

# MARK SCHEME

# GCSE

## CHEMISTRY

## AQA - COMBINED SCIENCE

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C8 - TEST 2

CHEMICAL ANALYSIS

Beginner

## Mark schemes

<b>1.</b>	drinks / colours B <b>and</b> C are safe	1	
	drinks / colours A <b>and</b> D are not safe		
	<i>accept a <u>pair</u> of one safe colour <b>and</b> one not safe colour identified for 1 mark</i>		
	<i>accept A, B, C and D all contain one safe colour for 1 mark</i>		
	<i>ignore references to shading</i>	1	
			<b>[2]</b>
<b>2.</b>	(a) additive	1	
	(b) colour 3 is a mixture of colours 1 and 2		
	any <b>two</b> from:		
	<i>accept E-number or additive instead of colour</i>		
	<i>ignore comments about height / level</i>	1	
	<ul style="list-style-type: none"><li>• colour 1 is made up of only one colour / dye</li><li>• colour 2 is made up of only one colour / dye</li><li>• colour 3 is made up of two colours / dyes</li></ul> <b>or</b> more colours (than colours 1 and 2)	2	
			<b>[4]</b>
<b>3.</b>	(a) (i) chromatography	1	
	(ii) 3 / three	1	
	(iii) the colour / E104 is not on the same level as any of the colours in the food		
	<i>accept E104 does not match</i>	1	
	(b) (i) to improve the appearance of the food		
	<i>ignore adds yellow / colour</i>		
	<i>ignore taste / flavour</i>	1	

- (ii) further / or different tests (for harmful effects) **or** obtain more evidence (that it is harmful)

*allow do a survey / study*

1

[5]

4.

- (a) (i) magnesium oxide

1

- (ii) decomposition

1

- (b) (i) bar chart

1

- (ii) more

1

- (iii) limewater

1

turns cloudy / milky

*accept forms a white precipitate*

1

[6]

5.

- (a) red **and** blue

1

unknown

1

*both needed for the mark*

- (b) red

*ignore black*

1

travels least far

*dependent on correct colour allow closest to the start line*

1

(c) distance moved by green colour = 12 mm

*allow 10 to 14 mm*

1

distance moved by solvent = 36 mm

*allow 35 to 36 mm*

1

$$\frac{12}{36}$$

*allow correct substitution of student's measurements*

1

$R_f$  value = 0.33

*allow correct answer from student's measurements for 2 marks*

1

**[8]**

**6.**

(a) only one spot (on the chromatogram)

1

(b) (distance moved by substance =) 4.2 (cm) **and** (distance moved by solvent =) 9.4 (cm)

*allow in range 4.0–4.4 (for substance)*

1

$$\frac{4.2(\text{cm})}{9.4(\text{cm})}$$

1

0.4468

1

0.45

*allow answer in range 0.43 to 0.47*

1

(c) (made of) three substances

1

two are unknown

1

one is cocaine

1

**[8]**