AQA - Purity, formulations and Chromatography – GCSE Combine Science Chemistry

1. May/2020/Paper_8464/2F/No.5

This question is about mixtures.

Which substance is a mixture?

[1 mark]

Tick (✓) **one** box.

Air ☐ Gold ☐ Methane ☐ Nitrogen ☐

Food colourings are often mixtures of dyes.

What name is given to mixtures that are designed as useful products?

[1 mark]

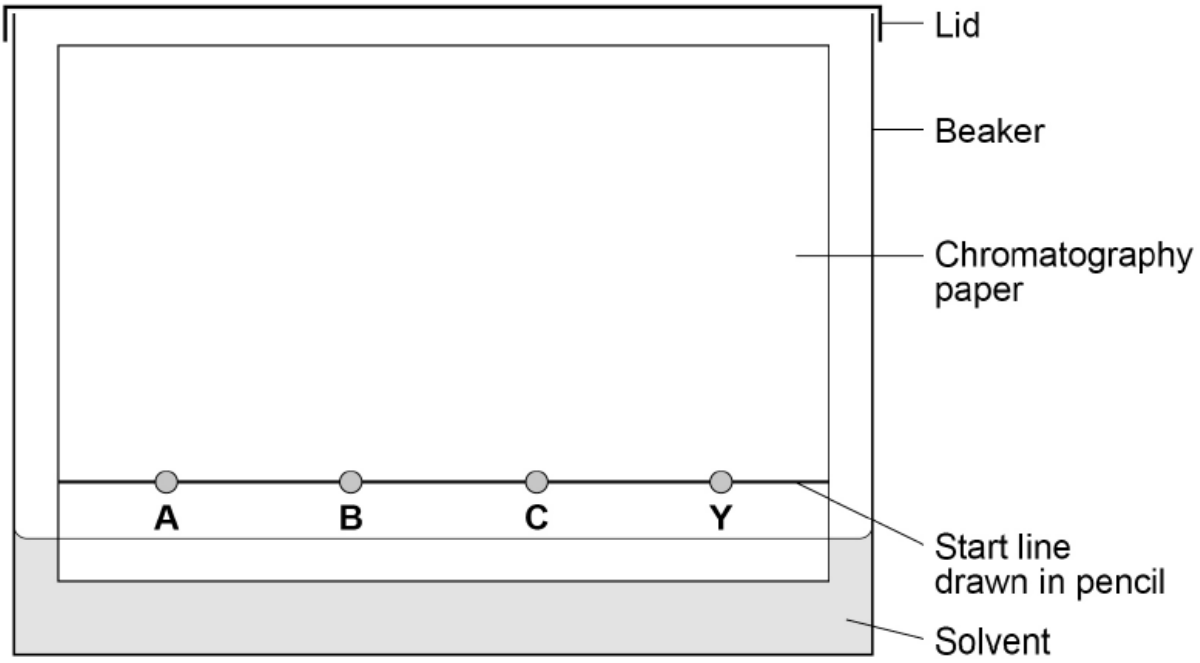
_____

A student investigated a purple food colouring, **Y**, using chromatography.

The student compares **Y** with dyes **A**, **B** and **C**.

Figure 8 shows the apparatus used.

Figure 8



Chromatography involves a stationary phase and a mobile phase.

Draw **one** line from each phase to what is used for that phase.

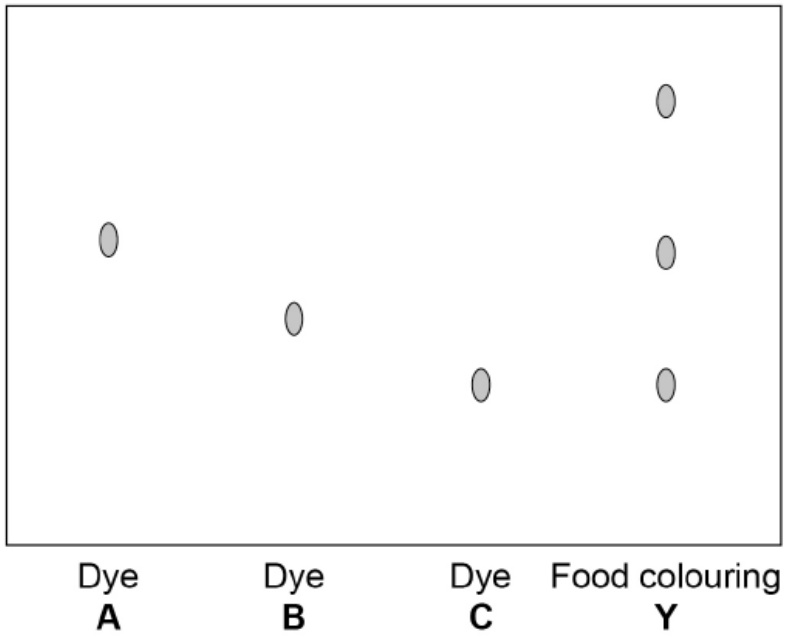
Use **Figure 8**.

[2 marks]

Phase	**What is used**
	Beaker
Mobile phase	Chromatography paper
	Food colouring
Stationary phase	Pencil line
	Solvent

Figure 9 shows the student's results.

Figure 9



What **three** conclusions can you make about the dyes in food colouring **Y**?

[3 marks]

1 _____

_____

2 _____

_____

3 _____

_____

In a different experiment a student recorded these results:

Distance moved by dye **G** = 60 mm

Distance moved by solvent = 80 mm

Calculate the R_f value of dye **G**.

$$R_f = \frac{\text{distance moved by dye } \mathbf{G}}{\text{distance moved by solvent}}$$

[2 marks]

R_f = _____

2. Jun/2019/Paper_8464/2H/No.3

This question is about chromatography of food colouring.

Food colouring is a formulation.

What is a formulation?

[1 mark]

Explain how paper chromatography separates the dyes in a food colouring.

Do **not** give details of how to do the experiment.

[2 marks]

Explain how the student could tell from the chromatogram that the food colouring contained more than one dye.

[2 marks]

Explain how the student could use chromatography to identify unknown dyes in the food colouring.

[3 marks]