Name: 02/01/09

Assignment #5: Introduction to Gases

Demonstrations:

1. In the first demonstration, Sodium Bicarbonate ($NaHCO_3$) and Acetic Acid ($HC_2H_3O_2$) are mixed together. Write a balanced chemical equation for this reaction.

2. The gas that is produced is "poured" into a beaker containing a burning candle. What happens?

3. Based on the above demonstration, does this gas have mass? If so, how could you find out what its mass is.

4. In the second demonstration, Hydrochloric (HCl) acid is allowed to react with Zinc, producing Zinc (II) Chloride and hydrogen gas. Write a chemical equation for this reaction.

5. The Hydrogen Gas is trapped in a balloon. When fully inflated (and trimmed if necessary), what happens to the gas?

6. Based on the above demonstration, does this gas have mass? If so, how could you measure the mass of this gas? Should you change your answer from question #3? Why or why not?

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Lab Portion : *Safety Note: Never leave a burning candle unattended. Never turn your back to a burning candle. Be sure to tie long hair back and roll up long sleeves.

Materials

1 Tea Candle	1 Beaker	25 mL 6% Hydrogen Peroxide
4 inches Galvanized wire.	1 Watch Glass	1 g Potassium Permanganate.

7. Have your instructor light the candle. Allow it to burn for about 30 seconds. Draw a diagram of the candle. Label all the phases of matter that are present.

8. Pass a watch glass through the flame. Take about 2 seconds to pass it through. (Do not let the watch glass overheat.) What do you see on the watch glass? What is this made of?

9. Hold the tip of a piece of wire in the flame. After the wire heats up, it will begin to glow. The hotter the flame is, the brighter it will glow. Use this to make a "map" of flame temperatures. Where is the flame hottest? Where is the flame coldest?

10. Blow your candle out. Place the candle in a beaker. Add 25 mL of 6% hydrogen peroxide to the beaker. Have your instructor re-light your candle. Add the potassium permanganate to the hydrogen peroxide. What do you see? What gas is released?

11. When the reaction has finished, carefully blow out the candle and remove it from the beaker. Clean all equipment. You may need to use soap to remove the residue from the watch glass.

If you finish early: When you blew out your candle, you likely saw a Grey smoke rising into the air. The smoke is made out of wax vapors. If wax is denser than air, why did this "smoke" rise?