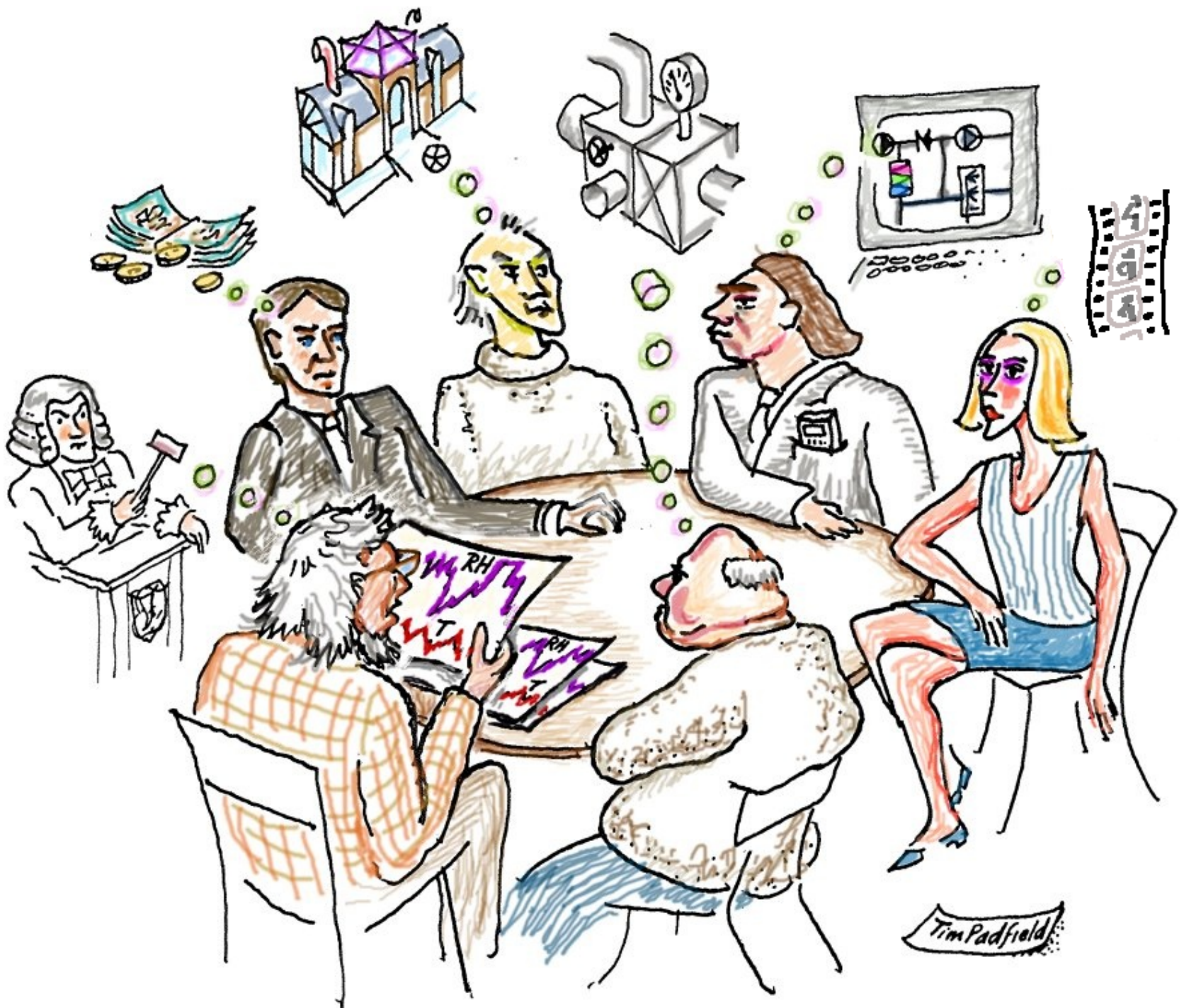


Does cold preserve film?

We must find a better retrieval system - Dogma can't smell in the cold.



