2.27 Chromatography and Instrumental Analysis: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Chromatography and instrumental analysis rely on some key definitions.

(a) State what is meant by a 'pure substance'. **(1)**

(b) State what is meant by a 'formulation'. **(1)**

(Total for Question 1 is 2 marks)

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2 Rf values are used to identify substances separated by paper chromatography.

(a) State what is meant by the term 'Rf value'. **(1)**

(b) Give the equation used to calculate an Rf value. **(1)**

(Total for Question 2 is 2 marks)

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3 Paint and medicine tablets are both examples of formulations.

(a) Name one component you would expect to find in a paint formulation, and state its purpose. **(2)**

(b) Name one component you would expect to find in a medicine tablet, and state its purpose. **(2)**

(Total for Question 3 is 4 marks)

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Mark scheme · 2.27 Chromatography and Instrumental Analysis: 10-minute Pack

Question 1

(a) a substance that contains only one element or one compound, with nothing else mixed in, oe **B1**

(a) Answer: A pure substance contains only one element or one compound throughout, with no other substance mixed in.

(b) a mixture that has been designed as a useful product, made by mixing components in carefully measured quantities, oe **B1**

(b) Answer: A formulation is a mixture that has been designed as a useful product, with each component present in a carefully measured quantity.

Question 2

(a) the distance travelled by a spot (solute) divided by the distance travelled by the solvent, measured from the same baseline, oe **B1**

(a) Answer: The Rf value is the distance travelled by a spot divided by the distance travelled by the solvent, both measured from the same baseline.

(b) Rf = distance moved by spot / distance moved by solvent, oe **B1**

(b) Answer: Rf = distance moved by spot / distance moved by solvent

Question 3

(a) component named, e.g. pigment (accept solvent, binder/resin, or additive) **B1**

(a) purpose correctly linked to the named component, e.g. pigment gives the paint its colour, oe **B1**

(a) Answer: E.g. pigment - gives the paint its colour.

(b) component named, e.g. the active drug (accept binder, filler, or coating) **B1**

(b) purpose correctly linked to the named component, e.g. the active drug produces the medical effect, oe **B1**

(b) Answer: E.g. the active drug - produces the medical effect of the tablet.

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