Gas Production using Vinegar and Baking Soda

Instructions

Materials:
Baking soda, sodium bicarbonate ($NaHCO_3$)
Vinegar, 5-8% acetic acid ($HC_2H_3O_2$)
Sealable sandwich plastic bag
Pipette

Demo Procedure:
1. Place couple tablespoon full of baking soda into the sandwich bag.
2. Seal the bag and allow the students to feel the temperature of the bag before the reaction. It should be around room temperature.
3. Add equal volume of vinegar to the bag and immediately seal the bag.
4. There is an instant acid-base reaction.
5. The production of carbon dioxide gas inflates the bag.
6. There is also a noticeable cooling effect that can easily be felt at the bottom of the bag.

Variations: There are many variations to this very popular demonstration. You can repeat this reaction in a beaker and use a thermometer to measure the drop in temperature.

Waste Disposal: The baking soda will neutralize the vinegar. The final solution can be pour down the drain safely.