Chromatography and gas tests

AQA GCSE Chemistry (8462) · Foundation and Higher

Answer on your own paper. Show your working where needed.

1. Evidence from melting points

A sample melts sharply at 62 °C. A different sample softens and melts over 53-60 °C. Which result is more consistent with a pure substance? Explain.

2. Setting up chromatography

A pupil draws the start line in ink and allows the solvent to cover the sample spots. Explain a problem with each decision.

3. Why the dyes separate

Two dissolved dyes start in the same spot on chromatography paper. One finishes closer to the solvent front. Use what happens in the solvent and on the paper to explain why the dyes move different distances.

4. Work out an Rf value

The centre of a spot is 24 mm from the start line. The solvent front is 60 mm from the same line. Calculate the Rf value.

5. Three samples of gas

Gas X relights a glowing splint. Gas Y burns with a squeaky pop when tested with a lit splint. Gas Z makes limewater cloudy. Identify X, Y and Z.

6. Interpreting a litmus result

A pupil reports that a gas turned damp blue litmus paper red. They conclude the gas was chlorine. State the further change they would need to observe to support that conclusion.

7. Matching dyes in an ink

An ink and reference dyes P, Q and R are run together. The solvent front travels 70 mm. The two ink spots travel 21 mm and 42 mm. The references have Rf values 0.30, 0.46 and 0.60, respectively. Which dyes could be in the ink? Show how you used the measurements.

8. Check what one spot proves

An ink gives one spot when run in solvent A and two clearly separated spots when run in solvent B. What does the second result show? Explain why the first result could look different.

9. Extra challenge · Test a proposed dye match

An unknown and reference S were run on different papers. The unknown moved 39 mm with a 65 mm solvent front. S moved 48 mm with an 80 mm front.

Calculate both Rf values. The solvents were different. Design a check and give a result that would rule out the match.

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