

Chromatography lab report assignment



**ASSIGN
BUSTER**

Chromatography lab Purpose: To separate food colorings into their component dyes using paper chromatography. Materials: Chromatography paper, Food coloring, Ruler, Pencil, Solvent solution, Test tubes, Test tube rack. Safety precaution: wear aprons, to make sure that you don't get any of the alcohol on your clothes, and if you break a test tube you don't get glass on you. Procedure: See-attached handout. Results: See chromatography with Audrey's lab report. Rf values for approved FD & C dyes

Dye	Rf Value
Red No. 20	0.81
Yellow No. 60	0.77
Red No. 30	0.61
Green No. 31	0.00
Red No. 40	0.67
Blue No. 11	0.00
Yellow No. 50	0.75
Blue No. 20	0.79

Rf values for coloring agents in food coloring

Food color	Zone color	Distance Solute	Distance solvent	Rf
FD Green	Yellow	2.6 cm	6 cm	0.43
Blue	Blue	7.2 cm	7.2 cm	1.00
Blue No. 1	Yellow	2.8 cm	6.2 cm	0.45
Red	Red	4.2 cm	6.2 cm	0.67
Red No. 4	Red	6.5 cm	6.5 cm	1.00
Purple	Purple	4.8 cm	6.5 cm	0.74

Calculation: Distance of the solute/Distance of the solvent Ex. Yellow 2. cm / 6 cm = .43

Lab Questions: 1. Why do food dyes separate into different colors as they move up the piece of chromatography paper? Food dyes separate into different colors as they move up the piece of chromatography paper because, when the solution gets absorbed into the paper, it dissolves the color in the ink spot that you have made. Each color that makes up the dye will move at a different speed depending on how strong it gets absorbed as the solution gets absorbed up the paper. 2.

Why is it important that ink is not used to mark the lines of the chromatography paper? It is important to use pencil, because the ink from them pen could also get absorbed by the solution, and it could mess up your

experiment. 3. A colored component of a mixture is insoluble in the developing solvent (moving phase), but is strongly attracted to the chromatography paper (stationary phase). Would you expect to find this component near the origin or near the top of the chromatography paper?

You would expect to find that component near the origin, because it was attracted enough to the developing solvent to move up the chromatography paper. Discussion/Conclusion: In this chromatography lab, we separated food coloring into their component dyes using chromatography paper. When we put the piece of chromatography paper in the solvent, the paper absorbs that liquid due to capillary action. The basic colors of the ink spot will separate out into bands, and you can see the different colors that are in the ink to produce that specific color.

The smallest molecules will travel basically at the same rate the solvent travels up the chromatography paper. The larger molecules will travel slowly and will stay near the bottom. Our results of our experiment were a little different than the other groups. We all matched only a couple of the R_f values, but some of our distances were a little different. We probably took our chromatography paper out before or a little later than some people, because not all of our colors were had the same measurement.

It would be interesting to try using a different kind of solvent to see how much of a difference it makes when the colors separate, because our blue never really separated into the different colors that make it. It would be cool to see either if you need to use a different solvent or leave the chromatography paper in the solvent longer than we did. [http://www. rpi.](http://www.rpi)

<https://assignbuster.com/chromatography-lab-report-assignment/>

edu/dept/chem-eng/Biotech-Environ/CHROMO/chromintro. html http://www.yesmag.ca/projects/paper_chroma.html <http://teaching.shu.ac.uk/hwb/chemistry/tutorials/chrom/chrom1.htm> <http://ull.chemistry.uakron.edu/analytical/Chromatography/>