

Spectroscopy of B, Sr, and Li

Recommended for Chapter(s): 2 & 12

Demo #007

Materials NOT in box

1. Safety goggles.

Procedure

1. (Prep) Open the knob at the front of the spray bottle and make sure that the spray bottle is spraying a mist of the solutions.
2. Hook the Bunsen burner up to the gas and light it.
3. Spray the different solutions into the Bunsen burner. Each of the solutions will burn a different color B (green), Sr (orange), and Li (pink).

Safety

1. Wear safety goggles.
2. If the counter top catches fire it is O.K. just turn off the gas and the solution will quickly burn off.
3. If you have long hair make sure that it is tied back so that it does not catch on fire.

Clean Up

1. Make sure to turn the knob at the front of the spray bottle to off.
2. Return the materials to the cart in the demonstration library room.

Stockroom Notes

1. Verify that the knobs at the front of the spray bottles are closed.
2. If needed refill any materials that have been used up. Use the following instructions to make the metal solutions.
 - a. Lithium solution: Mix 3 g lithium chloride with 300 ml of methanol
 - b. Boron solution: Mix 3 g of boric acid with 300 ml of methanol
 - c. Strontium solution: Mix 3 g of strontium chloride hexahydrate with 300 ml of methanol
3. Return items to demonstration tub.
4. Return tub to the demonstration library.
 - a. Return the goggles to the goggle box.

Discussion

When the solutions are sprayed into the flame the electrons in the atoms are excited to a higher energy level. When the electrons transition from the excited energy level to a lower energy level a photon is released; this corresponds to the energy of the transition. Each atom has its own unique allowed energy levels.

Materials in box

1. Spray bottle with SrCl solution
2. Spray bottle with LiCl solution
3. Spray bottle with boric acid solution
4. Matches
5. Bunsen burner