

Re: Shake some supercooled water and you get ice, why?

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- *From:* "boson boss" <[junkerade@xxxxxxxxxx](mailto:junkerade@xxxxxxxxxx)>
  - *Date:* 19 Feb 2007 07:24:56 -0800
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On Feb 19, 6:01 am, "n...@xxxxxxxx" <[Alien8...@xxxxxxxx](mailto:Alien8...@xxxxxxxx)> wrote:

On Feb 18, 4:01 pm, andy everett <[vze2q...@xxxxxxxxxxxx](mailto:vze2q...@xxxxxxxxxxxx)> wrote:

I set out 5 half liter bottles of spring water after lunch. Temps just below freezing. Around 6 pm, temps now in the low 20's, I put a chunk of ice into one of the bottles, being careful opening the cap. Ice instantly formed around the piece of ice. We know now the water in the bottles are in a super cooled state. Next grab a bottle and shake vigorously in such a way to impart circular motion. Small crystals seen. Allow things to cool further. Open cap carefully and drop in a very small amount of snow. Starting from the top a pretty group of ice crystals forms.

On the last bottle I shook vigorously, the bottle became cloudy with crystals, quickly I poured the mixture of water and crystals into a measuring cup and filtered the crystals out with a paper towel. The paper towel was squeezed to get more of the water out. Out of 16.9 oz. of water less then .9 oz of the water was ice.

Excellent!

Time to get a good thermometer.

Yes, absolutely. I'd just love to know the temp of the remaining water, and the temp of the supercooled water pre-freezing.

BTW, can you photograph the ice crystals per the drop-in-the-snow trick? How far down into the water did they extend? Also, how'd the rate of growth of the crystals go, fast, then slow, or what?

Mark L. Fergerson

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Well thats supercool! Unfortunately the book fonts were too small and graphs complicated to seem bogus. So my guess is that there is a difference in the way heat is conducted – lets say "by touch", and the part where molecules tend to bond into ice. So they're already cold enough to freeze (all kinetons conduced away) but their positions (in some axis perhaps) did not happen yet.