Moving film between temperatures

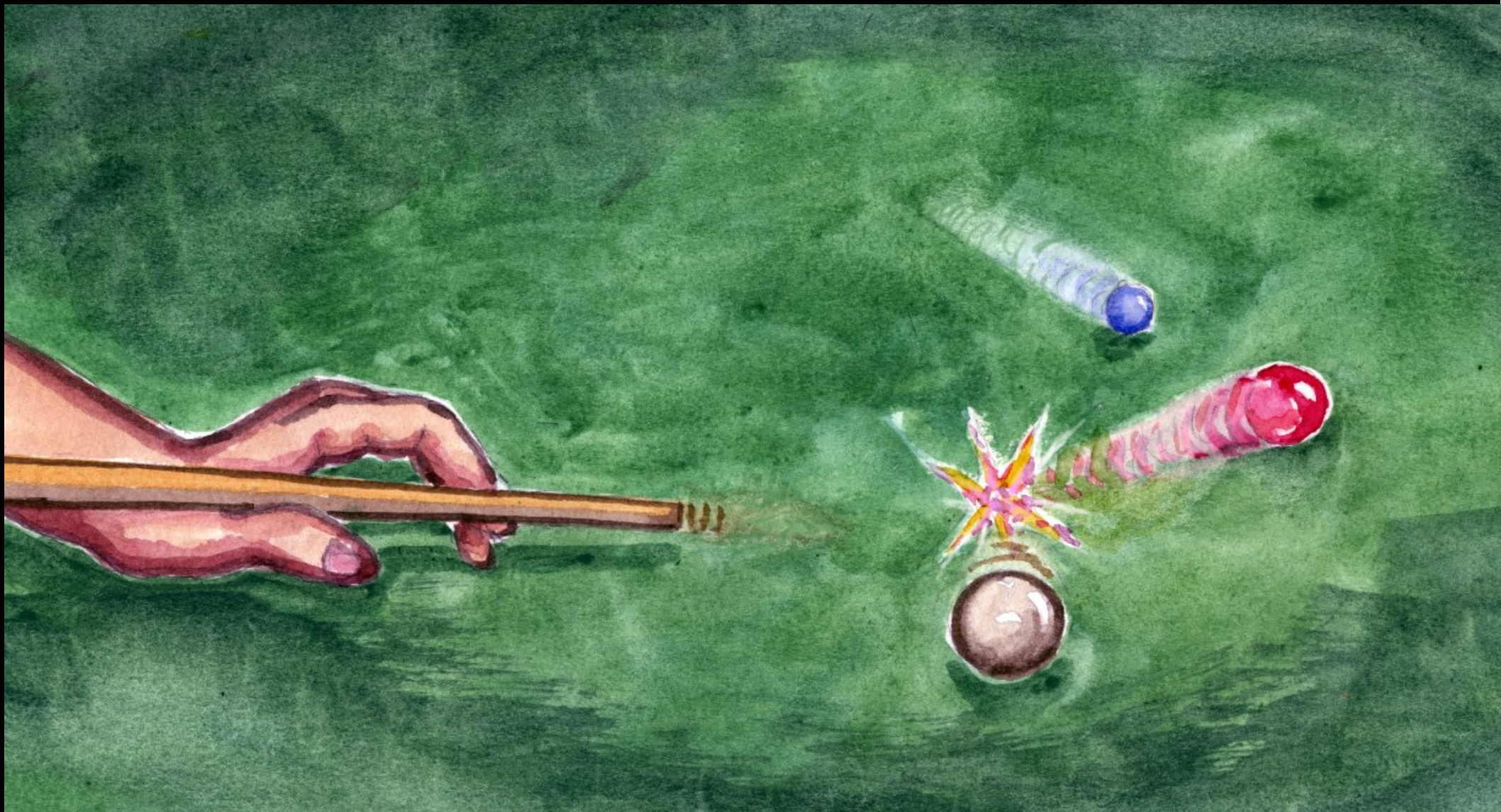


Tim Padfield

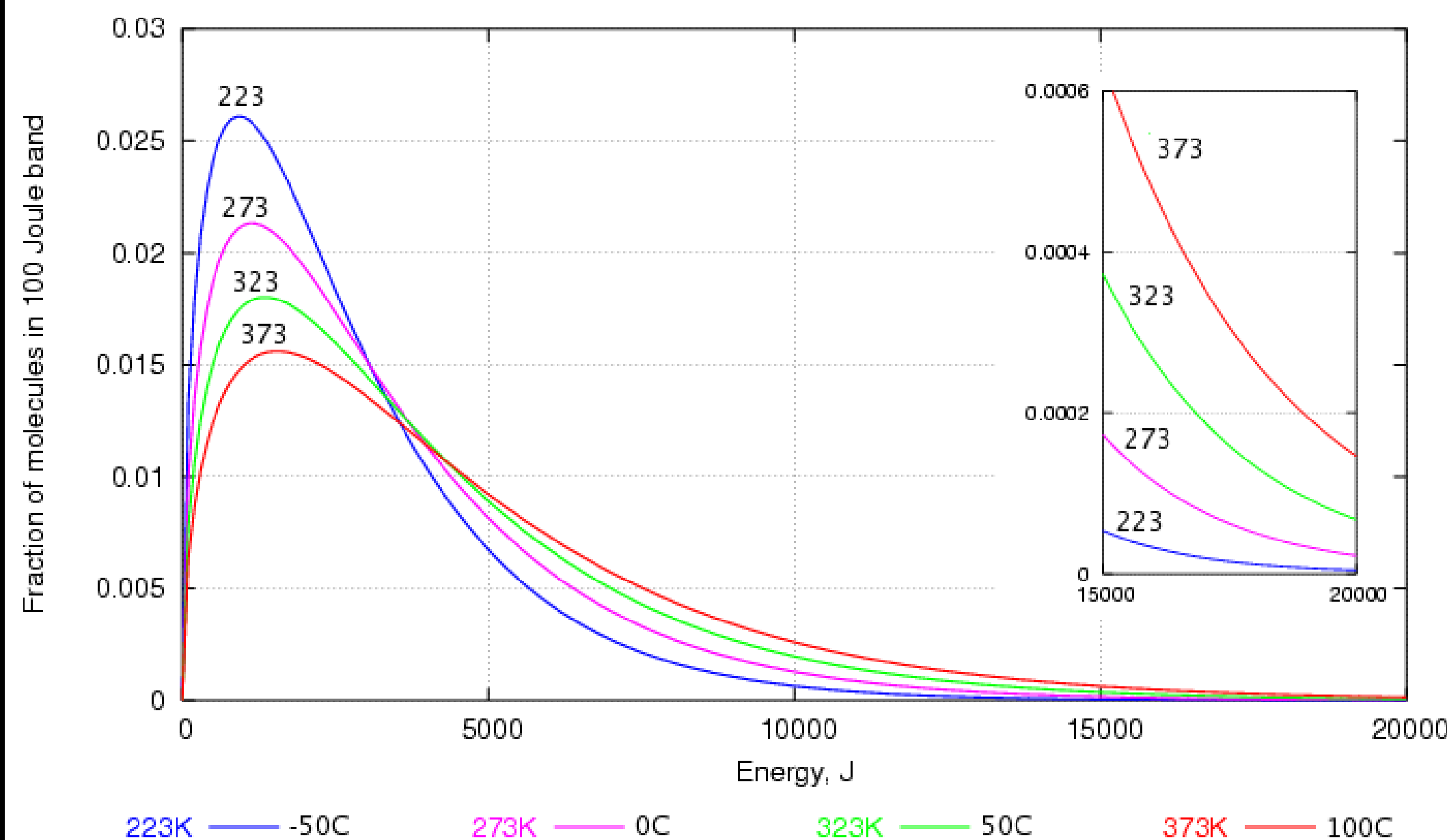
Building the store



What is temperature?

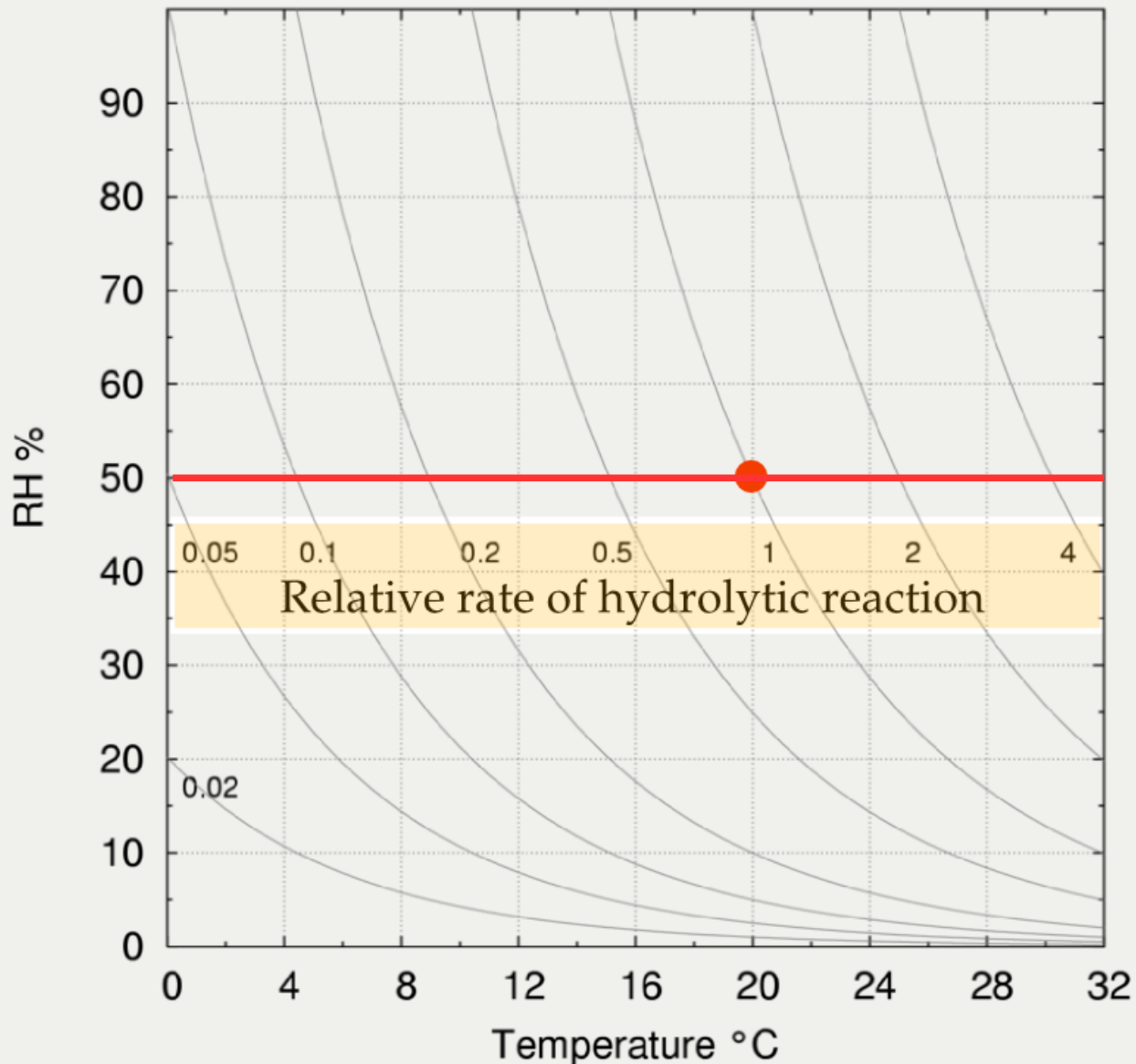


What is temperature?

