

Question 22 (6 marks)

A student prepared the compound methyl propanoate in a school laboratory.

- (a) Give a common use for the class of compounds to which methyl propanoate belongs. 1

methyl propanoate is an ester (alcohol + alkanolic acid) and is used in cosmetics and perfumes.

- (b) In the preparation of this compound a few drops of concentrated sulfuric acid were added to the starting materials. The mixture was then refluxed for a period of time. 2

Why was it necessary to reflux the mixture?

Refluxing ensures that no volatile gases ~~are~~ escape into the atmosphere. Refluxing also allows the reaction to be carried out at higher temperatures.

- (c) Name the TWO reactants used in preparing the methyl propanoate and draw their structural formulae. 3

methanol and propanoic acid are reacted to form an ester.

