

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

esters are commonly used as artificial flavours and additives in food.

- (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?

Esterification ~~usually~~ ^{sometimes} occurs at low temperatures to stop the reactants escaping from high temperatures. However this takes a very long time. Refluxing allows the ~~most~~ reaction to occur at an increased temperature without the loss of ~~most~~ reactants.

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

methanol

Propanoic acid

