

0 6

Chromatography is used to separate mixtures.

Chromatography involves a mobile phase and one other phase.

0 6 . 1

What is the other phase in chromatography?

[1 mark]Tick (✓) **one** box.

Moving phase

Recycled phase

Stationary phase

Viscous phase

0 6 . 2

Why do the substances in the mixture separate in the mobile phase?

[1 mark]

0 6 . 3

How many spots will be produced on the chromatogram of a pure compound?

[1 mark]

Number of spots = _____



0 6 . 4 In a chromatography experiment, a blue colour moved 4.77 cm.

The solvent moved 5.30 cm.

Calculate the R_f value for the blue colour.

[2 marks]

R_f value = _____

Question 6 continues on the next page

Turn over ►



0 6 . 5

Black ink is a mixture of several colours.

Plan an experiment using paper chromatography to:

- separate the colours in black ink
- identify the colours from their R_f values.

[6 marks]

11

END OF QUESTIONS



Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	stationary phase		1	AO1 5.8.1.3 RPA12

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.2	any one from: (the substances) <ul style="list-style-type: none"> • move at different speeds • have different solubilities • have different attractions for the (chromatography) paper 		1	AO2 5.8.1.3 RPA12

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.3	1		1	AO1 5.8.1.3 RPA12

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.4	$(R_f =)$ $\frac{4.77}{5.30}$ $= 0.9$		1	AO2 5.8.1.3 RPA12
			1	

Question	Answers	Mark	AO / Spec. Ref.
06.5	Level 3: The method would lead to the production of a valid outcome. The key steps are identified and logically sequenced.	5–6	AO1 5.8.1.3
	Level 2: The method would not necessarily lead to a valid outcome. Most steps are identified, but the method is not fully logically sequenced.	3–4	
	Level 1: The method would not lead to a valid outcome. Some relevant steps are identified, but links are not made clear.	1–2	
	No relevant content	0	
	Indicative content <ul style="list-style-type: none"> • draw a pencil line • near the bottom edge of the (chromatography) paper • put a small dot of black ink on the pencil line • put a small volume of water / solvent in a beaker • place the (chromatography) paper in the solvent • the dots of ink should be above the level of the water / solvent • support the paper in this position • put a lid on the beaker • leave to run • mark position of solvent front • remove from beaker and leave to dry • determine R_f values • measure distance of all dots from start line • measure distance of solvent front from start line • calculate R_f values for all dots • compare with known R_f values 		

Total Question 6	11
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