

Chromatography assignment



**ASSIGN
BUSTER**

Search the web. Some interesting sites are listed below. Note that some of these sites go into much more depth than is reasonable for this course.

<http://en.wikipedia.org/wiki/Chromatography> <http://ull.chemistry.uakron.edu/analytical/Chromatography/> <http://orgchem.colorado.edu/hndbksupport/TLC/TLC.html> this is for TLC ??? similar to paper

http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/C/Chromatography_paper.html <http://jchemed.chem.wisc.edu/JCESoft/Programs/CPL/Sample/modules/paprchrom/paprchromdesc.htm> <http://jchemed.chem.wisc.edu/JCESoft/Programs/CPL/Sample/modules/paprchrom/paprchromdesc.tm>

<http://www.dynemic.com/food%20colour.htm> This site has colors and correct names for many of the colors. You can get the structures from the names with CRC or a good organic chemist. <http://vm.cfsan.fda.gov/~lrd/colorfac.html> this is a general site with information on food colorings ??? discusses difference between dyes and lakes Procedure ???

Extract the color from the candies 1. Label each of the beakers with one color of the candy. 2. Place one sample in each cup. 3. Put as few drops of water as possible (around 5) in each cup. 4.

Stir carefully to extract as much color as possible without disturbing the white coating or the centre of the candy. 5. Remove the sample as soon as the white coating appears. 6. Add each sample in turn to its appropriate cup until as much color has been extracted as possible. Note: Repeat the steps for each kind of candy. Be sure to include the color and kind of candy on your label. Prepare chromatogram 1. Cut a piece of chromatography paper in

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

half to form a rectangle with dimensions 10 cm x 20 cm. 2. Draw a line approximately 1 cm from the long edge of the paper with a pencil. 3. Mark dots along the pencil line approximately 1-1. cm apart and label as food dye colors yellow, green, blue, and red. Mark two additional dots for your choice of two different colored candies. 4. Using a toothpick, carefully wet the spots you have marked with the appropriate food color or the color extracted from your candy. As the spots dry, rewet them with more sample until you have a dark spot. (If you do not load enough sample onto the chromatographic paper it will be difficult to detect the spots.) 5. Curl the paper into a cylinder with the short edges just touching and staple together. 6. Place the chromatogram into a beaker with approximately 2 cm of solvent on the bottom. Be sure that the entire lower edge of the chromatogram is touching the solvent, but the solvent does not reach above the pencil line. Allow the chromatogram to sit in the beaker until the solvent front is 1 cm from the top of the paper and remove. Draw a line at the solvent front with your pencil. 7. Repeat this process for any additional solvents you wish to use.

Analysis of chromatogram.

1. Circle each spot that you see on the chromatogram.
2. measure the distance between the starting point and the center of the spot for each component on your chromatogram
3. measure the distance between the starting point and the solvent front on your chromatogram
4. Calculate the R_f value for each component.
5. Draw conclusions regarding the identity of each component in the chromatogram.
6. Propose reasons why different components had higher or lower R_f values based on the structures below and your knowledge of intermolecular forces.

Colors	Product
Red	Yellow
Green	Blue
Blue	Crown Colony Kit
Blue #1	Red #3
Red #40	Yellow #5
Yellow #6	Blue #1
Yellow #5	Blue #1
Crown Colony Singles	Red #40
Yellow #5	Red #40
Blue #1	

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

— DurkeeBlue #1 Red #3 Red #40Yellow #5Blue #1 Yellow #5Blue #1
McCormickRed #3 Red #40Yellow #5

Yellow #40Blue#1 Yellow #5Blue #1 Red #40 FDA Certifiable colors:

(name/common name) NameCommon nameComment FD&C Blue No.

1Brilliant Blue FCF FD&C Green No. 3Fast Green FCF FD&C Red No.

3Erythrosine FD&C Red No. 40Allura Red AC . It usually comes as a sodium salt, but can be also in the form of calcium and potassium salt. It is soluble in water. FD&C Yellow No. 5Tartrazine FD&C Yellow No. 6Sunset Yellow FCF

Questions 1. Does the type of solvent used for paper chromatography affect the R_f values of the food dyes? 2. Which dye molecules were in your candy coating? 3. If the solvent front moved 112 mm and a component of a mixture moved 48 mm