

Lab data, observations, and calculations

Day One

Lab Data

Mass of salt: _____ g

Mass of sand: _____ g

Observations

I. Salt:

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

II. Sand:

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

III. Bottle with sand/salt:

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

Day Two

Observations

I. Water:

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

II. Bottle contents:

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

Day Three

Observations

Before the procedure – has the height of solid in the bottle changed? If so, how?

Lab Data

Mass of empty beaker: _____ g Mass of filter paper: _____ g

Observations

Filtering:

Heating:

Original Day One Lab Data (from page 1)

Mass of salt: _____ g

Mass of sand: _____ g

Day Four

Lab Data

Mass of filter paper and contents: _____ g

Mass of beaker and contents: _____ g

Lab Calculations

Mass of filter paper contents only: _____ g

Mass of beaker contents only: _____ g

I. Filter paper contents

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

Based on your observations, what was the identity of the filter paper contents? _____

Based on this assumption, calculate the percent difference between the original and final mass using the following formula. Use the original value from day one as the accepted value. Show your work!

$$\text{Percent Difference} = \frac{|\text{accepted value} - \text{experimental value}|}{\text{accepted value}} \times 100\%$$

II. Beaker contents

Does this matter appear to be homogeneous or heterogeneous? _____

Is this matter an element, compound, or mixture? _____

What evidence do you have to support your claim?

Based on your observations, what was the identity of the beaker contents? _____

Based on this assumption, calculate the percent difference between the original and final mass using the following formula. Use the original value from day one as the accepted value. Show your work!

$$\text{Percent Difference} = \frac{|\text{accepted value} - \text{experimental value}|}{\text{accepted value}} \times 100\%$$

Questions

- 1) In chemistry, what do we mean when we use the word “pure”?
- 2) Is all sand the same? Are there variations among samples of sand? Is there a major component in sand? What does this imply about the type of matter sand is?
- 3) In light of question 1, what would be the meaning of the term “pure sand”?
- 4) Is there a difference between the common use of the term “salt” and its specific use in chemistry? If yes, what is the difference?
- 5) Would the water that comes out of the faucets in the lab be considered “pure” in a chemical sense? Is bottled water “pure” either? Explain why or why not.
- 6) What type of water do we use in the lab in most cases when we are using water as a pure substance?
- 7) Was there a difference in the height of the solid in your bottle at the end of the day 1 procedure compared to the beginning of day 3? If so, how do you account for this difference? If not, why not?
- 8) In light of question 7, what is one significant difference that we used in the lab between the properties of the salt sample versus the sand? Is this a physical or chemical property difference? How could you test to support your answer?
- 9) How did we use this property difference between the salt we used and the sand we used to separate them from each other? What kind of change was this separation?
- 10) How can you account for your calculated percent difference in regards to the solid collected by the filter paper? Be specific – saying a mistake or an error was made is not an acceptable answer! Make sure your idea is valid. For example, having too little solid is not explained by saying there was too much solid present!