

Combustion of Gases

Purpose

To demonstrate that some gases support combustion while others do not.

Materials

2 - 600 mL beakers	can of carbonated soft drink
wooden splints	envelop (2.25 tsp) of dry yeast
matches	3% hydrogen peroxide

Procedure

1. Pour the carbonated soft drink into one of the 600 mL beakers until it is about full.
2. Insert a burning splint into the top of the beaker above the soda.
3. In the second 600 mL beaker place about of an envelope of dry yeast.
4. Add 3% hydrogen peroxide to the beaker containing yeast until it is just about full. Suds will start rising up in the beaker.
5. Touch the top of the foam with a glowing splint and it will burst into flames.
6. Now place the flaming splint into the first beaker (containing the carbon dioxide). The flame will go out. Be sure to remove the splint while it is glowing and return it to the second beaker where it will again burst into flame.
7. With practice the splint can be cycled between the two beakers six or more times, igniting and extinguishing the flame.

Additional Information

1. The soft drink gives off carbon dioxide filling the first beaker with the gas. Since carbon dioxide is more dense than air the gas will remain in the beaker throughout the demonstration.
2. The yeast catalyzes the release of oxygen from the hydrogen peroxide in the second beaker. The equation is $\text{H}_2\text{O}_2 \rightarrow 2 \text{H}_2\text{O} + \text{O}_2$.
3. To make the demonstration humorous try to get a big smile on your face as you shift back and forth between the beakers. Shift back and forth on your feet like a small child playing with matches.

Disposal

Solutions can be poured down the sink with excess water.

Reference

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