

Worksheet 7.7

Acid and thiosulfate reaction

When a sodium thiosulfate solution ($\text{Na}_2\text{S}_2\text{O}_3(\text{aq})$) is added to hydrochloric acid, sulfur is formed.

- 1** What would you observe during the reaction? How could you set up the experiment to measure the reaction time for a given combination of thiosulfate and acid solutions?

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- 2** What other products are formed?

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- 3** Apart from heating it, how else could you speed up the reaction? How would this work?

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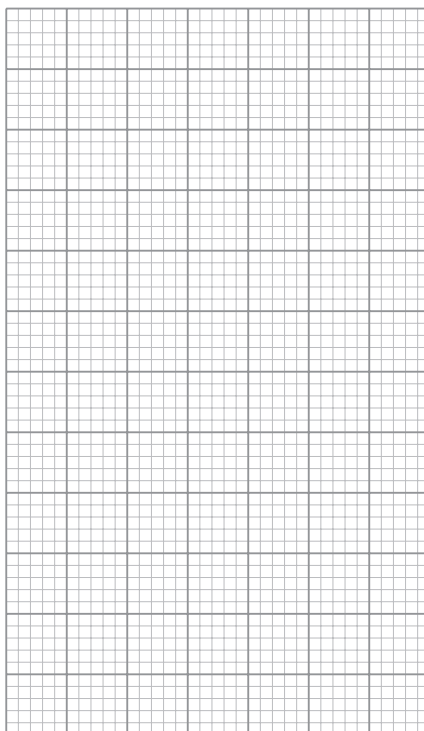
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The following results were obtained by mixing various amounts of a 0.15 mol/dm^3 sodium thiosulfate solution, water and 1 mol/dm^3 hydrochloric acid.

Experiment	Volume of $\text{Na}_2\text{S}_2\text{O}_3 / \text{cm}^3$	Volume of water / cm^3	Volume of acid / cm^3	Reaction time / s
1	50	0	5	5
2	40	10	5	13
3	30	20	5	27
4	20	30	5	56
5	10	40	5	180

4 a Plot a graph of the results.



b Which variable are you testing?

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c Why is the volume of acid kept the same?

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d At what point is the reaction fastest?

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