**Experiment 1 Thin Layer Chromatography**.

# Aim:

The main aim of this experiment is to obtain an understanding of separation in chromatography by using Thin Layer Chromatography.

Objective:

The objective of this experiment is to separate a mixture of indicators and using the Rf value, identify the component.

# Chemicals Required:

* Universal Indicator Solution,
* Methyl Orange Solution,
* Phenolphthalein Solution,
* Ethanol,
* Dilute Ammonia Solution.

# Equipment Required:

* Thin layer Chromatography Plates,
* Beaker,
* Clock Glass,
* Pencil and Ruler,
* Capillary tubes.

# Procedure:

* Make up the mobile phase by making up the mobile phase using deionised water, ethanol and dilute ammonia solution in a ratio of 5:2:1.
* Place approximately 1cm of the mobile phase into the beaker and cover with a clock glass to saturate the container.
* Using the pencil and ruler carefully draw a line approximately 1 to 2 cm from the bottom of the plate.
* Place the capillary tube into the Universal indicator and carefully spot onto the line, making the spot have the smallest diameter possible.
* This can be done for the methyl orange and phenolphthalein indicators too. The spots should be spaced out to avoid mixing of the indicators.
* Allow the spots to dry and apply another. This is done approximately 3 or 4 times depending on how dilute the samples are.
* Once spotting is complete the plate is marked about two thirds up the plate to show where to stop when the mobile phase reaches that point.
* It is then placed into the saturated container and covered by the clock glass.
* It is important that the plate doesn’t move once immersed in the mobile phase.

# Results:

http://orgchem.colorado.edu/hndbksupport/TLC/images/tlcrfratio.gif

Distance travelled by the Mobile Phase =

Distance travelled by the Methyl Orange Indicator =

Distance travelled by the Phenolphthalein =

Rf value of Methyl Orange =

Rf value of Phenolphthalein =

Distance travelled by the fastest moving component =

Rf value =

Distance travelled by the next fastest component =

Rf value =

Distance travelled by the next fastest component =

Rf value =

Using the Rf values identify the components of the Universal Indicator.