Evidence of a Chemical Reaction Part 1

Name: _____ Date: _____ Period: _____

Purpose*:* To identify if a chemical reaction has occurred by observing any property changes. Observe the Law of Conservation of Mass by tracking the _____ and _____ mass.

Research*:*

Reactant = _____

Product = _____

Magnesium (____) is in the _____ group of elements. Highly _____

Vinegar (_____) is a weak _____. Chemical Name: _____

Experiment:

Safety Issues:

Do not light matches until directed to do so by the instructor.

Do not take any matches out of the classroom.

Wear safety goggles throughout the experiment.

Materials:

- Medium Flask, Small Beaker
- Rubber Stopper with vent
- Plastic Bag with straw
- 75 mL of Vinegar
- 1 strip of Magnesium
- Match
- Goggles X4

Procedures*:* ***Remember*** ⇧ ***Safety First!!!***

1. Measure 75 ml of vinegar using the small beaker, pour into flask. Record the properties in the data table.
2. Obtain a Magnesium strip from the instructor, Record the properties of the Magnesium in the data table.
3. Connect the straw from the plastic bag to the rubber vent that is connected to the rubber stopper.
4. **Record the mass of all of the materials before the reactants are mixed.**
5. When instructed to do so, fold the Magnesium strip in half and place into the flask. Place cork stopper on the flask and allow the bag to hang off to the side.
6. Observe the chemical reaction for the next 5 minutes, record your observations. **Measure and Record end mass.**
7. Obtain a match from your instructor. When instructed, light the match, remove cork and hold the match over the end of the flask. Record observations below.

Data Collection: Table 1: Observations of Chemical Interaction

Properties of the Reactants	Observations during the reaction	Properties of the Products	Identity of the Products	Observation of Flame test
Vinegar: **Magnesium:**			**Liquid:** 1_____ _____ **Unknown Gas:** (possibilities) 1_____ 2_____ 3_____	

Starting Mass: _____ g	**Ending Mass: _____ g**	**Change in Mass? _____ g**

Was mass conserved? Yes or No _____ (Uncertainty = +/- .5 g)

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Analysis:

1. Did you observe any evidence of a chemical reaction? Hint: Where is the Magnesium?

_____

_____

_____

2. During the flame test, explain what you observed when the flame came in contact with the contents in the flask.

_____

_____

_____

3. Using **Table 2** and based on your observations, what is the identity of the unknown gas from the reaction?

_____

Explain: _____

_____

_____

_____

_____

Table 2: Properties of Know Gases

Carbon Dioxide (CO_2) – Clear, colorless, odorless, Nonflammable, puts out fire

Oxygen (O_2) – Clear, colorless, odorless, Nonflammable, but allows fuel to burn

Hydrogen (H_2) – Clear, colorless, odorless, dramatically flammable

Conclusion:

1. Where did the _____ gas come from? *Explain the reaction in your own words*. Be specific

_____

_____

_____

_____

2. Write a **chemical word equation** below using the following words: *Magnesium Acetate, Acetic Acid, Hydrogen, and Magnesium*. Label each chemical with an (R) if it is a reactant and a (P) if it is a product in each parenthesis provided.

_____ ( ) reacts with _____ ( ) to produce _____

_____ ( ) and _____( ).

3. Write a **balanced** chemical equation below using the chemical formulas from the reaction:

(*Choices of molecules to enter below*) **$Mg(C_2H_3O_2)_2$ CH_3COOH Mg ____ 2**

____ _____ **+** ____ _____ → ____ _____**+** ____ _____

4. What type of chemical reaction occurred in the lab today?

_____