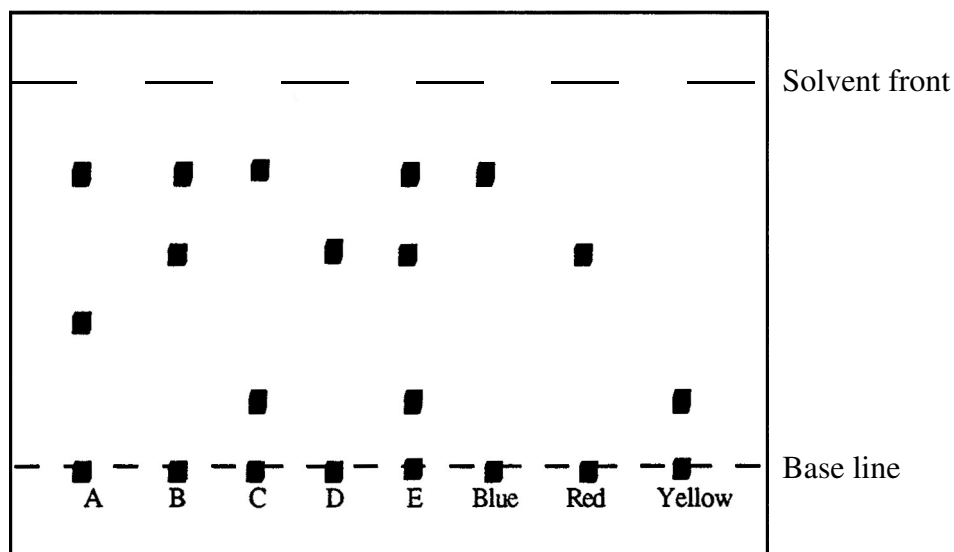


Year 12 Chemistry

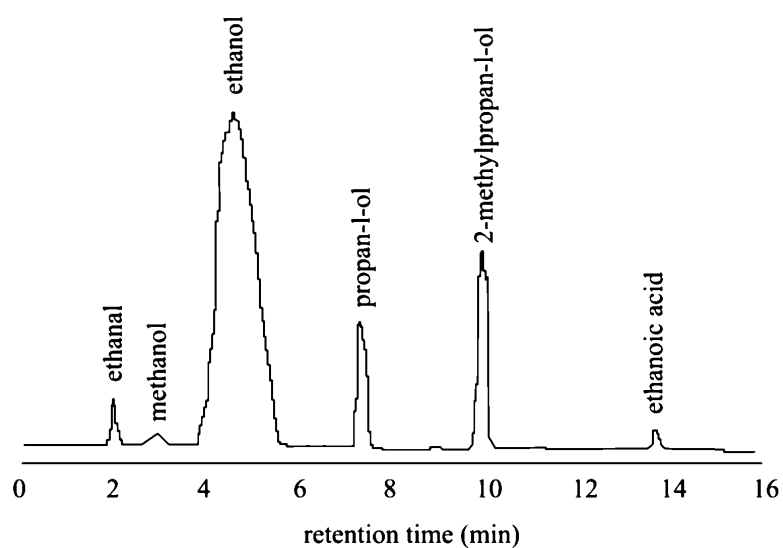
Chromatography Assignment

1. An analytical chemist is concerned about the food dyes used in some foods and has prepared a thin layer chromatogram, shown in the diagram below. Three of the substances were the basic colours, blue, red and yellow. The others were the food dyes and are labeled A, B, C, D, E. The solvent used was polar.



- (a) State which basic colour is most soluble in the solvent used (propanone). /1
- (b) State which dye contains all three basic colours. /1
- (c) State which dyes contain only one of the basic colours. /1
- (d) Calculate the R_f value of the blue basic colour. /2
- (e) Explain which of the three basic colours is most polar. /3
2. You are interested in determining whether the food colour dyes in "M & Ms" are one colour or a mixture of colours.
- (a) Design an experimental procedure for this investigation. /3
- (b) Draw an example of what the resulting chromatogram might look like if the food colour dyes are all one colour. /2
- (c) Draw an example of what the resulting chromatogram might look like if at least one of the the food colour dyes is a mixture of colours. /2

3. A mixture of various organic compounds was separated using chromatography on a polar stationary phase, resulting in the chromatogram below:



(a) Explain why, as shown in the chromatogram above, the retention time of ethanal is shorter than that of ethanol. /3

(b) State the feature of the ethanol peak which identifies it as the component present in highest concentration in the sample. /1

TOTAL /19