CRM 231 - Lab Experiment B: Ink Analysis / (Thin Layer) Chromatography

Supplies:

- Two (2) Coffee filters
- One (1) Medium size drinking glass
- One (1) Pair scissors
- One (1) Bottle of rubbing alcohol
- Five (5) Different types of ink pens (ball point) of the same color ink (blue or black), each manufactured by a different company
- One (1) Inexpensive magnifying glass
- One (1) Pencil
- One (1) Roll of Scotch tape (any brand)

Instructions:

A. Cut the coffee filters into approximately 5 inch single ply strips
B. Place about an inch or two of alcohol in the glass
C. Place a large “dot” of ink on a strip of coffee filter with one of your ballpoint pens approximate ¾ inch from the bottom of the strip. Set the strip aside, as this will serve as your item of “evidence”
D. Next, take all of the ballpoint pens, and place a single dot with each different pen about ¾ of an inch from the bottom of your other coffee filter strips. You should now have several strip of coffee filters with one good-sized dot of ink from each pen. Each pen will then have a single dot represented on a single strip. These strips represent “suspect” pens. With reasonable luck, only one will likely match the original dot that you sat aside on the original strip of coffee filter. Our goal is to identify the original pen from all of the others by use of Chromatography
E. We will begin our forensic search for the “guilty pen” that we first used
F. Take your pencil and tape one end of a marked coffee-filter to the pencil, allowing one end, the end with the dot, to dangle freely
G. Place the pencil across the top of the glass and allow the free end of the coffee filter to dangle into the glass. The tip of the filter should touch the alcohol that you poured into the glass. You can do this by rolling the pencil to adjust the “depth” of the strip. Make sure that it touched the alcohol just enough to allow the alcohol to absorb upward on the filter. Your ink dot should be about ½ to ¾ inch above the alcohol
H. Observe the filter strip as the ink absorbs upward and over your ink dot
I. The ink on the filter should begin to separate. Various color bands should begin to radiate outward from the dot as the ink begins to separate
J. Repeat this process with each strip of coffee filter, setting the filter strips aside on a soft surface to dry
K. After allowing each of the “suspect” strips to absorb alcohol and separate, take your original coffee filter strip that you set aside and allow it to absorb alcohol and separate.
L. Once all of the strips have dried (a short time is all that it will take), take your magnifying glass and compare your original strip (the evidence strip) to all of the others (suspect strips). Can you identify which pen made the original mark (dot) on the evidence strip by comparing the strips to each other?

Directions:

Type a one to two page synopsis of your finding(s) and experience. Submit your synopsis to the Assignment box and no later than Thursday 11:59 PM EST/EDT. (This Assignment box maybe linked to Turnitin.)

Optional: Discuss your experience with your classmates in the Lab Discussion board in the Module 6 menu.