

NEATH PORT TALBOT COLLEGE COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science Science Practical

What is Light? – Flame tests and Spectroscopy

◆ Aim

To determine the colour of light given out by various chemical compounds using flame tests.

To analyse line spectra using spectral lamps.

◆ Introduction

Different elements give out different colours of light. The colour of light given out is dependent on the electron energy levels within an atom of a given element. In this experiment you will look at the colours of light given out by different elements and establish that this is of importance in astronomical studies.

◆ Safety



Control Measures

- You are reminded of the need of good laboratory practice in order to maintain a safe working environment.
- Goggles and lab coats must be worn at all times.



Hazards



Corrosive.

Concentrated Hydrochloric acid



Electrical Hazard.

Transformer



Temperature Hazard.

Heating apparatus

◆ **Procedure : Flame Tests**

1. Firstly, clean a wire by dipping it into concentrated hydrochloric acid and hold it above the blue cone of the hottest flame of a Bunsen burner.
2. Dip the wire once more into concentrated hydrochloric acid.
3. Dip the clean wire into the compound under test.
4. Hold the wire in the blue flame and note the colour change of the flame.
5. Repeat with different compounds.

◆ **Procedure: Spectroscopy**

1. Connect the neon spectra lamp to the high voltage transformer.
2. Line the spectrometer up with the spectral lamp.
3. Turn on the lamp and leave it for a few minutes.
4. View the light from the spectral lamp using the spectrometer.
5. Draw the line spectrum observed.
6. Repeat with cadmium and sodium lamps.