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SPECA

GCSE Combined Science (AQA Trilogy) · Chemistry

Chemical Analysis · Worksheet

Purity and formulations

1) Explain what makes a substance 'pure' in the chemistry sense, and explain why a bottle labelled 'pure orange juice' is not pure in this chemistry sense. **[2]**

2) State two ways melting-point data can be used to decide whether a sample is a pure substance or a mixture. **[2]**

3) Define a formulation. **[1]**

4) A cleaning spray is made by mixing a solvent, a surfactant, and a fragrance in carefully measured quantities. State whether this is a formulation, and explain your answer. **[2]**

5) Name two categories of product (other than cleaning agents) that are likely to be formulations. **[2]**

Chromatography

6) In paper chromatography, name the stationary phase and the mobile phase. **[2]**

7) A student runs a chromatogram. The solvent front moves 9.0 cm from the origin line, and a spot from substance X moves 3.6 cm. Calculate the Rf value of substance X, giving your answer to 2 significant figures. **[2]**

8) A second spot, substance Y, has an Rf value of 0.75 on the same chromatogram, where the solvent front moved 9.0 cm. Calculate how far substance Y moved from the origin line. **[2]**

9) A sample of substance Z produces a single spot in every solvent tested. Explain what this suggests about substance Z. **[2]**

10) A sample of substance W separates into three spots when run in one particular solvent. Explain what this tells you about substance W. **[1]**

Gas tests

11) Describe the test for hydrogen gas and state the positive result. **[2]**

12) Describe the test for oxygen gas and state the positive result. **[2]**

13) Describe the test for carbon dioxide gas and state the positive result. **[2]**

14) Describe the test for chlorine gas and state the positive result. **[2]**

15) A student tests an unknown gas: a glowing splint held in the gas relights. Identify the gas. **[1]**

16) A student bubbles an unknown gas through limewater and it turns cloudy. Another student incorrectly writes that 'the limewater went clear'. Explain why this description is wrong, and state the correct observation. **[2]**

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