

Required Practical Chromatography

GCSE Chemistry · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain why the start line is drawn in pencil and placed above the level of the solvent. (2 marks)

Step 1 · Pencil

Graphite is insoluble in the solvent, so the line will not run and spoil the chromatogram.

Step 2 · Above the solvent

If the spots were below the solvent surface, the colours would dissolve into the solvent in the beaker instead of moving up the paper.

Answer: Pencil does not dissolve; spots must not dissolve into the solvent pool

Check: Two separate reasons for two marks.

2. Now try one with the steps

Calculate the R_f value of yellow Y in the example results. (2 marks)

Step 1 · Formula

Step 2 · Calculate

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Explain why the start line is drawn in pencil. [1]

2. Explain why the solvent must be below the start line. [1]

3. State why a lid is placed on the beaker during the experiment. [1]

4. Calculate the R_f value of yellow Y, which moved 5.4 cm when the solvent moved 7.2 cm. [2]

5. Calculate the R_f value of red R, which moved 2.6 cm, to 2 decimal places. [2]
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6. Calculate the R_f value of blue B, which moved 4.6 cm, to 2 decimal places. [2]
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7. Sample S gave spots at 2.6 cm and 5.4 cm. Identify the colourings in S. [2]
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8. One spot stays on the start line. Suggest why. [1]
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9. A colouring has an R_f value of 0.50. Calculate how far it would move when the solvent front is 7.2 cm from the start line, in cm. [1]
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10. Explain why distances are measured to the centre of each spot. [1]
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11. Explain how chromatography shows that a food colouring is a mixture. [1]
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12. Suggest one way to make the identification of colourings more certain. [1]
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13. Explain why the R_f value of a substance can change if a different solvent is used. [2]
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14. Two colourings have the same R_f in water. Suggest how to tell whether they are the same substance. [2]
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4. Before you hand it in

Drawing the baseline in pen

Always use pencil.

Letting the solvent run off the top of the paper

Remove the paper before the solvent reaches the top and mark the front immediately.

Comparing R_f values from different solvents

Compare only R_f values measured with the same solvent and paper.