

Flame Test Lab

In a Lab Situation:

Procedure

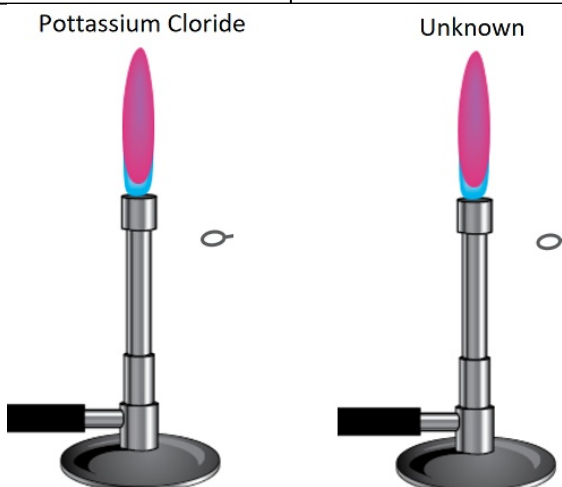
1. Circulate to each station.
2. Clean the inoculation loop at the station by dipping it into the dilute hydrochloric acid and then into the distilled water. Heat the wire in the blue flame of the burner until the wire is glowing and no longer colors the burner flame.
3. Dip the clean wire into the first solid. Hold the wire at the tip of the inner cone of the burner flame. Record the color given to the flame in the table provided.
4. Clean the wire by repeating step #3.
5. Repeat steps 4 and 5 for the other seven known solids. Remember to clean the wire after testing each solution.
6. After cleaning the wire, repeat the flame test for the unknown compound.

Observations

Watch this [video](#) to see how the flame test lab is done.

Table #1: Qualitative observations obtained when conducting the flame test

Name of Compound	Flame Colour
Lithium Chloride	Red
Calcium Chloride	Orange/Red
Potassium Chloride	Purple
Copper Chloride	Green
Strontium Chloride	Dull Red
Sodium Chloride	Dull Yellow
Barium Chloride	Yellow
Barium Carbonate	Yellow
Unknown I think Potassium Chloride	Purple

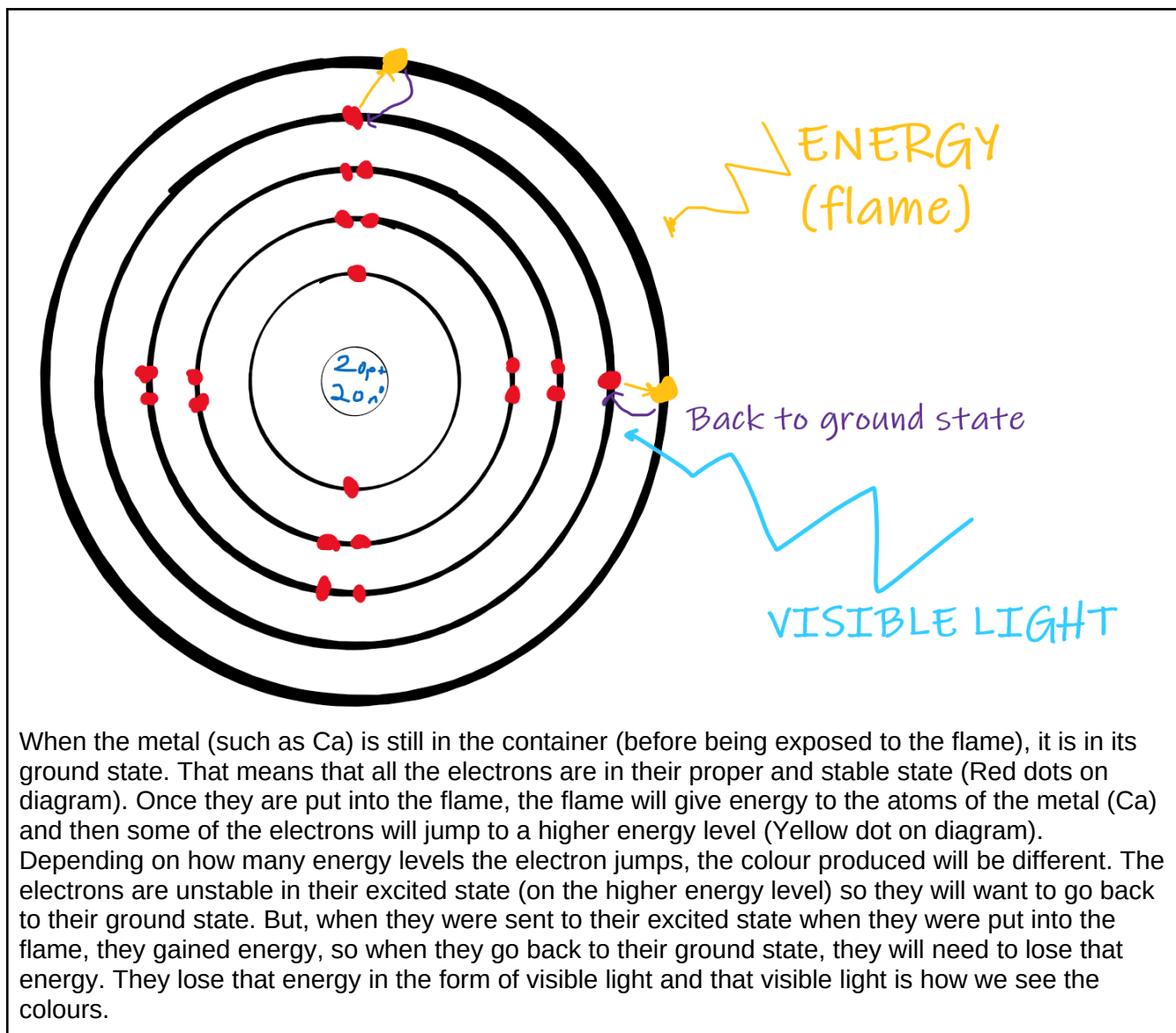


Analysis

1. What part of the **compound** is causing the colour in the flame? Explain your answer. ([video](#) may help)

The metal is causing the colour in the flame because when the electrons go back into their ground state from the excited state, they give off energy in the form of visible light. The chlorine part of the compound is just there to make a brighter colour.

2. What part of the **atom** is causing the colour in the flame? Explain your answer.



3. Evaluate this procedure. Do you think this is a good method to identify an unknown? Explain.

I think that with this example, it is a good method to identify the unknown. I don't think it would be great in all situations because some of the metals give a very similar flame and it could be hard to determine exactly which metal it is if the unknowns flame looks similar to 2 or more known substances. (I found that both Strontium Chloride and Lithium Chloride gave off a similar colour) I think it could be used to narrow down the search though because if the unknown gives off a yellow flame, it is certainly not Strontium Chloride, and it could be narrowed down to a couple options where another method could be used to make the final decision.

4. If you were to perform this lab in person, what safety precautions would you take?

If I were to perform this lab in person, I would make sure to set up the Bunsen burner correctly. I would put on safety goggles, and then I would put the Bunsen burner on a heat proof mat. After that, I would make sure that the Bunsen burner is in the middle of the surface (so no one would knock it over) and when I light it, I will not be right beside it so I do not get burnt. When it is on and I am somewhere else, I will make sure to close the air valve so people know that the Bunsen burner is on because they will be able to see the orange flame. While doing the lab, I will make sure to put the used products in the correct area. After I am done, I will turn off the gas to the Bunsen burner and then wait for it to cool down before putting it away

