

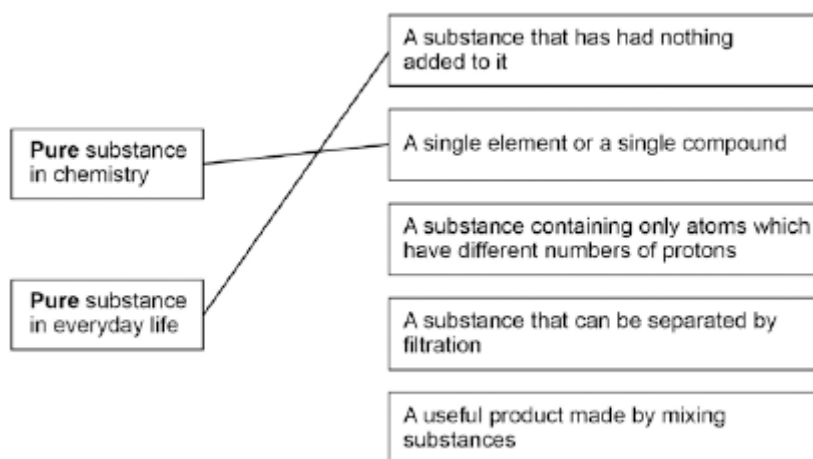
M1.(a) Air

2

Steel

1

(b)



Allow 1 mark for the correct meanings linked to context but incorrect way around

1

1

(c) Damp litmus paper turns white

1

(d) Iron(III)

1

[6]

M2.(a) The start line was drawn in ink 1

The water level was above the spots 1

(b) 3 1

(c) A 1

(d) (distance moved by dye A) 38 (mm)
allow values in range 36-40 1

(distance from start line to solvent front)
102 (mm)
allow values in range 101-103 1

$\frac{38}{102}$
allow ecf from Table 1 1

0.37254 ...
allow values in range 0.35 – 0.39 1

0.37

accept 0.37 with no working shown for 5 marks

[9]

M3.(a) additive

1

(b) colour 3 is a mixture of colours 1 and 2

any **two** from:

*accept E-number or additive instead of colour
ignore comments about height / level*

1

- colour 1 is made up of only one colour / dye
- colour 2 is made up of only one colour / dye
- colour 3 is made up of two colours / dyes
or
more colours (than colours 1 and 2)

2

[4]

- M4.** (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
accept E104 does not match 1
- (b) (i) to improve the appearance of the food
ignore adds yellow / colour
ignore taste / flavour 1
- (ii) further / or different tests (for harmful effects) **or** obtain more evidence
(that it is harmful)
allow do a survey / study 1

[5]

M5. (a) to improve the appearance of the drink 1

because they are permitted colours 1

(b) (i) chromatography 1

(ii) three / 3 1

(iii) because one colour / spot / E102 matched 1

because the other / two colours / spots / E104 and E110 did not match
*if no other mark awarded allow because the drink did not contain
E104 and E110 or because the drink contained E102 for 1 mark
accept only E102 matched for 2 marks* 1

[6]

- M6.** (i) any **two** from:
- **A** has four colours(*)
 - **B** has three colours(*)
- (*) if first two bullets not stated
accept **A** has more colours (than **B**) or **B** has less colours (than **A**)
for **1** mark only*
- **A / B** have two colours the same
 - **B** has one different colour
- 2
- (ii) chromatography
- 1

[3]

- M7.** drinks / colours **B and C** are safe
- 1
- drinks / colours **A and D** are not safe
- accept a pair of one safe colour **and** one not safe colour identified
for **1** mark*
- accept **A, B, C** and **D** all contain one safe colour for **1** mark*
- ignore references to shading*
- 1

[2]