

Lab #13- Sugar Fuse

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.

Warnings:

1. No deviation from the lab as written
2. Safety must be taken at all time
3. All fuses will be tested in the fume hood with teacher present
4. No materials leave this room

Failure to comply with any of these warnings will earn you a failing grade

1. Balance the following chemical reaction between sucrose (table sugar) and potassium nitrate
Reactants Products



1. Starting with 1.0 grams of sugar determine the amount of potassium nitrate to mix together in the correct stoichiometric ratio.

1.0 grams $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

2. Teacher Signature: _____ (Required before continuing)

3. Use an electronic balance to measure out the proper amounts of each reactant.

4. Add both reactants to a crucible and using the pestle grind the mixture into a fine powder.

5. Pour the ground mixture onto a piece of paper that has been creased down the middle and take it back to your table.



6. Cut a piece of tissue paper 3cm by 10cm, fold it in half lengthways.

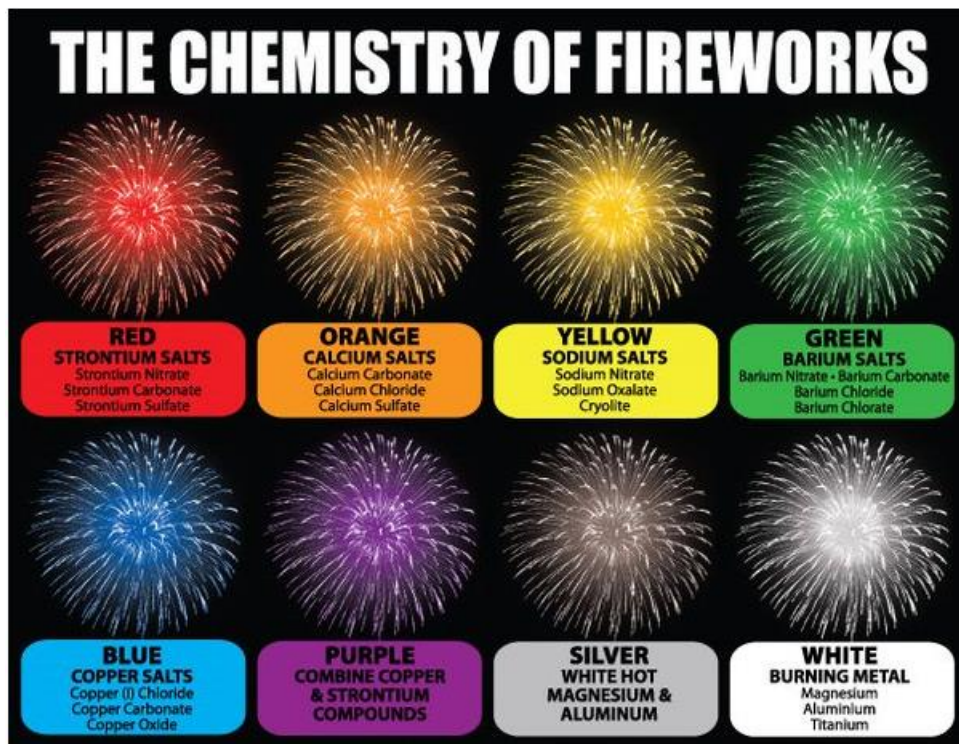
7. Pour a small even amount of your reactant mixture down along the crease.

8. Tap the mixture down into the crease then fold over lengthwise twice.

9. Now fold over one end with a 45 degree angle and begin to roll up along the 45 to create the fuse.

10. Measure the length of your fuse in centimeters.

11. Obtain a stopwatch and ask your teacher to watch you light your fuse in the fume hood. Be sure to time how long it burns.



12. For your second fuse use remaining mixture and let your teacher know what color to add to your mixture in a very small amount to see if you can get that color to appear during the reaction.
13. Pour this mixture back into the crucible and grind it up mixing it thoroughly.
14. Make your second sugar fuse and let your teacher know when you are ready to test it in the fume hood.
15. Be sure to determine the length of your fuse and time the burn.
16. For your third and final fuse add 0.1g of baking soda to the mixture and grind it all together to mix it thoroughly.
17. Make your third fuse. Measure the length of the fuse and let your teacher know when you are ready to burn it.
18. Be sure to time the reaction.

Data Table

Trials	Variable	Observations	Length of Fuse (cm)	Time of Burn (s)	Rate of Reaction (cm/s)
1	Control				
2	Color- add metal salt				
3	Reaction Rate- add baking soda				

Conclusion: (written paragraph)