**Flame Test**

A flame test can be used to test for the presence of metal cations.  Different metal cations, when heated, emit light from excited electrons releasing energy.  These colors are distinctive and can be used to identify the metal.

In order to see if the white powder found on the floor matches one of the chemicals on the lab table that was being prepared for the flame test, or at least has the same metal cation, you will conduct a flame test on the unkown powder to determine its characteristic flame color (if present).  Then you will compare this to the known flame colors of the chemicals found on the table.

***NOTE 1:***  The flame test is only useful for determining the presence of certain metal cations, NOT which anion is bonded with it.

***NOTE 2:***  Follow all normal lab safety guidelines.

***NOTE 3:***   Properly clean up and dispose of materials when you are done.

**Step 1:**  Compare the unknown powder to the metal compounds available, and eliminate possibilities based upon appearance. (Is the solid white, blue, powdered, granular, etc…)

**Step 2:**  Fill a  test tube ¾ of the way full with distilled water

**Step 3**:  Add approximately 0.5 g of the unknown crystals to the test tube.

**Step 4:**Place a clean wooden splint in the test tube.  Use the splint to stir the solution so that all the solid is dissolved.

**Step 5:**  Using a propane burner, look at the flame color for the unknown substance and record the results.

**Step 6:**  Compare the unknown flame test result to the known flame test results. Using a propane burner, determine the identity of the unknown by comparing its flame color to those of the known metal cations.

**Step 7:**  Dispose of the burnt splint in the waste beaker filled with water.

**Known Flame Test Colors**:

Barium (green-yellow)                        Strontium (red)                       Copper (blue-green)                    Lithium (red)

 Calcium (red-orange)       Sodium (orange)  Potassium (lilac/pink)