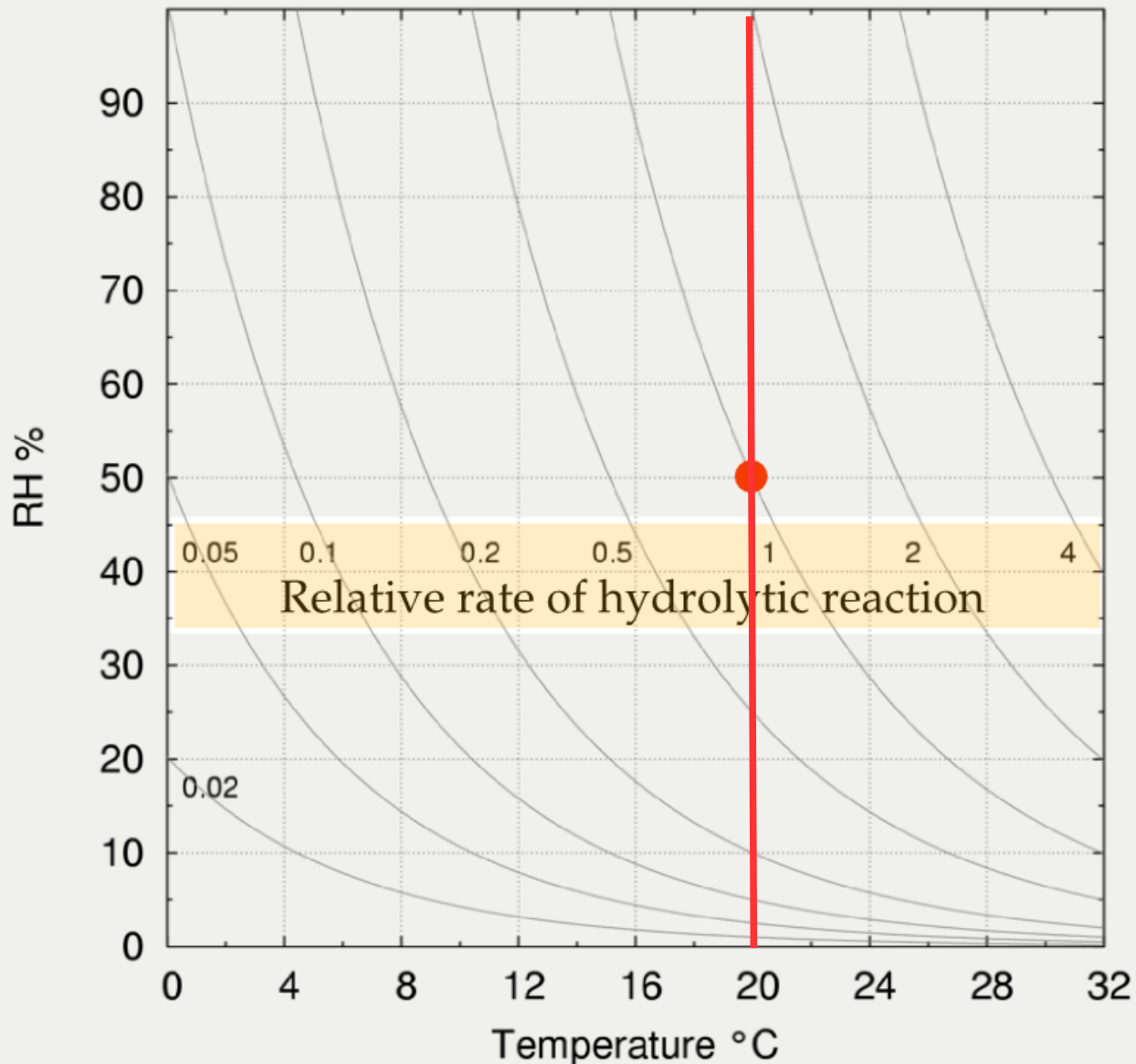


223K — -50C 273K — 0C 323K — 50C 373K — 100C

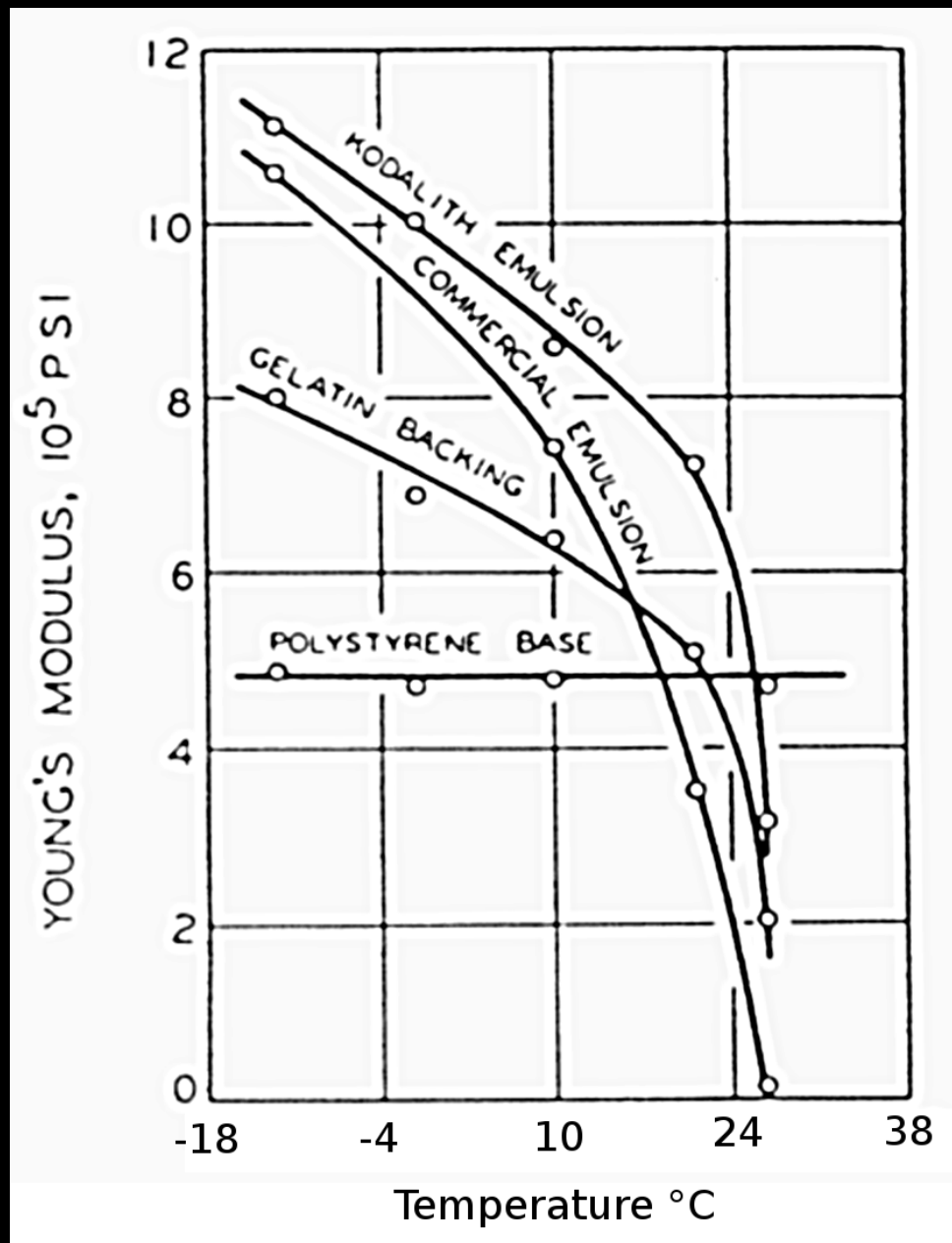
The maximum thermal energy of molecules increases disproportionately with temperature



