Lab 1: Mass & Change

Purpose

Investigate a variety of situations in which physical appearance changes and determine what the result is on the sample's mass.

General Procedure

1. Determine the initial mass of the system using a balance and record in a data table.
2. Predict whether a change in mass will occur when the change on the system is performed.
3. Perform a change on the system, as indicated in the section instructions.
4. Determine the final mass of the system using a balance and record in data table.
5. Calculate the change in the mass of the system and record in data table. Change should be recorded as + (for a gain) or – (for a loss).

Part 1 – Mass of Steel Wool

1. Determine the mass of a sample of a wad of steel wool.
2. CAREFULLY pull the steel wool apart so that it is about twice its original size.
3. Determine the mass of the expanded wad of steel wool.

Prediction

Observations & Data

Conclusions & Discussion

Part 2 – Mass of Ice & Water

1. Determine the mass of a vial.
2. Allow the ice to melt entirely. (This will take a little while so move on to Part 3 while you are waiting for it to melt.)
3. Determine the mass of the vial after the ice has melted.

Prediction

Observations & Data

Conclusions & Discussion

Part 3 – Mass of a Precipitate

1. Fill two vials no more than 1/3 full of each of the solutions. Cap the vials and determine the mass of both the vials together.
2. CAREFULLY pour the contents of one vial into the other.
3. Determine the mass of both vials and caps.

Prediction

Observations & Data

Conclusions & Discussion

Part 4 – Mass of Burning Steel Wool

1. Determine the mass of a sample of a wad of steel wool.
2. CAREFULLY light the Bunsen burner. Place an evaporating dish on the table to work over.
3. Using tongs to hold the steel wool in the flame, heat it until it glows.
4. Turn the steel wool in the flame so all sides are exposed.
5. Determine the mass of the steel wool after being heated. Throw away the steel wool when you are finished.

Prediction

Observations & Data

Conclusions & Discussion

Part 5 – Mass of Dissolved Sugar

1. Fill a vial half full with water then put about 1/4 teaspoon sugar in the cap of the vial.
2. Put the vial with the water & the cap with the sugar on the balance & determine the mass.
3. CAREFULLY pour the sugar into the vial and gently swirl to dissolve the sugar.
4. Once dissolved, determine the mass of the vial and its contents.

Prediction

Observations & Data

Conclusions & Discussion

Part 6 – Mass of Dissolved Alka-Seltzer

1. Fill a vial half full with water then put 1/4 tablet of Alka-Seltzer in the cap of the vial.
2. Put the vial with the water & the cap with the Alka-Seltzer on the balance & determine the mass.
3. CAREFULLY pour the Alka-Seltzer into the vial and loosely cap the vial.
4. Once the tablet is completely dissolved, determine the mass of the vial and its contents.

Prediction

Observations & Data

Conclusions & Discussion

Final Conclusions

1. Identify which experiments showed no change in mass and explain why.

2. Identify which experiments showed a change in mass and explain why.

3. State the Law of Conservation of Mass.