 9.28 \times 10^{-4} mol$ NaOH
Titration 3	NaOH - 0.0491 M Volume – 18.64 mL $18.64mL \times \frac{1}{1000mL} = .01864L \times 0.0491 = 9.15 \times 10^{-4} mol$ NaOH