

# 2.2.1 Criteria of Purity

## Question Paper

Level	IGCSE
Subject	Chemistry (0620)
Exam Board	Cambridge International Examinations (CIE)
Topic	Experimental Techniques
Sub-Topic	2.2.1 Criteria of Purity
Booklet	Question Paper

**Time Allowed:** 14 minutes

**Score:** /11

**Percentage:** /100

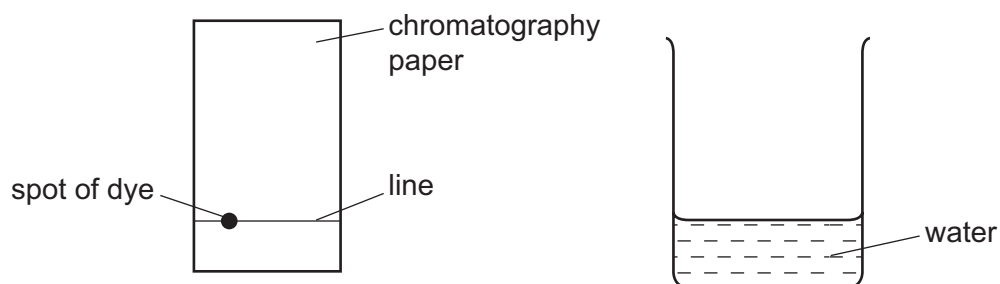
**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

- 1 A sample of a dye is investigated by chromatography.

A line is drawn across a piece of chromatography paper and a spot of the dye is placed on it.

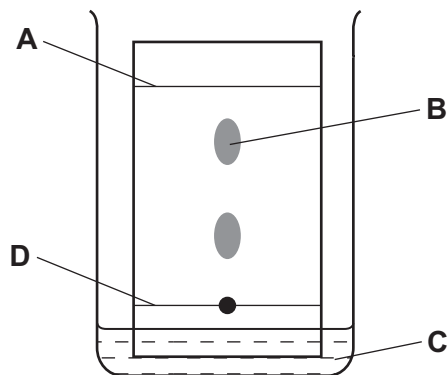
The paper is placed in water.



Which row is correct?

	what is used to draw the line	position of spot
<b>A</b>	ink	above the level of the water
<b>B</b>	ink	below the level of the water
<b>C</b>	pencil	above the level of the water
<b>D</b>	pencil	below the level of the water

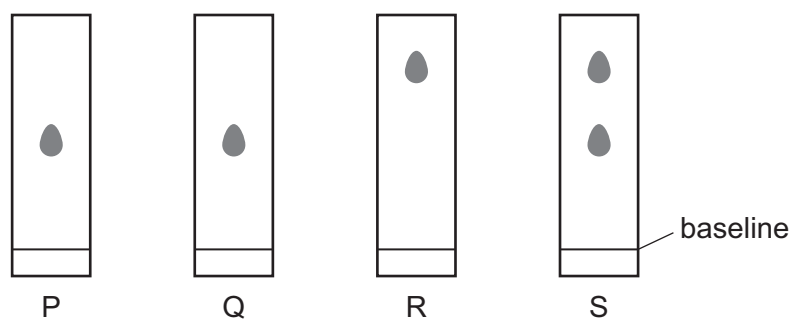
- 2 In the chromatography experiment shown, which label represents the solvent front?



- 3 Chromatography experiments are carried out on four substances, P, Q, R and S.

The same solvent is used in each experiment.

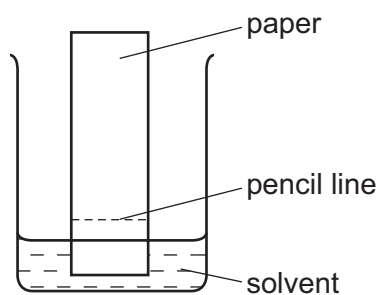
The resulting chromatograms are shown below.



Which statement is **not** correct?

- A P and Q are pure substances.
- B P and R are different substances.
- C R and S are pure substances.
- D S is a mixture of substances.

- 4 A student is investigating a coloured mixture using chromatography.



Where should he place the coloured mixture?

- A** in the solvent
- B** just above the pencil line
- C** just below the pencil line
- D** on the pencil line

- 5 Diagram 1 shows the paper chromatogram of substance X.

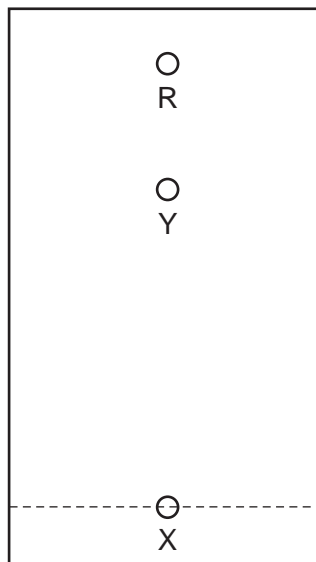


diagram 1

Diagram 2 shows the cooling curve for substance Y.

