

Discussion

The cations in Unknown A were identified by comparing the colors and Retention Factors for the spots produced by the known cation solutions with those spots produced by the unknown mixture.

The Retention Factor for the Fe^{3+} cation, based on results for the known solution, was calculated according to:

$$R_f = \frac{\text{Distance to Spot}}{\text{Distance to Solvent Front}} = \frac{9.60}{10.00} = 0.960$$

The Retention Factor for each cation and the spots produced by Unknown A were likewise calculated and are tabulated below:

<u>Sol'n Used</u>	<u>Color of Spot</u>	<u>Retention Factor</u>
Fe^{3+}	Rust	0.980
Ni^{2+}	Pink	0.18
Cu^{2+}	Blue-Green	0.480
Unk. A	Rust	0.960
	Blue-Green	0.500

Comparison of the results for the known solutions with those of the unknown indicated Unknown A contained Fe^{3+} and Cu^{2+} .

Conclusion

Even though the chromatographic spots were fairly broad, the results were unambiguous. We can say with a high degree of certainty that Unknown A contained Fe^{3+} and Cu^{2+} .