The Sebera diagram of environmental influence on reaction rate

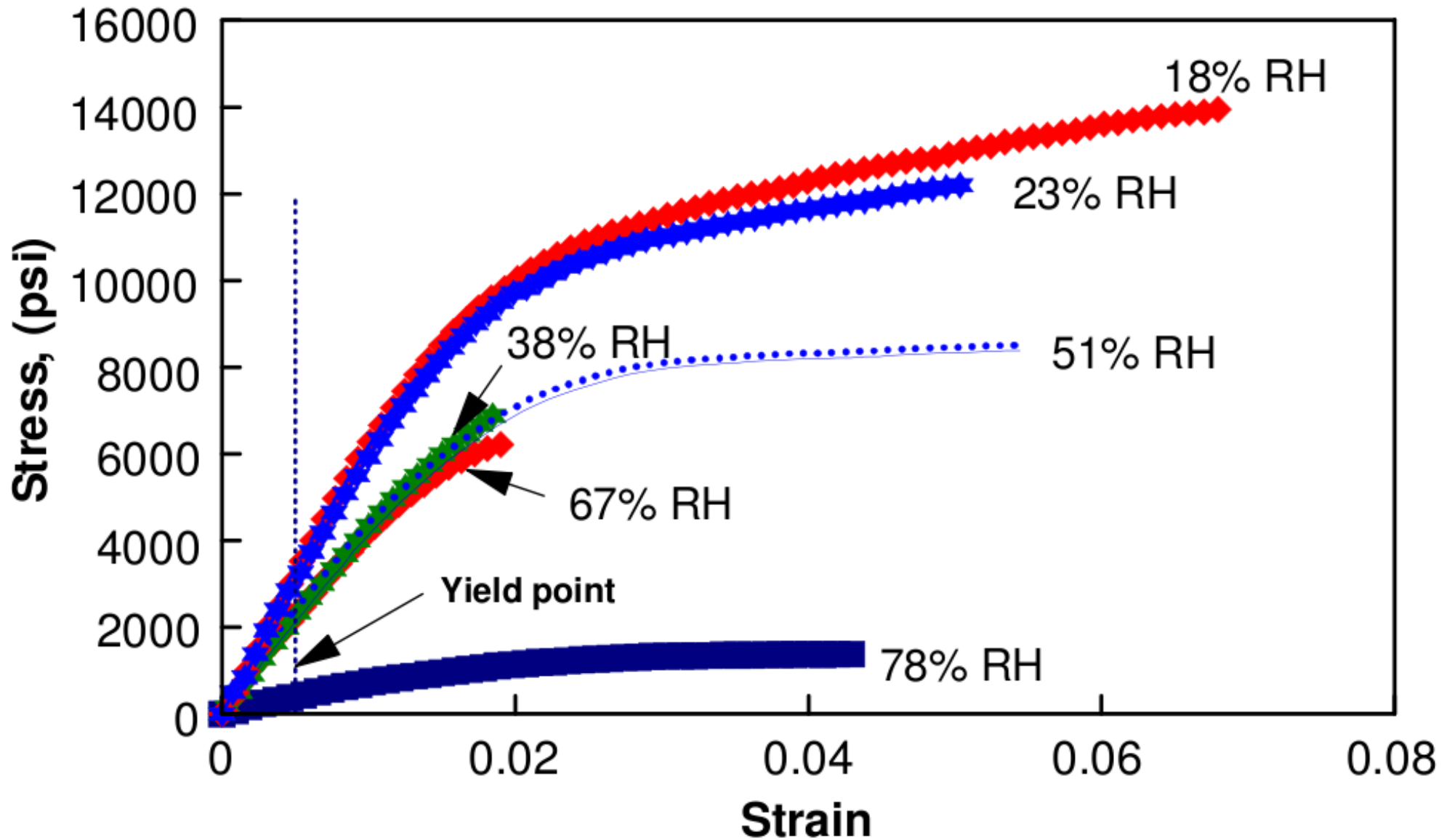


The influence on reaction rate of relative humidity



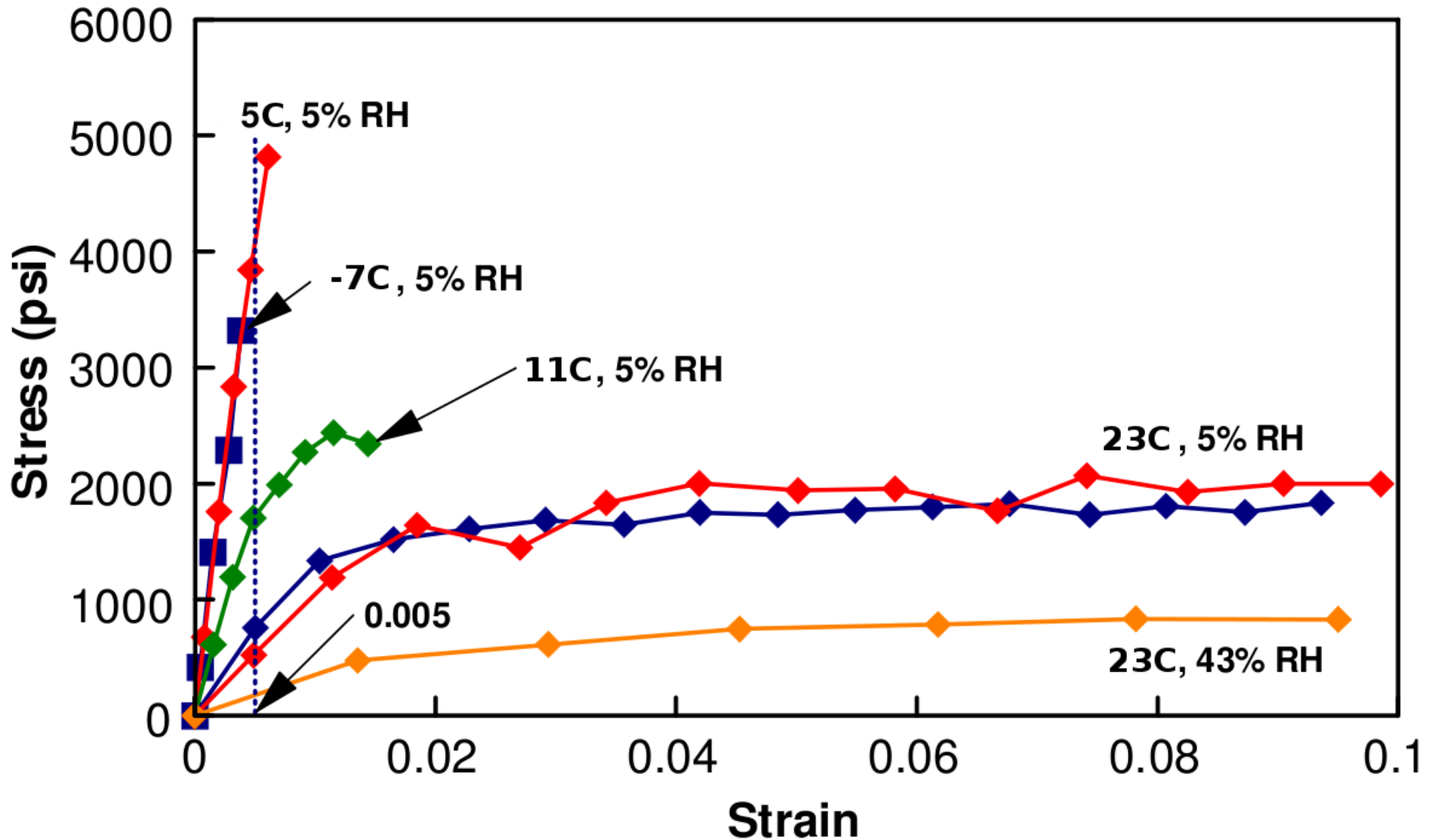
The influence of temperature on the stiffness of film

