

GCSE Chemistry B (Twenty First Century Science)

J258/04 Depth in chemistry (Higher Tier)

Question Set 1

1. Kai works in a research laboratory for a company that produces organic carbon compounds.

(a) Kai has three unlabelled samples of different compounds. All are colourless liquids.

Kai thinks that one of the compounds might be an alkene.

He thinks that another of the compounds might be a carboxylic acid.

He thinks the third compound is neither an alkene nor a carboxylic acid.

Describe some simple experiments that Kai could use to find out which compound is which.

Include **two** tests and the expected results in your answer.

[3]

(b) Hazard symbols are used to give safety information.



harmful



corrosive



oxidising



toxic



flammable

Kai uses ethanoic acid.

The table shows the hazard symbols for ethanoic acid at different concentrations.

Concentration (mol/dm ³)	Hazard symbol
< 1.7	none
≥ 1.7 and < 4.0	
≥ 4.0	
very concentrated	

(i) At what concentrations is ethanoic acid harmful, but not corrosive?

[2]

(ii) Suggest a concentration at which ethanoic acid is flammable.

[1]

(ii) Kai adds very concentrated ethanoic acid to ethanol and heats the mixture.

Suggest some safety procedures for Kai to use to make sure that he is safe during this experiment.

[3]

Total Marks for Question Set 1: 9

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