

Answer on Question# 54835 – Chemistry – General chemistry

Question:

In one experiment the solvent moved 3.0 inches while one of the components moved 5.2 cm. Calculate the Rf value for this component.

Solution

Retention Value (Rf value for short) is defined as the ratio of the distance moved by the solute (i.e. the dye or pigment under test) and the distance moved by the solvent (known as the Solvent front) along the paper, where both distances are measured from the common Origin or Application Baseline, that is the point where the sample is initially spotted on the paper.

$$R_f = \frac{\text{Distance from Baseline travelled by Solute}}{\text{Distance from Baseline travelled by Solvent}}$$

Distance from Baseline travelled by Solute is 5.2 cm

Distance from Baseline travelled by Solvent is 3.0 inches or 7.62 cm (1 inch = 2.54 cm)

$$R_f = \frac{5.2 \text{ cm}}{7.6 \text{ cm}} = 0.68$$

Answer: 0.68