

Physical Science, 353

Lab #6

Title: CSI Fontbonne: Flame Tests

Purpose: The purpose of this lab is to investigate the color of the flame a substance has when it is burned. In forensic science, substances can be identified by the color of the flame produced. In this lab you will observe the flame color of several different known substances. Using this data, you will attempt to identify unknown substances provided to you.

WARNING: This lab will require using a Bunsen burner with an open flame. Also, some of the chemicals can be hazardous so proper laboratory safety must be observed. Be sure to keep hair pulled back and watch for loose fitting clothing. Safety Goggles and Aprons must be worn at all times.

FAILURE TO FOLLOW PROPER LAB SAFETY WILL RESULT IN A GRADE OF ZERO FOR THE LAB

Materials: Bunsen burner

Samples of:

Calcium Chloride	CaCl
Potassium Chloride	KCl
Copper Chloride	CuCl ₂
Barium Chloride	BaCl ₂
Lithium Chloride	LiCl
Strontium Chloride	SrCl ₂
Unknown A	
Unknown B	

Nickel Chromium Wire

Procedure:

1. Create a data table in your notebook. One column must include the Name of the Sample and a Second must be for describing your observation. Make sure to leave sufficient space in your notebook to record your observations.
2. Make sure your safety goggles and apron are on and your hair tied back. Once all group members are ready wait for Mr. Magno to light your groups Bunsen burner.
3. Dip a piece of wire into the Calcium Chloride solution provided to you. Describe the color of the solution.
4. Place the dipped end of the wire into the flame of the Bunsen burner. Observe and record the color of the flame. Be as detailed as possible.
5. Keep the wire with the sample properly
6. Repeat step #3, #4 and #5 for each of the remaining known samples.
7. If you have any flame colors which you feel you need to re-observe to have a better description let Mr. Magno know.
8. Repeat step #3, #4 and #5 for each of the unknown solutions.
9. Using the observation of the known solutions, try to identify the unknown solutions

Questions:

1. Is there a relationship between the color of the flame and the color of the solution?
2. How do you think these substances produce light of different colors?
3. If a forensic scientist does a flame test on a sample found at a crime scene. The color of the flame test is green. What do you think the substance could possibly be?