

Can you boil water using ice?

Learn about how pressure affects the boiling point of water!

Equipment

- ◇ A clear glass flat bottomed flask with a bung
- ◇ A hot plate or cooker top
- ◇ Some water
- ◇ Some ice
- ◇ Heat proof gloves and a heat proof mat
- ◇ A ring stand



Method

- 1 Bring some water to boil in the flask.
- 2 Remove the flask from the heat and immediately put the bung tightly in.
- 3 Leave the flask for a minute, then suspend it upside down on the ring stand.
- 4 Place some ice cubes on the flat bottom of the flask. What happens?

You should see the water start to boil again!
As the water and water vapour in the flask cools because of the ice, the pressure in the flask falls. Water boils at lower temperatures at lower pressures.

So how does this relate to atmosphere?

This is why it is not possible to make a good cup of tea at high altitudes where the pressure is lower! The boiling point of water is 100°C at standard pressure (sea level). On top of Mount Everest the pressure is about 330 mb and so the boiling point of water is about 70°C.

Where can I find more information?

Watch this experiment at

<http://uk.youtube.com/watch?v=zzVtbvVS2IQ>

Find out more about pressure and boiling at

<http://www.iapws.org/faq1/boil.htm>