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A common chemical process may explain how hot water can freeze more quickly than cold, a report on the web site of New Scientist said on Thursday. A scientist of the University of Washington at St Louis found that what is behind the so-called "Mpemba effect is that the phenomenon is all to do with solutes," the report said. The Mpemba effect came to be known after a Tanzanian school student named Erasto Mpemba noticed that the sugared milk he used to make ice cream froze more quickly if it started out hot. Jonathan Katz, of the University of Washington, who worked out the details of the Mpemba effect, said the solutes are calcium and magnesium bicarbonate, which make most drinking water "hard" and when the water is heated, these elements precipitate to form the solid scale that "furs" up the inside of a kettle. Katz said water that has never been heated still contains these solutes and as it freezes, ice crystals form, and the concentration of solutes in the remaining water becomes ever higher - up to 50 times as high as normal, thus lowering the freezing point of the water. According to Katz, there is a second, related effect that hampers the freezing of water that has never been heated. The lowering of the freezing point reduces the temperature difference between the liquid and its freezing surroundings. "Since the rate at which heat is lost

from the water depends on this temperature difference, water that has not been heated has greater difficulty losing heat," Katz was quoted as saying. Katz said the two effects combined could perfectly explain why water that has been heated freezes more quickly than water that has not. Katz is waiting for someone to do experiments to test his theory, New Scientist said.Solute: Magnesium Bicarbonate Precipitate Hampers

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