

Flame Tests Worksheet

As you work through the steps in the lab procedures, record your experimental values and the results on this worksheet.

Table A: Flame tests results of known and unknown salt solutions

Compound	Color of Flame	Ion Responsible for Flame Color
barium chloride, BaCl ₂		
barium nitrate, Ba(NO ₃) ₂		
calcium nitrate, CaCl ₂		
copper(II) chloride, CuCl ₂		
copper(II) nitrate, Cu(NO ₃) ₂		
lithium chloride, LiCl		
lithium nitrate, LiNO ₃		
potassium chloride, KCl		
potassium nitrate, KNO ₃		
sodium chloride, NaCl		
sodium nitrate, NaNO ₃		
strontium chloride, SrCl ₂		
strontium nitrate, Sr(NO ₃) ₂		
unknown# _____		
unknown# _____		

Question 1: Which ion emitted the higher energy photons in the visible region: Cu^{2+} or Sr^{2+} ? Explain your answer.

Question 2: Which ion emitted photons with the longer wavelength in the visible region: Li^{+} or Na^{+} ? Explain your answer.

Question 3: Which ion emitted the lower frequency photons in the visible region: Ba^{2+} or K^{+} ? Explain your answer.

Question 4: The brilliant red color in fireworks is often due to the emission of red light from Sr^{2+} . If the primary wavelength is 650 nm, what is the frequency of this light?

Question 5: From the data collected and the information gained in lecture, would the anion have a dramatic effect on the color of the light emitted? Explain your answer.