Evidence of a Chemical Reaction – Part 2

Name: _____ Date: _____ Period: _____

Purpose*:* To identify if a chemical reaction has occurred by observing any property changes, and to determine whether or not a catalyst aids in the speeding up or slowing down of a chemical reaction.

Research*:*

Decompose = _____

Catalyst = _____

Hydrogen Peroxide (_____) is a type of _____, has a pH of _____, and is only one _____ atom away from being a _____ molecule.

Baker's Yeast is a _____ organism. Species 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:

- 250mL Flask
- Rubber Stopper with Vent
- Plastic Bag with Straw
- 50 mL of Hydrogen Peroxide
- Brewer's / Baker's Yeast
- Wood Splint
- Small Tea Candle
- Goggles/Glasses (4)

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

1. Measure 50 ml of hydrogen peroxide using a graduated cylinder; pour into 250 mL flask. Record properties (of hydrogen peroxide) in the data table.
2. Grab a small scoop of yeast from the instructor. Record the properties of the yeast in the data table.
3. **Record the mass of all of the materials before the reactants are mixed: _____ grams**
4. Inform your instructor that you are ready to light your candle; light the candle.
5. Light wood splint, then blow it out, making sure that the tip of the splint is a glowing ember, and place inside the flask. Record your observations below.
6. Add the yeast, place stopper onto flask, and gently swirl until completely mixed.
7. Observe the chemical reaction and record your observations. **Measure and Record end mass. (teacher will demo this and collect data): _____ grams**
8. Light wood splint again and then blow it out, making sure that the tip of the splint is a glowing ember.
9. Remove stopper and place the splint inside the flask. Record observations below. Repeat this step a few more times to be sure of the effect. If you need to use the candle to relight the splint, do so, but **do not play!**

Properties of your Materials	Hot (glowing) Splint Observation before Yeast was Added	Hot (glowing) Splint Observation after Yeast was Added	Identity of Products (Your Ideas)
Hydrogen Peroxide: **Yeast:**			**Liquid Possibility:** _____ _____ **Gas Possibility:** _____ _____

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Analysis:

1. Did you observe any evidence of a chemical reaction? Explain in detail.

_____

_____

2. Was there excessive gas present inside of the flask? If so, how were able to determine this conclusion?

_____

_____

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

Explanation: _____

_____

Table 2: Properties of Know Gases

Carbon Dioxide (CO_2) – Clear; colorless; odorless; Nonflammable; puts out fire
Oxygen (O_2) – Clear; colorless; odorless; burns fuel on continuous basis.
Hydrogen (H_2) – Clear; colorless; odorless; dramatically flammable.

4. Hydrogen Peroxide will naturally decompose into _____ and _____. This is a slow process though. What was the catalyst in this experiment? Explain your answer.

_____

_____

Conclusion:

1. Where did the _____ gas come from? Explain your answer in detail.

_____

_____

2. Was mass conserved in this experiment? Yes / No

3. Why do you think hydrogen peroxide is stored in dark bottles? Answer in detail.

_____

_____

4. Why did we add the yeast to the hydrogen peroxide?

_____

_____

5. The chemical equation for this experiment is listed below. Balance this equation:

$$\_\_\_\_\_\ H_2O_2 \longrightarrow \_\_\_\_\_\ H_2O + \_\_\_\_\_\ O_2$$

6. What type of chemical reaction occurred in the lab today? How do you know…explain?

_____

_____