

Marks
5

- Consider the following reaction.



A series of experiments gave the rate data shown in the table below.

Experiment number	initial $[\text{ClO}_2]$ (M)	initial $[\text{OH}^-]$ (M)	initial rate of decrease of $[\text{ClO}_2]$ (M s^{-1})
1	0.0500	0.100	5.75×10^{-2}
2	0.100	0.100	2.30×10^{-1}
3	0.100	0.050	1.15×10^{-1}

Determine the rate expression for the above reaction.

Rate =

What is the value of the rate constant? Include units in your answer.

k =

What is the relationship between the rate of decrease of $[\text{ClO}_2]$ and the rate of increase of $[\text{ClO}_3^-]$?