

## PURITY OF KHP

Purpose: Using the NaOH you standardized last lab, you will determine how much KHP is in an impure sample.

Background: You will repeat exactly the same reaction as last lab, the neutralization of an acid (potassium hydrogen phthalate, KHP) with a base (NaOH). This time NaOH will be your titrant because you know its exact concentration from last lab. The KHP will be the analyte because it is impure, so the amount you actually have is unknown.

Procedure: This is the part you have to write in your notebook. Obtain your brown bottle of NaOH from the cabinet. It should be mostly full (~ 800 mL). You will be working alone for this lab.

1. Obtain a buret and a numbered mixture containing an unknown amount of KHP from the desiccator. Record the unknown number. Rinse out the buret with your standard NaOH solution, and set it up for titrating.
2. Weigh to four places past the decimal *one sample* of about 1.0 g of your unknown, dissolve it in about 75 mL of deionized water, add 3 drops phenolphthalein indicator, and titrate to the endpoint with your NaOH solution.
3. For best results, a titration should require 20-40 mL of titrant. If your mixture has very little KHP in it, you may need to use up to 2.0 g of sample, so that more titrant will be required. Do not use more than 2.0 g, or you will run out. Do at least 3 titrations with the same size sample.
4. Calculate how many moles of KHP are present in your sample. Remember you cannot use the molar mass because it is a mixture, not pure KHP. So you'll need to use the concentration of your NaOH that you measured last lab to do this calculation. Then find the grams of KHP in each run. Divide the g KHP by the mass of the mixture to find the percent KHP for each run. Find the average % KHP, deviation, and average deviation. If your deviation is more than 0.5%, perform more titrations.
5. When you are finished remember to rinse the buret thoroughly with water, loosen the stopcock, and return the buret to the rack. Dispose of the remaining NaOH solution, rinse the brown bottle, and return the clean, dry bottle to the cabinet.

### Example Data Table:

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Mass impure KHP					
Initial buret vol					
Final buret vol					

After completing the procedure but before leaving lab, write in your notebook a brief statement (two to three sentences) on the quality and reasonableness of the data you collected. Note what you might do differently if you performed the lab again.