Hide glue, 24°C

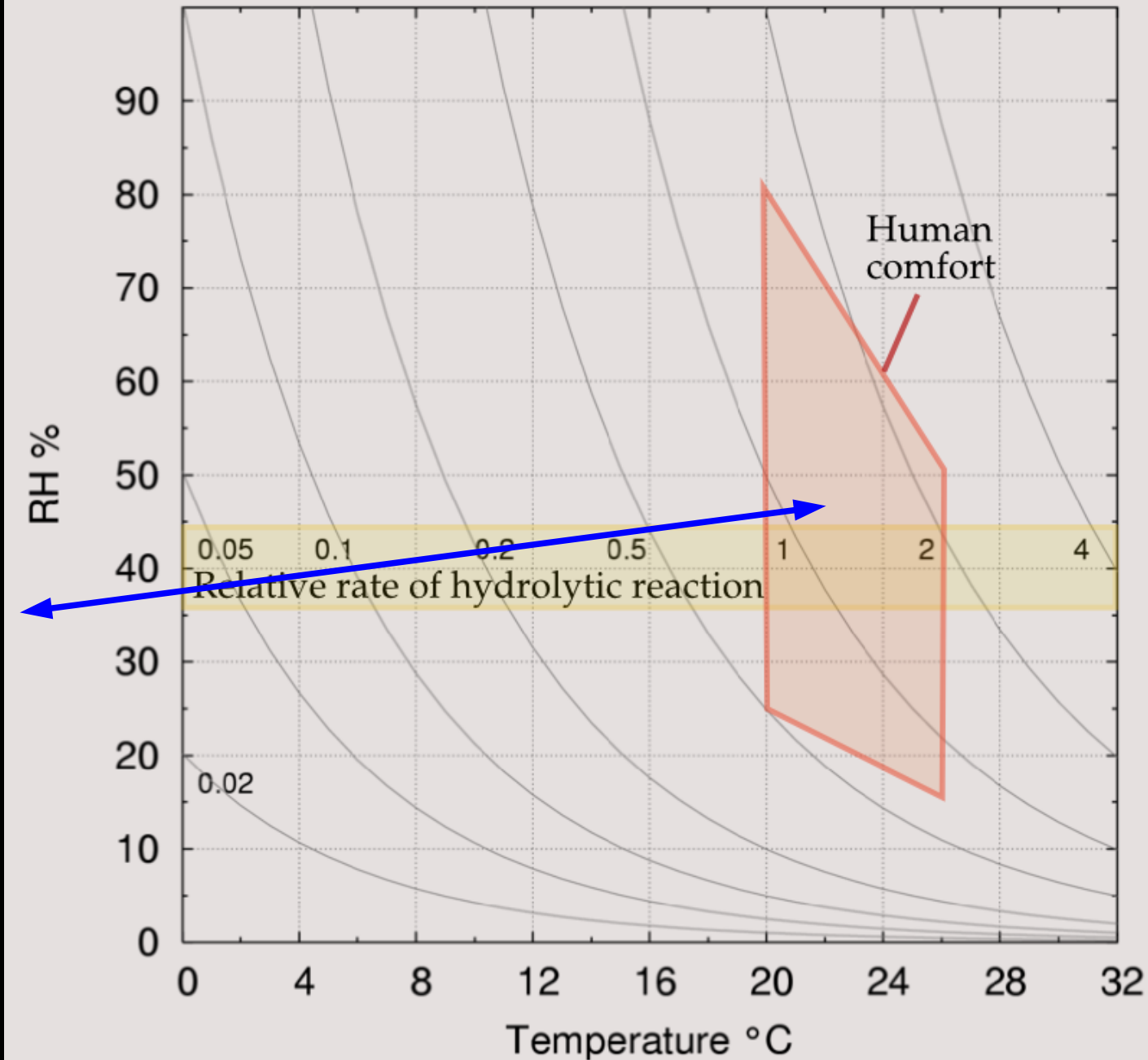


The influence of relative humidity on the stiffness of film

10 Year Old Liquitex Burnt Sienna



The influence of temperature and RH on the stiffness of mineral/polymer mixes



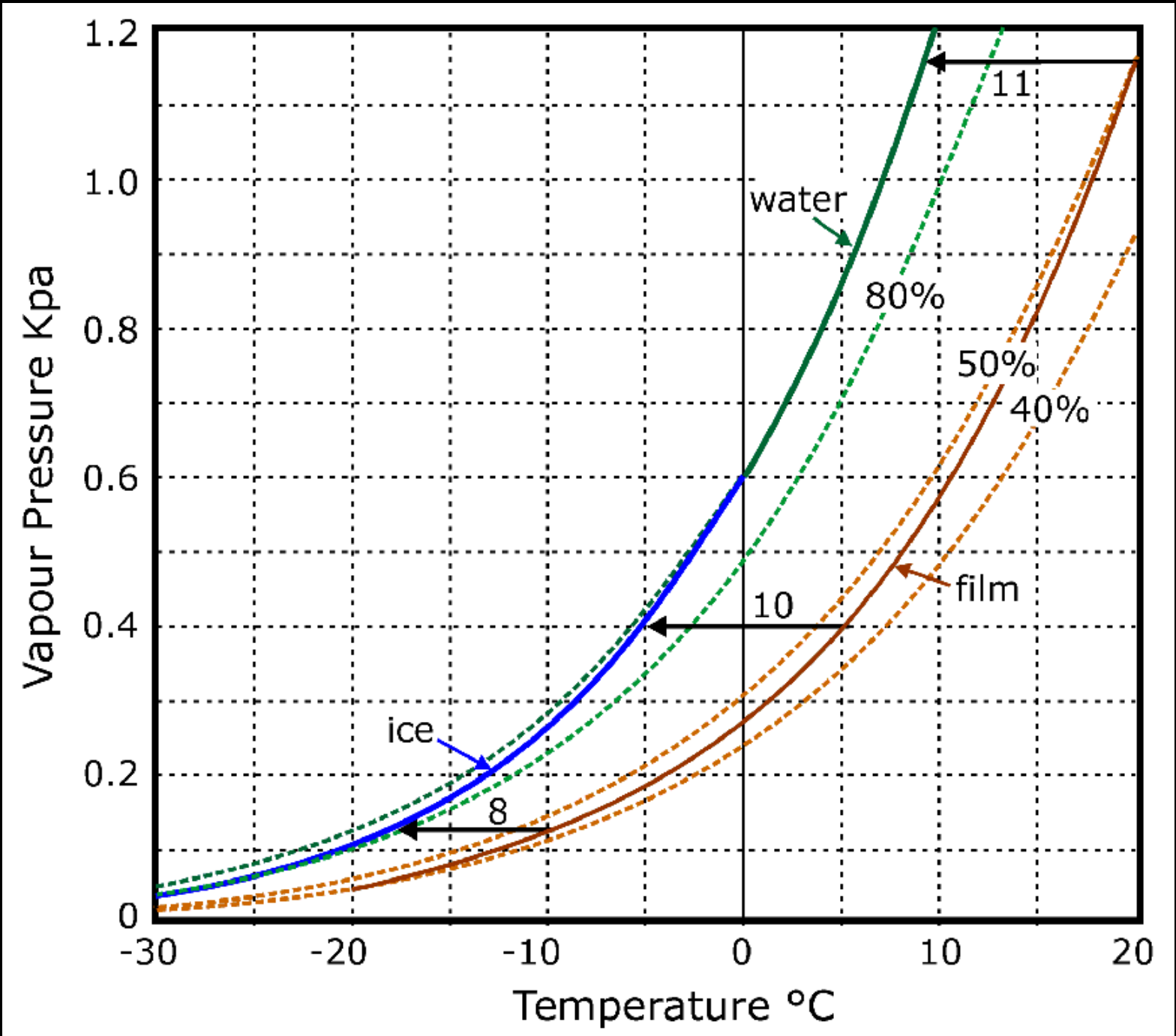
Moving from cold to warm and back



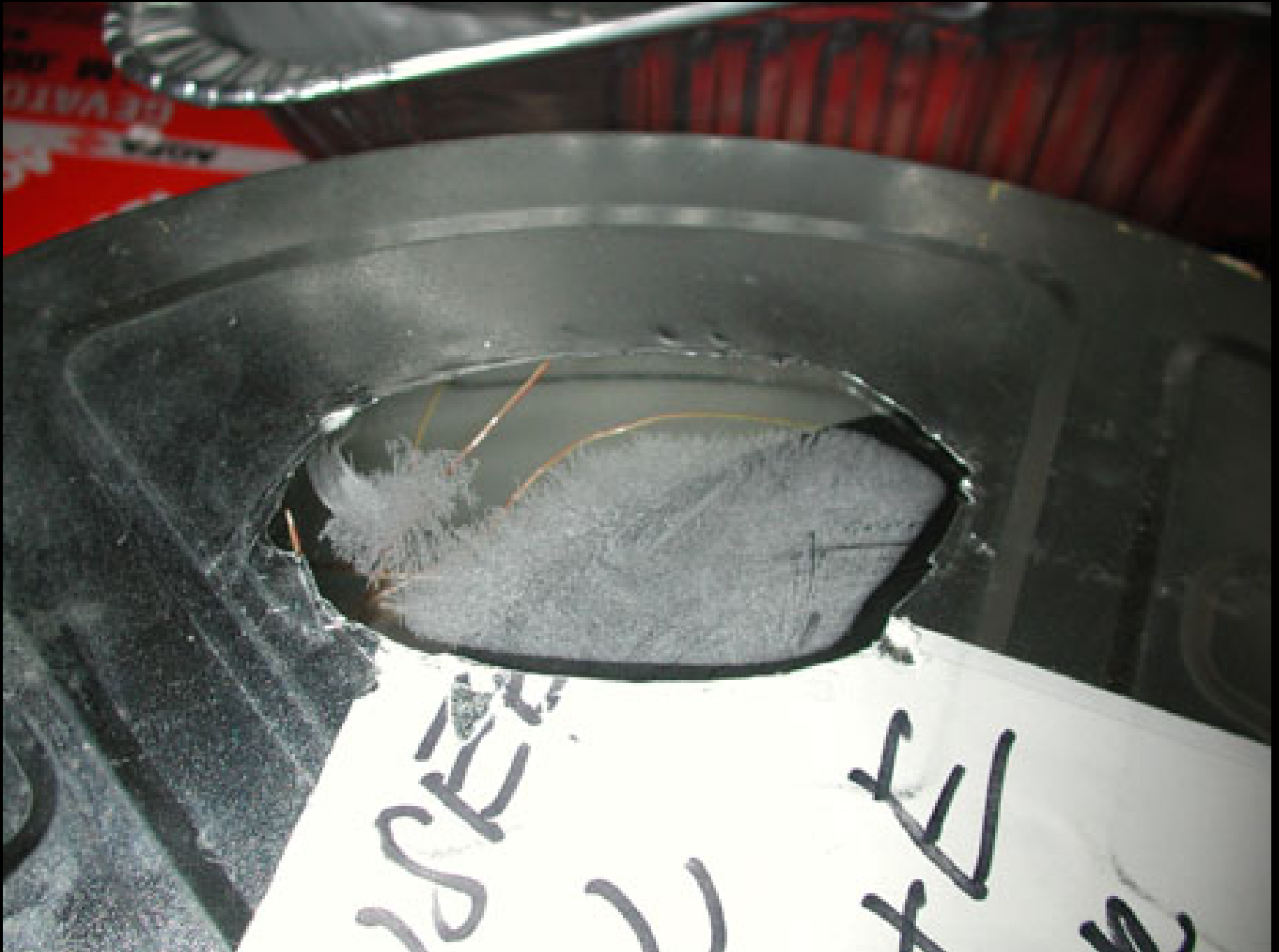
The traditional way

