

Paper Chromatography

Lab Report

4

Jaqueline Martinez

Name

1:00 pm

Time

M T W R F

PART A. Separation of Dyes in Food Colors

| Food Color | Blue | Green | Red | Yellow | Unknown |
|-------------------------------|-------------------------------|---------------------------------------|---|----------------------------|--|
| Component 1 Color of spot | Blue | Blue | Red | Yellow | Blue |
| Distance travelled by spot | closer to Solvent front | closer to Solvent front | Spreads out, & becomes more pigmented & more than half | more than half traveled | closer to solvent front |
| Component 2 Color of spot | X | Yellow | X | X | Red |
| Distance travelled by spot | X | Second closest to Solvent front | X | X | Close to the end of the line but spread out. |
| Component 3 Color of spot | X | X | X | X | X |
| Distance travelled by spot | X | X | X | X | X |

■ Paper Chromatography

Which commercial food colors consist of a single dye?

Red, Yellow, & Blue

Is there a green dye present in the green food color? No

Compare the component dyes separated from your unknown mixture to the dyes found in the four commercial food colors.

Which component dyes were present in your unknown liquid?

Red and Blue

Unknown Number: 1

PART B. Separation of Metal Ions

Distance from spotting line to solvent front:

7.6 cm

Distance Co^{2+} species travelled:

5.3

7.6

$R_f(\text{Co}^{2+}) =$

0.697

Distance Cu^{2+} species travelled:

6.8

7.6

$R_f(\text{Cu}^{2+}) =$

0.895

Distance Ni^{2+} species travelled:

0.4

7.6

$R_f(\text{Ni}^{2+}) =$

0.4 cm

0.053

Show your calculations below and on the following page.

$R_f = \frac{\text{distance travelled by the component}}{\text{distance travelled by the solvent}}$

$7.6 - 2 = 5.6$

$8.8 - 2 = 6.8$

$2.4 - 2 = 0.4$

Distance Unknown (U) travelled: $7.4 - 2$
 $8.7 - 2$

(may have multiple metal ions)

$$\frac{5.4}{7.6} \quad \frac{6.7}{7.6}$$

Yellow \rightarrow 5.4 cm

Brown \rightarrow 6.7 cm

$$R_{f(U1)} = \frac{0.710526}{1}$$

$$R_{f(U2)} = \frac{0.88151}{1}$$

Which metal ion(s) is/are present in your unknown?

Co^{2+} & Cu^{2+}

Unknown Number: B

Label and attach your paper chromatograms to this page.

Solvent
Front

X

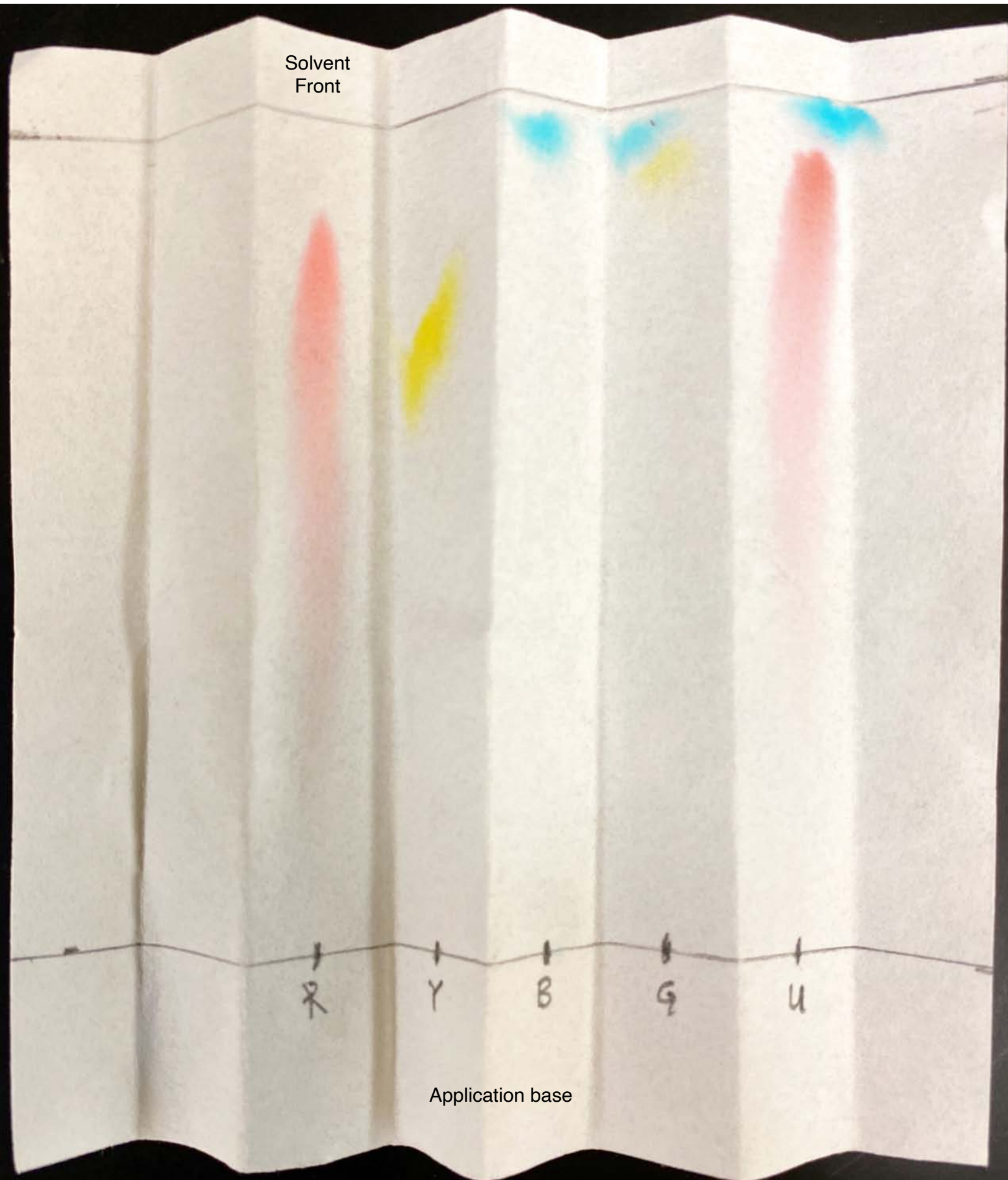
Y

B

G

U

Application base



Co^{2+}

Cu^{2+}

Ni^{2+}

U



MADE IN U.S.A.