Name:

Cooling curve experiment

In this experiment you will investigate how the temperature changes with time as a liquid becomes a solid.

The process of a liquid becoming a solid is called _____.

Stearic acid is a waxy solid at room temperature, but it will melt in hot water. You can use either a data logger or a thermometer and stopwatch to record the change in temperature with time as the liquid stearic acid turns back into a solid.

Before you start complete the table to record your results, as you will need to write down the data from the thermometer.

Procedure

You should wear safety goggles for this experiment.

The stearic acid is in boiling tubes in a hot water bath. It should already have melted. The water and the stearic acid are hot so be careful.

Remove the boiling tube from the hot water and clamp it securely.

Put a data logging temperature probe and a thermometer into the stearic acid. Take the temperature with the thermometer and record this as time '0', start a stopclock and the data logger.

The data logger can be started by pressing 'Enter'. It can be stopped by pressing 'Stop' and then 'Enter'. Your teacher will show you how to get the data from the logger onto the computer.

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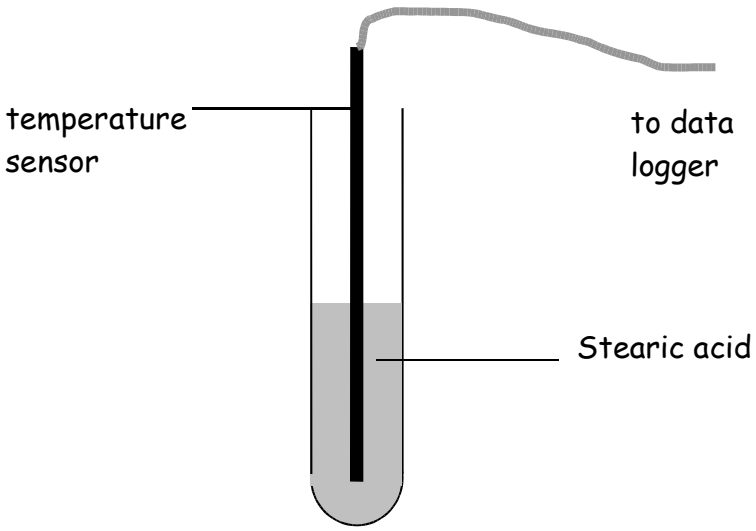
Record the temperature every minute.

Plot your results on some graph paper. If you are not sure what line to draw, do not draw one! Wait for your teacher to show you what to do.



Questions:

1. Is there a difference between your results from the data logger and the thermometer? What is different?
2. At what temperature does stearic acid change state from liquid to solid?
3. How long did it take for the stearic acid to change completely from liquid to solid?

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