4 Propan-1-ol, propan-2-ol and 2-methylpropan-2-ol are all alcohols commonly used in school laboratories.

Acidified potassium dichromate(VI) is used to oxidise alcohols.

(a) State the colour change seen when an alcohol is oxidised with acidified potassium dichromate(VI).

(2)

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(b) Draw a labelled diagram of the apparatus that is required to prepare and collect a sample of propanal by heating propan-1-ol with acidified potassium dichromate(VI).

(4)

(c) An electric heater may be used to heat a sample of an alcohol with acidified potassium dichromate(VI).

(i) State why an electric heater should be used rather than a Bunsen burner to heat these reaction mixtures.

(1)

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(ii) State why there is no reaction when 2-methylpropan-2-ol is heated with acidified potassium dichromate(VI).

(1)

(iii) Identify, by name or formula, **all** the possible oxidation **products** of propan-1-ol and propan-2-ol.

(1)

(iv) Give a **further** chemical test and the positive result for each of the oxidation products of **propan-1-ol**.

(4)

(Total for Question 4 = 13 marks)

TOTAL FOR PAPER = 50 MARKS

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