

### Experiment 1

The purpose of this experiment is to determine the effect of the concentration of the reactants on the rate of the reaction. The reaction studied is the reaction between potassium dichromate(VI) and potassium iodide in the presence of dilute sulphuric acid. The reaction is as follows:

$$\text{K}_2\text{Cr}_2\text{O}_7 + 6\text{KI} + 14\text{H}_2\text{SO}_4 \rightarrow 2\text{K}_2\text{SO}_4 + 6\text{KI}_2 + 7\text{H}_2\text{O} + 3\text{I}_2$$

The rate of the reaction is determined by measuring the time taken for a fixed volume of the reaction mixture to turn a certain color. The color change is due to the formation of iodine, which reacts with starch to form a blue-black complex. The time taken for the color change to occur is inversely proportional to the rate of the reaction.

The following table shows the results of the experiment:

Concentration of $\text{K}_2\text{Cr}_2\text{O}_7$ (mol dm <sup>-3</sup> )	Concentration of $\text{KI}$ (mol dm <sup>-3</sup> )	Concentration of $\text{H}_2\text{SO}_4$ (mol dm <sup>-3</sup> )	Time taken for color change (s)
0.01	0.01	0.1	120
0.02	0.01	0.1	60
0.03	0.01	0.1	40
0.04	0.01	0.1	30
0.05	0.01	0.1	24
0.01	0.02	0.1	80
0.01	0.03	0.1	53
0.01	0.04	0.1	40
0.01	0.05	0.1	32
0.01	0.01	0.2	24
0.01	0.01	0.3	16
0.01	0.01	0.4	12


### COMPACT PWB

