

Flame Tests Lab

Sections

- Header
- Title
- Procedure (cut and paste)
- Data table
- Questions

Materials

- Solutions of sodium, copper, calcium, strontium, potassium, and lithium
- Unknown solutions #1 and #2
- A mixture of salt solutions
- Toothpicks
- Bunsen burner
- Striker
- Tongs or forceps

Procedure

1. Light your Bunsen burner. Remember to turn the gas off and let it disperse if the burner doesn't ignite in the first three tries.
2. Adjust your burner so you see the inner blue cone.
3. Using forceps or tongs, pick up a toothpick or wood splint that has been soaked in a solution containing one of the samples. Make sure you don't touch the toothpick with your bare hands because you may contaminate it.
4. Place the toothpick into the Bunsen burner flame directly over the bright blue inner cone. Record the color that you observe as the sample is heated. Take the toothpick out before it smokes or catches on fire. **Important:** Only record the initial flash of color that you see, NOT the orange-yellow color that comes after the toothpick has been burning for a few seconds. The initial color is the color of the chemical while the color that comes later is simply the color of burning wood. If you do this step correctly, the toothpick should not be badly burned.
5. Return the toothpick to the solution in which it has been soaking and turn off the burner.
6. Switch stations and repeat this experiment.
7. Perform the same steps with each unknown and the mixture of salt solutions.

Data

Create a data table to organize your observations for 9 solutions. Make sure to include all of your results.

Questions

1. What element was in unknown 1?
2. What element was in unknown 2?
3. Which elements are least easily identified? Explain.
4. Would flame tests be useful for detecting specific metal ions present in a mixture of metal ions? Explain.
5. In this lab, you observed that the colors of the flames in each sample are different. Why don't all flames have the same colors?
6. How might this method of identifying unknown elements be important in real life? Explain when it might be handy to identify unknown elements. Do some research and cite your sources.