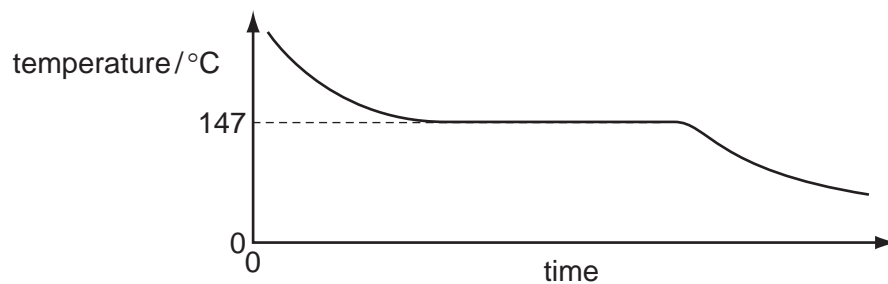


diagram 2

Which statement about X and Y is correct?

- A X is a mixture and Y is a pure substance.
- B X is a pure substance and Y is a mixture.
- C X and Y are mixtures.
- D X and Y are pure substances.

- 6 Solid W melts at exactly 54 °C and boils at exactly 302 °C.

Solid X, when dissolved in water and examined using paper chromatography, shows a blue colour and a red colour.

Which row is correct?

	contains only one substance	contains more than one substance
<b>A</b>	W and X	–
<b>B</b>	W	X
<b>C</b>	X	W
<b>D</b>	–	W and X

- 7 A student was provided with only a thermometer, a stopwatch and a beaker.

What could the student measure?

- A** 10.5 g solid and 24.8 cm<sup>3</sup> liquid
  - B** 10.5 g solid and 25 °C
  - C** 24.8 cm<sup>3</sup> liquid and 45 seconds
  - D** 25 °C and 45 seconds
- 8 An aqueous solution is coloured.

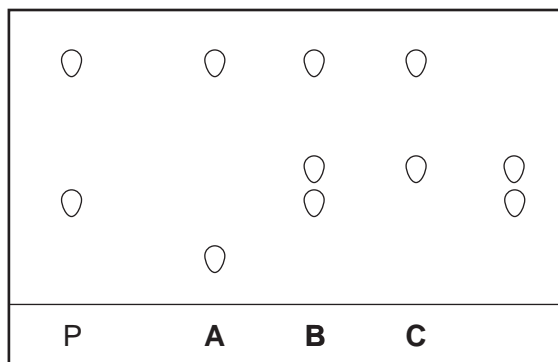
Which method of separation would show that the solution contains ions of different colours?

- A** chromatography
- B** crystallisation
- C** distillation
- D** filtration

- 9 Chromatography is used to find out if a banned dye, P, is present in foodstuffs.

The results are shown in the diagram.

Which foodstuff contains P?

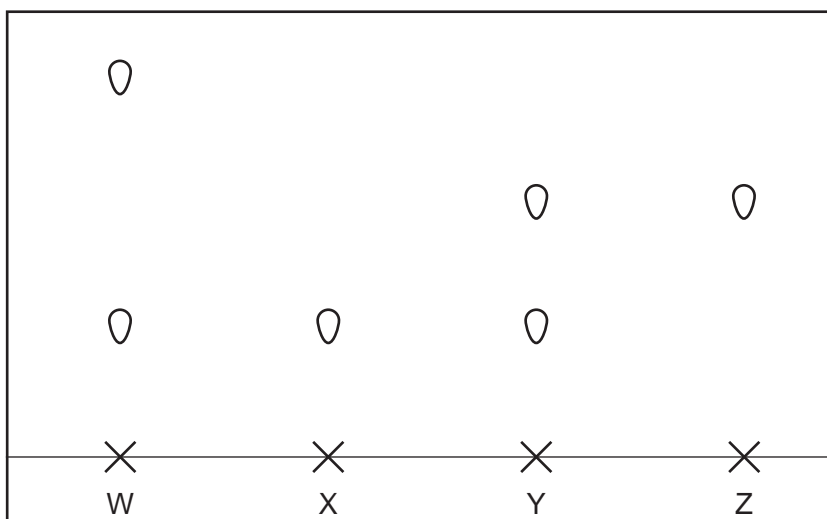


- 10 A fruit drink coloured orange contains a dissolved mixture of red and yellow colouring agents. One of these colouring agents is suspected of being illegal.

Which method could be used to show the presence of this illegal colouring agent?

- A chromatography
- B distillation
- C evaporation
- D filtration

- 11 The diagram shows the paper chromatograms of four substances, W, X, Y and Z.



Which two substances are pure?

- A** W and X      **B** W and Y      **C** X and Y      **D** X and Z