Flame Test
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Introduction

The purpose of the lab was to observe the different colors produced by certain metallic ions when vaporized in a flame and then to identify an unknown metallic ion by performing a flame test. The hypothesis was that each chemical would have a different element. Possible problems that could have happened when using the flame test for identification purposes was that a stick could have been burnt, a chemical could not have been held long enough, or somebody could have gotten burnt. Stadium Chloride and Calcium Chloride produced similar colors. Sodium Chloride and Calcium chloride also produced similar colors. The colors observed in the flame test and produced because the electrons in the mental build up and exert light.

Materials:
Scoopula
Tongs
Mortar and Pestle
Bunsen Burner
1g of Cupric Nitrate, $Cu(NO3)2$
1g of Cupric Chloride, $CuCl2$
1g of Sodium Chloride, $NaCl$
1g of Lithium Chloride, $LiCl$
1g of Boric Acid, $H3BO3$
1g of Potassium Iodine, KI
1g of Calcium Chloride, $CaCl2$
1g of Strontium Chloride, $SrCl2$
1g of Copper (II) Chloride, $CuCl2$
1g of Potassium Chloride, KCl
2g of Magnesium Metal, Mg
8 – 10 Q-tips/ wooden splints
150ml beaker

Methods and Procedures

First the watch glasses were labeled. Second 1g of each chemical was given. Third the Bunsen burner was lit so that it had a blue flame. Forth the wooden splint was dipped into a chemical, then it was held in the hottest part of the burner. The fifth step was to repeat the forth. Lastly after all the chemicals have been tested they were all compared and contrasted.

Results

Name:	Observations:
Cupic C	Green and blue with sparks of orange
Cupic N	Green, sparks of orange
Sodium	Neon orange, tips of red
Lithium	Red and fades to orange
Boric	Outside green inside orange
Potassium I	White/ grey fades to orange
Calcium	Neon orange/ red
Strontium	Bright red in middle, dark red on top
Copper	Blue in middle fades to green
Potassium	Orange
Magnesium	Small beam of light

Caption

In the table above each chemical is named with the observations seen during the flame test.

Some chemicals had similar results for example Ions Stadium Chloride and Calcium Chloride. Ions Sodium Chloride and Calcium chloride also produced similar colors. Most flames had more than one color. Magnesium was just a beam of light that happened outside of the flame. The Magnesium was first lit then there was a beam of light.

Conclusion

Most chemicals produced different colored flames. Some had similar colored flames. The magnesium beam of light was smaller compared to other beams. Some of the chemicals fell in the burner so it had to be scraped off. The hypothesis was proven correct, different chemicals did create different colored flames. Colors are produced during the flame test because the electrons in the metal build up and exert light.

Reference

Lab: Flame Test 2017