

FLAME TEST FACILITATOR'S GUIDE

General Tips

- Review safety information the day before and the day of the lab.
- You may use any of the metallic salts for the unknown salt or consider a mixture of two. Your students may use visual clues of the salts in their determination.
- If it is not available, the cobalt glass may be eliminated as a required material.
- **Optional Modification:** Use saturated solution instead of dry salts and wooding splits instead of cotton swabs. This method will likely make less mess than using the solids, but the flames produced are not as vivid.
- **Optional Modification:** Barium chloride is sometimes included in flame test labs. Please note, barium compounds are highly toxic. Barium is also considered a heavy metal and is not sewer safe. If you use barium, make sure you handle and dispose properly.
- All chemicals listed are water soluble and sewer safe. According to Flinn Scientific, disposable is 26a.
- Both anhydrides and hydrates work well. Most forms of solids (flakes, powder, etc) are fine as long as they stick to a wet cotton swab. If the particle size is too large (granules), consider grinding with mortar and pestle.
- If potassium's flame is yellow-orange, it is likely due to sodium contamination. However, potassium's true color can be seen through the cobalt glass. If cobalt glass is not available, and the potassium's flame is yellow-orange, you may consider skipping it.
- Lithium chloride is very hygroscopic and tends to absorb moisture from the air. It is recommended that you close the container and/or put the container in a sealed bag after every group has gotten its materials. Consider the same for calcium chloride and copper (II) chloride.
- None of the chemicals on the materials list react with each other. If the students ask, let them test combinations of different salts, once all the required observations, including identification of the unknown salt, is complete. Do not allow students to get more salts to do this with.
- Consider assigning groups homogeneously. It may take some groups longer to do the lab, but students tend to learn more if they go at their pace rather than a partner who is much faster.
- Consider turning the lights off/down after all groups have materials and burners are lit.
- Some students like to record flame tests with their phone. This is fine as long as all safety precautions are followed. Do not allow students to get more salts to do this with.

