



California State University of Bakersfield, Department of Chemistry

Instant Fire

Standard:

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.

Introduction:

With this experiment we will demonstrate a chemical reaction while producing a stunning purple flame right before your eyes!

Materials:

- potassium chlorate
- powdered (confectioners) sugar or table sugar (sucrose)
- sulfuric acid
- small glass jar or test tube

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear a lab coat, eye protection, and gloves when doing chemistry experiments
- This experiment could splash! Make sure any spectators are a safe distance away.

Procedure:

1. Mix equal parts potassium chlorate and table sugar (sucrose) in a small glass jar or test tube. Choose a container you don't value, as the demonstration will probably cause it to shatter.
2. Place the mixture in a fume hood and equip lab safety gear. To initiate the reaction, carefully add a drop or two of sulfuric acid to the powdered mixture. The mixture will burst into a tall purple flame, accompanied by heat and a lot of smoke.

Data and Observations:

Record your observations in this space.

What did you see? Anything you were not expecting? Describe it here.

Questions:

Why is it that the mixture reacted the way it did?

Does the amount of sugar and potassium chlorate have an effect on the experiment?

What role does the sulfuric acid play in this reaction? Explain.

What caused the flame to produce a purple color?

References:

1. <http://chemistry.about.com/od/demonstrationsexperiments/ht/instantfire.htm>.

