

Radial Chromatography

Chromatography is one method chemists use to separate mixtures. When the mixture is separated, the chemist can tell how many things are in the mixture. Often a mixture contains two or more materials that each have their own color. These colors can be hidden when the mixture is formed. In this experiment you will use a technique called radial chromatography to study the colors found in magic markers. When you are done, you will be able to answer two questions about each marker:

1. Is the dye in the marker a pure color or a mixture of two or more colors?
2. If the dye is a mixture, what colors were used to make it?

Purpose:

The purpose of this lab is to use radial chromatography to determine what dyes are in magic markers.

Safety:

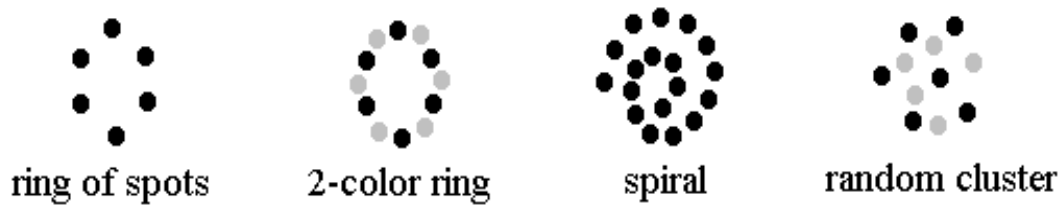
- Always wear safety glasses in the lab.

Materials:

7 centimeter filter paper
12 centimeter filter paper
petri dish
water
magic markers (water soluble)

Procedure:

1. Fold and rip the smaller piece of filter paper in half. Give half to someone else. Make a cone shape out of your half. This is the “wick” that will be used for the experiment.
2. On the larger filter paper with the hole in the center, make a series of dots around the hole. Dark markers work the best. If the marker is not dark, you may want to put an extra dot on top of the first one. Two colors of markers may be used. Some possible patterns are shown on the next page.



3. Pour some water into the bottom of the petri dish. Place the wick in the center of the larger piece of filter paper, and position the filter paper so that the wick is in the center of the petri dish.
4. Let the experiment sit for several minutes. Do not let the water or colors touch the edge of the paper.
5. Record your observations on the data sheet.
6. Staple or tape your larger piece of filter paper here. →

7. Fill in the table below:

Marker Used	Number of Dyes	Colors of Dye(s)

Questions:

1. Were all the patterns of the colors the same?
2. Were all the patterns the same for similarly colored markers?
3. Do you think this experiment could be done with ink from pens?
4. How could this method help determine if someone changed a grade on their report card?