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Chem 1045 Lab

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Determining the Density of Nickel Coin (s)

I. Introduction

In this experiment we are trying to find out the density of single nickel coins and sets of nickel coins using various methods, including measuring volume and mass, and water displacement.

II. Procedures

1. Use a ruler, which uses cm as a measurement, and measure the width of the nickel. 2

2. Use the same ruler and measure the height, or the thickness of the nickel.

3. Record your measurements and use the formula volume= πr^2h.

4. Weigh the nickel analytical balance. Turn on the balance. Calibrate the balance using the calibration button. Hit the Tare button. Open the door. Place the nickel coin in the pan. Close the door. Allow the balance to equilibrate and record the mass of the nickel. Remove the nickel.

5. Record the weight of the nickel in grams.

6. Use the formula density= mass/ volume to determine the density of the nickel.

7. Repeat two more times to two different nickels.

Measuring the Density of Nickel Coins by Volume Displacement

1. Add 20 mL of distilled water to a 100 mL graduated cylinder.

2. Record the initial volume with no nickel coins.

3. Carefully slide the first set of nickel coins (A-D) in the graduated cylinder. Remember to agitate the graduated cylinder to remove any air bubbles.

4. Record the mass of the nickel coins added. Record the new volume.

5. Remove the nickels of set (A-D), add the next set of nickel coins (E-I).

6. Repeat for each set of nickel coins.

7. Once you have obtained all of the data, you can perform the remainder of the calculations using the spread sheet program of your choice.

III. Data/ Results

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| IV. Conclusions |  |  |  |  |  |  |
| I observed that the method of determining the mass, density, and volume of a nickel, or set of nickels, that is  the most accurate is the ruler method. I found that the ruler method had less variance in the standard deviation. |  |  |  |  |  |  |
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