

# Flame test lab report

## Introduction

The electrons of an atom have different energy levels. When electrons absorb energy, they can move to an excited energy level from a ground level. When they jump back to the ground level, they can emit a photon of light. The red light has the lowest energy and frequency, while the violet light has the highest energy and frequency. There are two approaches to make electrons get excited. First, when atoms are placed into a flame, their electrons can obtain energy and go into an excited state. Second, when a light beam hits atoms, their electrons absorb a photon and get excitation.

## Method

In this experiment, we aim to observe the characteristic colors of several kinds of metal when placing them into flame, and identify unknown metal by flame test.

In the control test, 10 drops of methanol was added to a clean and dry watch glass. Methanol at the edge of the watch glass was carefully ignited. The color of flame was observed and recorded. In the flame test, the small amount of sample was acquired, and dissolved in the methanol as completely as possible on the watch glass. Methanol was ignited at the edge of the watch glass. After a few seconds, the full intensity of flame color was visible. The color of flame was observed and recorded by the corresponding compound in the following table. Repeat the experiment by using different chemicals, and record the results.

## Results and discussion

Compound Name	Formula	Flame color
Lithium Chloride	$\text{LiCl}$	Red
Copper(II) nitrate	$\text{Cu}(\text{NO}_3)_2$	Green
Sodium chloride	$\text{NaCl}$	Yellow
Calcium carbonate	$\text{CaCO}_3$	Red/orange

# Flame Tests For Metals Lab Report

**Julia Schneider**



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