

Name:

Date:

CHEM 1110 Experiment #2. Density Determination of Solids Pre-Lab Questions

Part 1:

1) Define the following terms:

a. Density

Density is defined as the ratio of mass and volume .

b. Mass

Mass is the amount of matter being present in any object or materials

c. Volume

Volume is the space that any object or material occupies

d. Accuracy

Accuracy is a measure how close the measurements are to the true value or theoretical value

e. Precision

Precision is a measure how close the measured values of the same physical quantity are to each other

2) What are the two methods in this experiment that will be used to determine the density of the unknown sample? What are the density units for each?

The volume of an object was measured with the displacement method and with measuring its physical dimensions

3) Is density an intensive or an extensive property?

Density is the ratio of mass and volume. Mass and volume are extensive quantities therefore their ratio is an intensive quantity.

Part 2:

1. How do you think the density varies with an increasing concentration of a solute?

Increasing concentration results in increasing density

2. Assume you place the egg in a beaker with water. Based on the soap making procedure, do you think the egg will float on the surface, sink, or float in the middle?

The density of an egg is likely higher than the density of water, therefore it will sink to the bottom.

3. If you think it is not floating, using table salt (lye is caustic and hazardous), propose a way to make the egg float.

By adding salt to the water one could increase the density of the solution up to the point when the egg floats

4. Assume that you not only made the egg float but it ended floating on the surface. Why do you think that happened? How can you rectify this situation?

If the egg rises to the surface it means that the density of the solution is higher than the density of the egg. By adding water one could lower the density up to the point when the density of the solution is the same as the density of the egg.

5. How does the density of the egg (d_{egg}) compare to the density of the solution (d_{sol}) in the situation in the previous question? Circle your answer.

$$\begin{array}{c} > \\ d_{egg} & = & d_{sol} \\ < \end{array}$$

6. Assume that the egg floats in the middle of the liquid. How does the density of the solution compare to the density of the egg in this situation? Circle your answer.

$$\begin{array}{c} > \\ d_{egg} & = & d_{sol} \\ < \end{array}$$

7. Assume you have an older egg as well. How do you think the density of the older egg compare to the density of the fresh egg (more, less, the same)? Explain your reasoning.

The density of an older egg is going to be likely less than the density of a fresh egg. Well the volume of the egg does not change over time, some water and gas leave the egg over time lowering the mass of the egg that for the density is going to be lower .