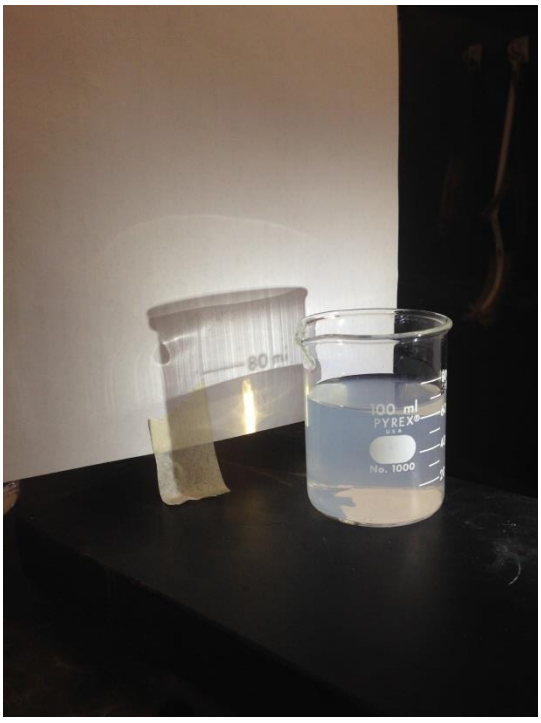
California State University of Bakersfield, Department of Chemistry

Sunset Chemistry



Standards:

HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.

Introduction:

Isn't the sunset fascinating? Imagine creating your own in a beaker. The Tyndall effect (large molecules reflect light and small particles do not) is the main factor in this experiment, as the liquid begins to light up. With sodium thiosulfate and hydrochloric acid, watch the magic happen.

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Materials:

- 50 mL beaker
- 1 g sodium thiosulfate
- Bottle of .5 M HCl
- Flashlight
- Stirring rod
- Ring stand
- Masking tape
- Water
- Plain white paper

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear eye protection and gloves when doing chemistry experiments

Procedure:

1. Make a viewing screen by taping a piece of paper onto the pole of the ring
2. Place the 50 mL beaker onto the stand and add 1 g of sodium thiosulfate.
3. Add room temperature water until it is almost full and stir the mixture until it is completely dissolved.
4. Shine the flashlight through the beaker so that an image appears on the white paper. Write down your observations.
5. Add 8 drops of .5 HCl and stir the mixture for 15 to 20 seconds.
6. Observe the changes that occur over the next five minutes and record them.

Data and Observations:

Questions:

1. What substance formed in the beaker?
2. Write a word equation for the reaction that occurred in the beaker.
3. The sodium thiosulfate creates an electric current when dissolved in the water. Why do other substances such as sugar dissolve but produce no electric current?

References:

1. Handbook for teachers of Chemistry. The University of Wisconsin Press: 1989; Vol 3, p. 353-357 (Date Accessed: July 21, 2014).

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