The picnic cool bag





Maximum permitted temperature difference



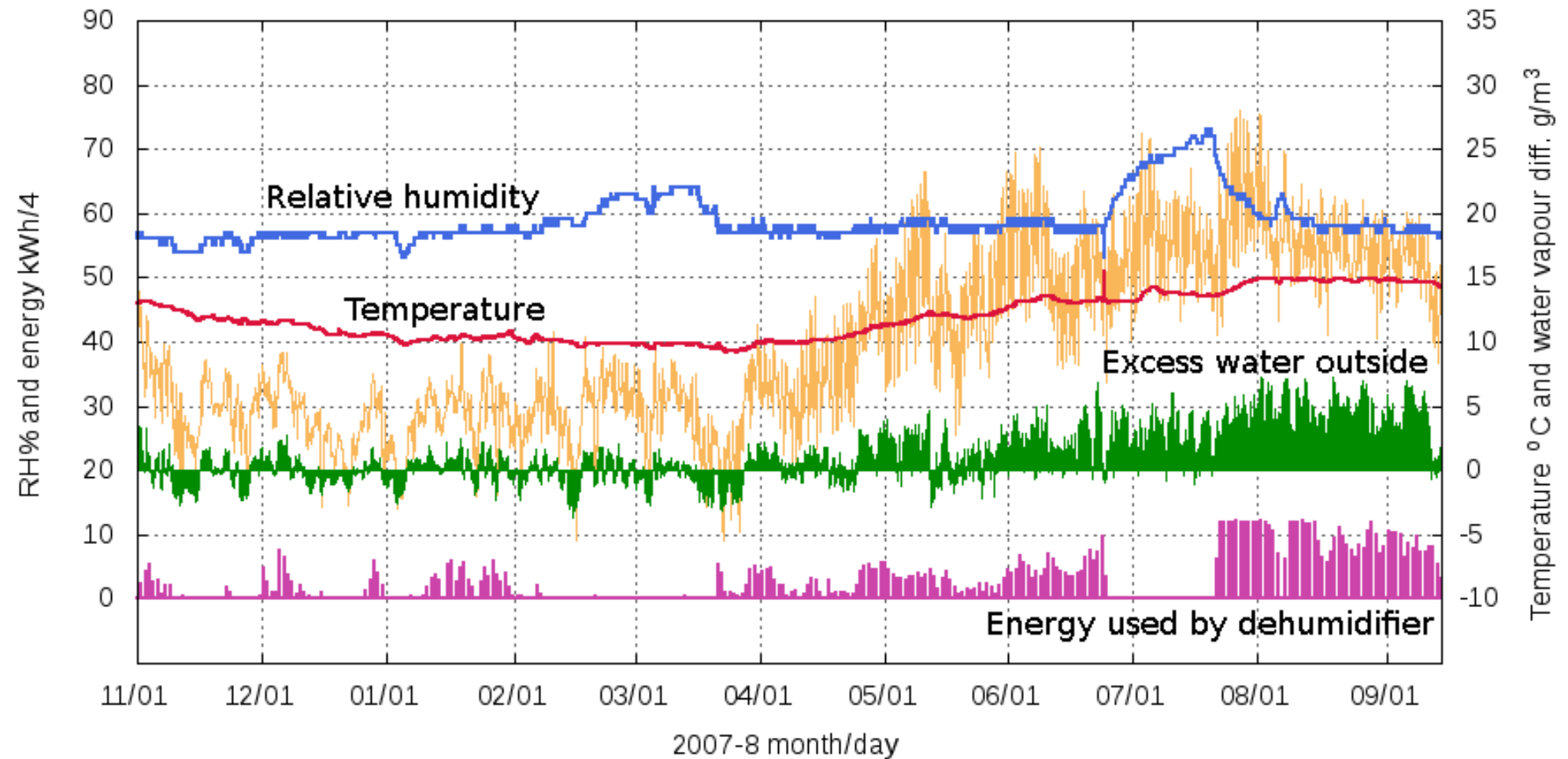
Condensation is a threat both ways

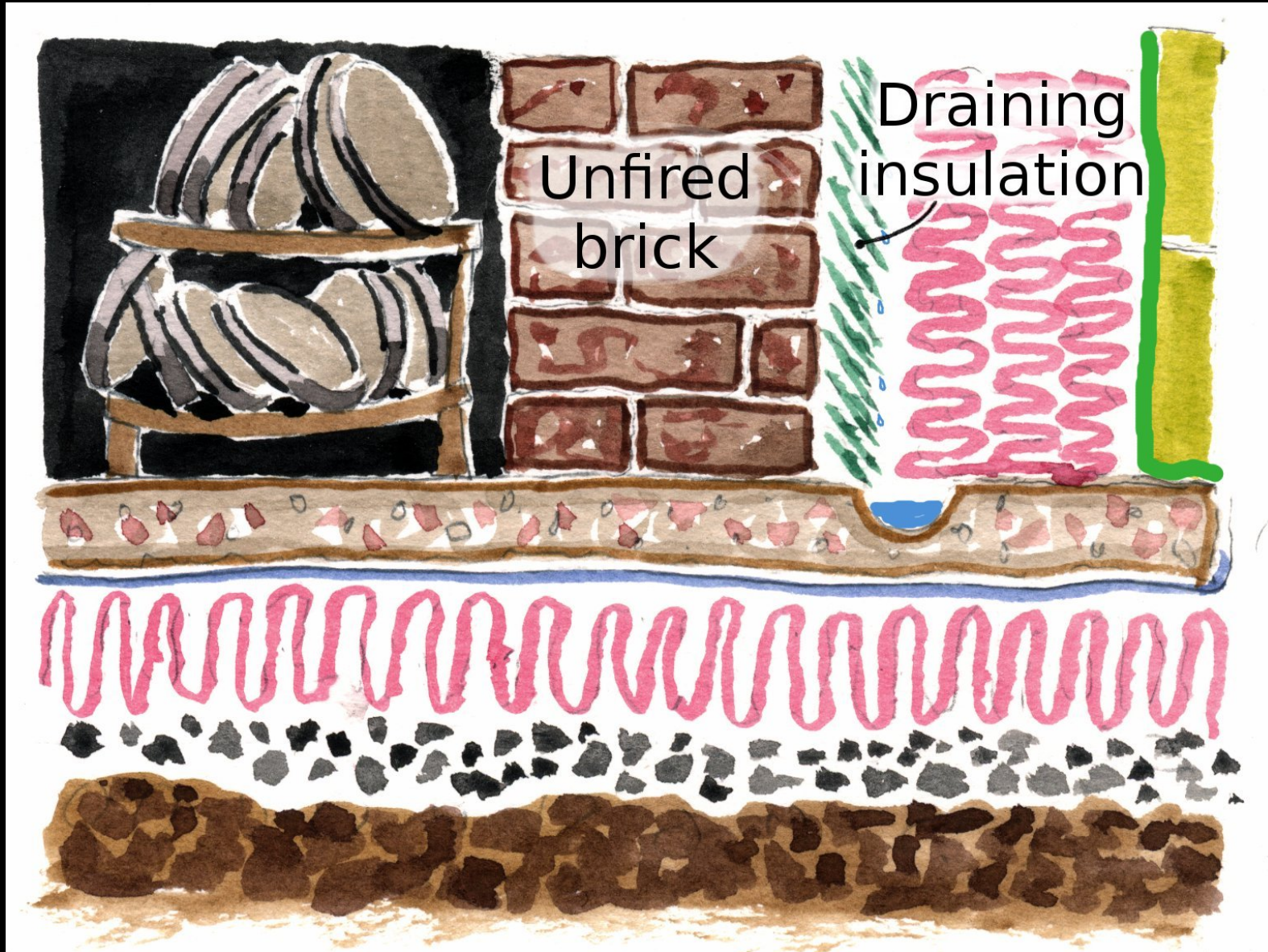


How to build a cold store

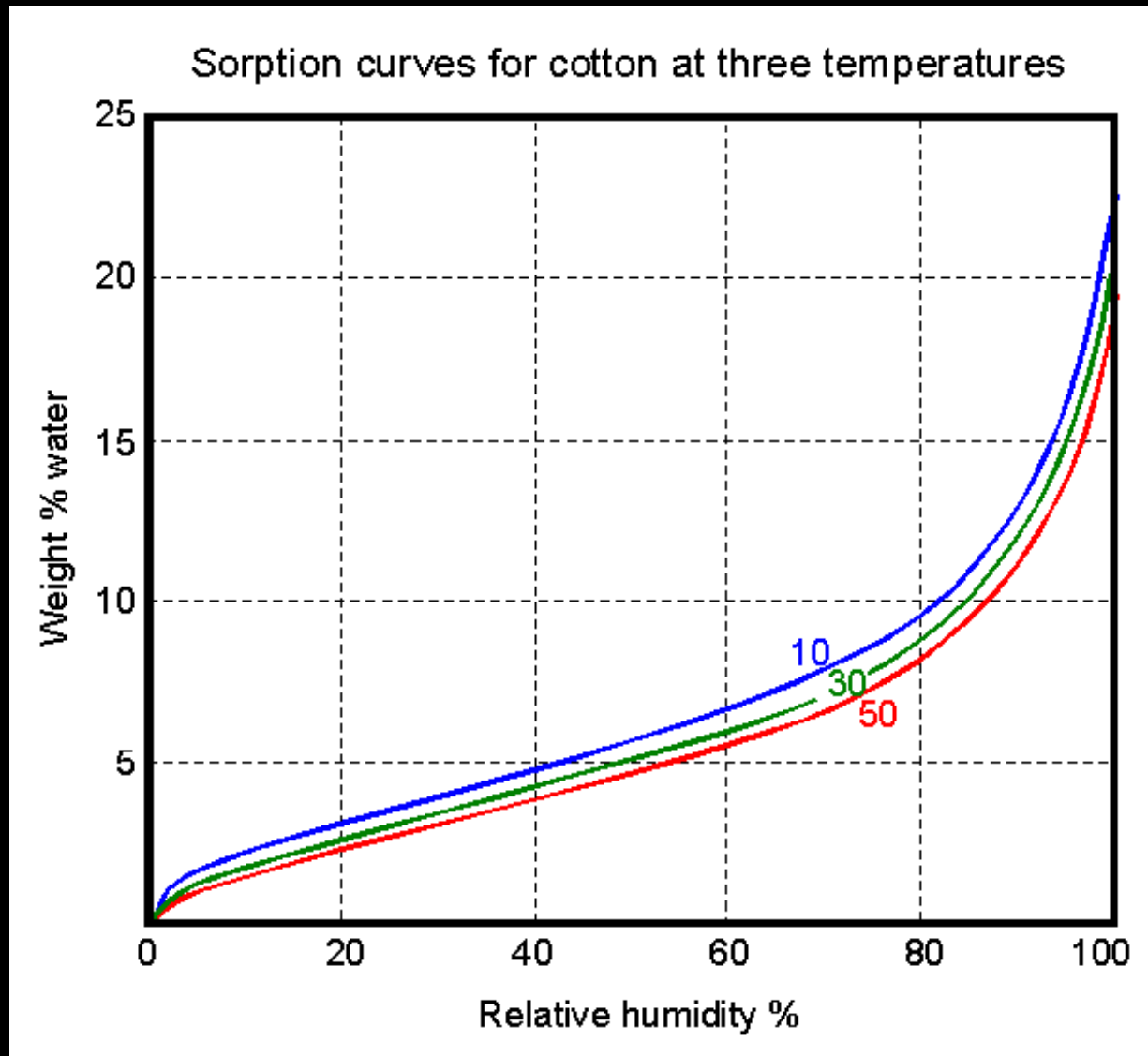


A dehumidified store with heat and (a little) humidity buffering

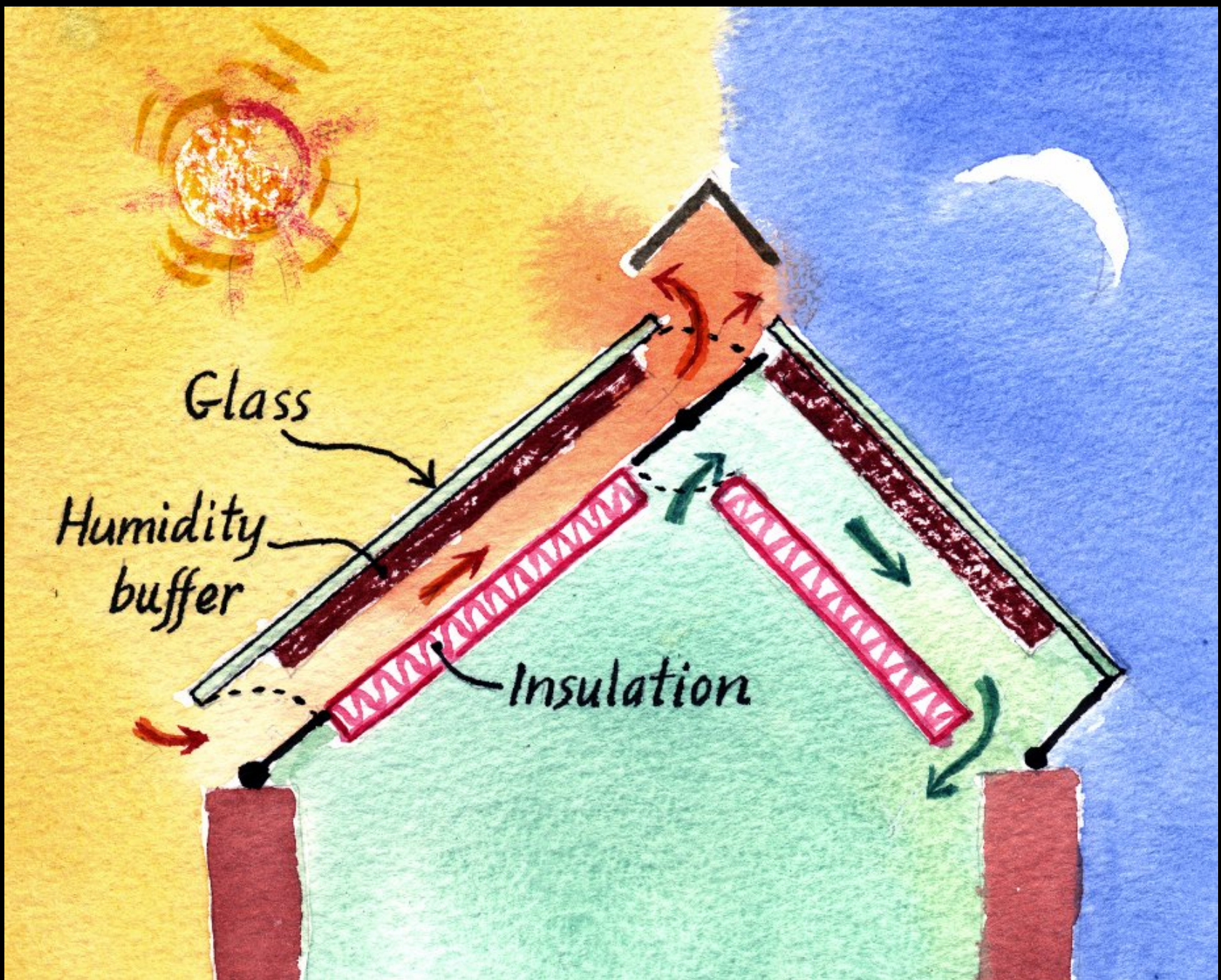




