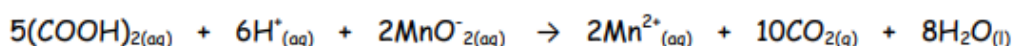


An Experiment to determine the effects of Temperature on a Chemical Reaction

Aim

To examine the effects of temperature changes on the rate of reaction between oxalic acid and acidified potassium permanganate solution by varying the temperature of the reaction mixture.

Equation



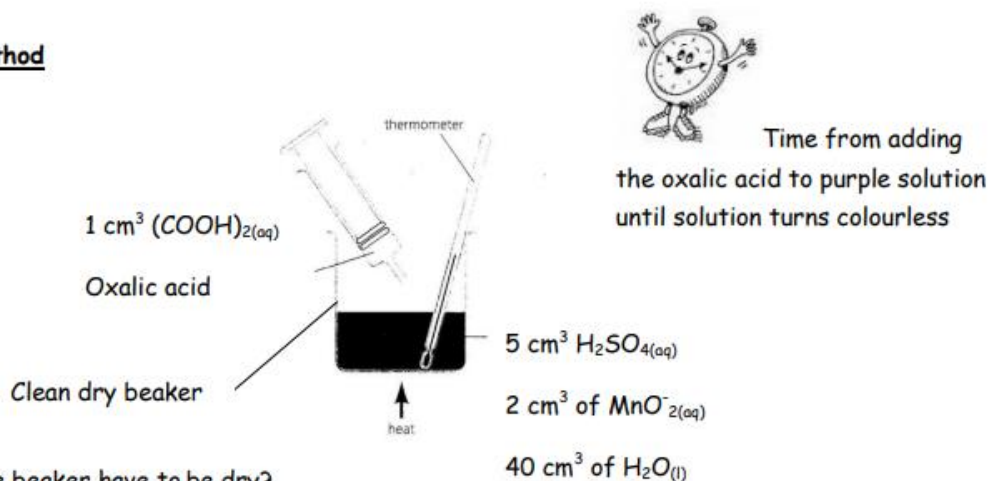
Oxalic Acid

Permanganate ion

(purple)

(colourless)

Method



Why did the beaker have to be dry?

To ensure the concentrations of all the reactants remained constant

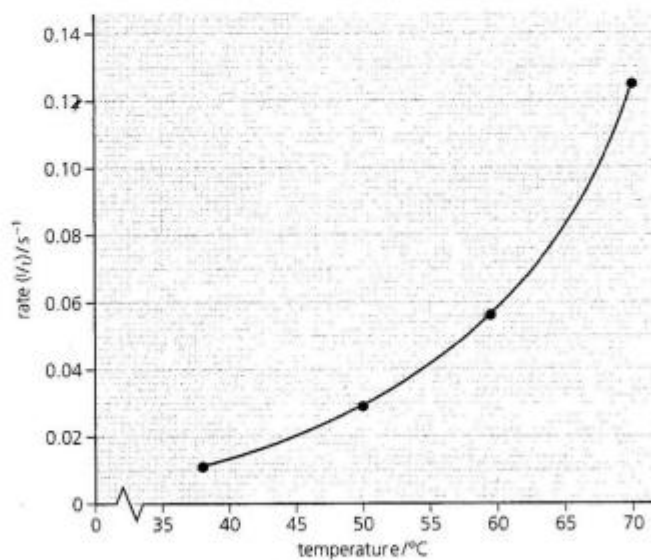
Why not at room temperature? - The colour change is gradual (too slow) to be accurately determine the end point of the reaction.

Heat to 40°C then added oxalic acid (COOH)₂. Repeat at different temperatures (50°C, 60°C, 70°C).

Results

Temperature/ $^{\circ}\text{C}$	Time (t)/s	Rate (1/t)/ s^{-1}
38	87	0.011
50	35	0.029
59	18	0.056
70	8	0.125

Graph of rate(1/t)/ s^{-1} against Temperature/ $^{\circ}\text{C}$



This graph is a curve so the rate of reaction is not directly proportional to temperature.