

Acid Rain

Recommended for Chapter: 7

Demo #048

Materials NOT in box

1. Safety goggles
2. Blow torch (in cabinet)

Procedure

1. Pour ~500 mL of DI water in 1-L Erlenmeyer flask.
2. Add 3 drops of Universal Indicator to turn the water green.
3. Fill the spoon (that is attached to the stopper) with sulfur.
4. Ignite the sulfur with the blow torch and secure in flask. The sulfur will burn blue and the surface will become covered with an amber liquid. Even if you don't see the flame, if at least half of the surface is melted, the demo should work.
5. Swirl flask to mix the gas (sulfur trioxide) into the water.

Safety

1. Wear safety goggles.
2. Do not breathe the gas.

Clean Up

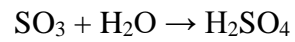
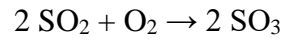
1. Put sulfuric acid solution in waste container.
2. Wipe off table with paper towels.
3. Return the materials to the cart in the demonstration library room.

Stockroom Notes

1. Neutralize sulfuric acid with NaOH.
2. Replace the glassware with clean glassware.
3. If needed refill any materials that have been used up (DI water and indicator).
4. Return items to demonstration tub.
5. Return tub to the demonstration library.
 - a. The goggles go in the goggle box.
 - b. The blow torch goes in the cabinet.

Discussion

Coal contains 1-3% sulfur by mass. Burning the coal in air produces SO_2 (sulfur dioxide), which reacts with oxygen gas in the air to form SO_3 (sulfur trioxide). Sulfur trioxide can react with water to form H_2SO_4 (sulfuric acid) one of the main components of acid rain.



Materials in the Box

1000 mL Erlenmeyer flask

Deflagrating Spoon in cork

1 L of DI water

Universal indicator

Paper Towels

Sulfur