Structure of a cold store prepared for low energy climate control



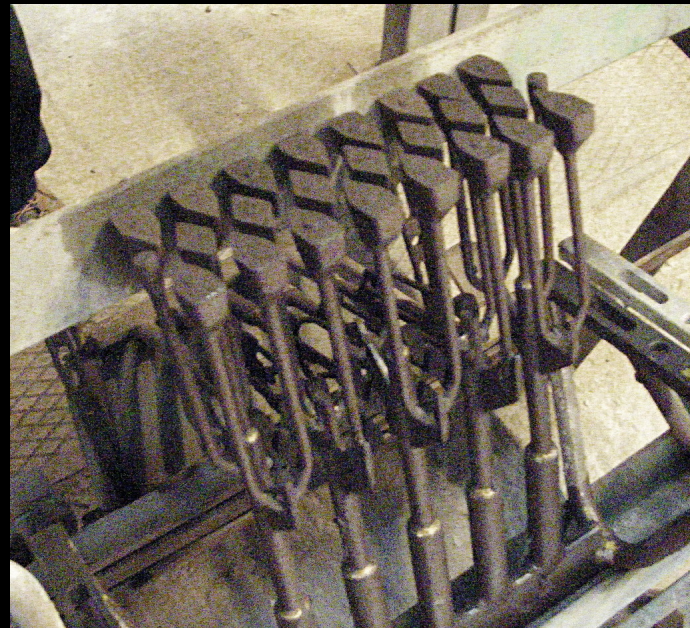
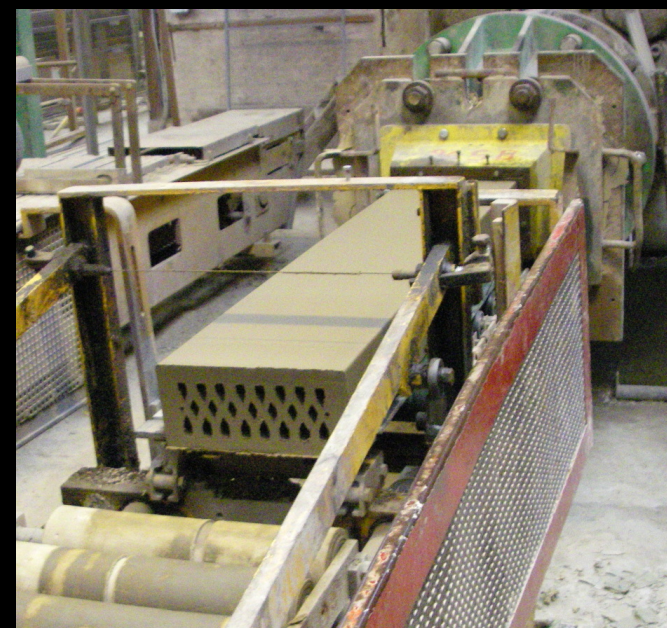
A characteristic of all absorbent materials is that the sorption is almost unaffected by temperature



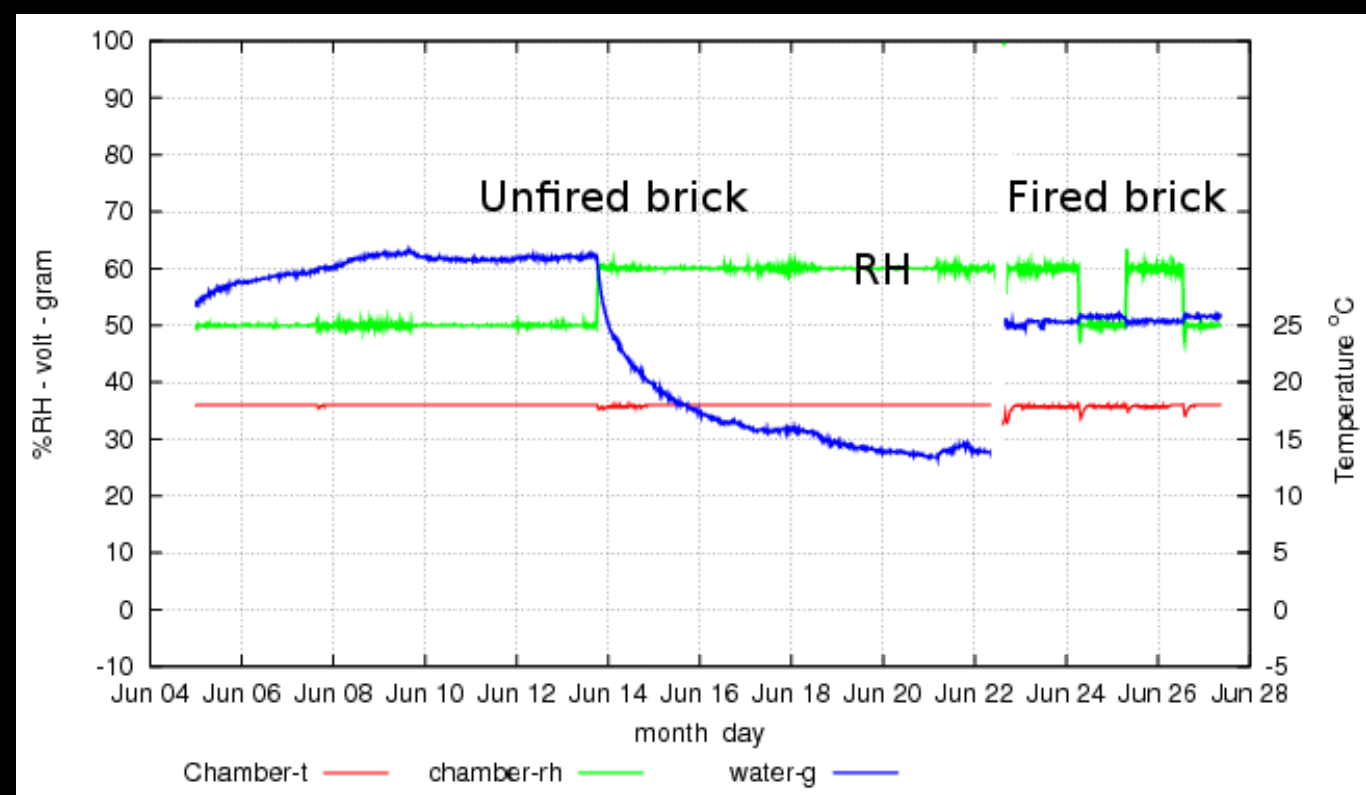
Using solar heating to dehumidify



Air pollution is a major problem in unventilated stores



Unfired perforated brick as a combined heat and humidity buffer, modified to absorb pollutants





This is a long way from modern building practice but *the times they are a changing*

Tim Padfield, in collaboration with
the museum climate research group
of the National Museum of Denmark

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