

Supplementary Material

Heterogeneous ice nucleation on phase separated organic-sulfate particles: Effect of liquid vs. glassy coatings

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Supporting Movies

Movie S1. A movie, sped up 32x, of ice nucleating on a mixed 1,2,6-hexanetriol-ammonium sulfate particle (org:sulf = 2:1) that had previously undergone liquid-liquid phase separation and efflorescence. The movie was recorded using 50x magnification at a temperature of 215 K. Ice nucleates inside of the coated particle at the ammonium sulfate-organic interface (bottom right side of the inner part of particle). The initial ice crystal appears as a bright spot and grows outwardly from that point. As the ice grows beyond the dimensions of the organic shell, the shell spreads around it to reduce the surface tension over the entire system, indicating that the shell is a flowing liquid.

Movie S2. A movie, sped up 32x, of ice nucleating on a mixed 1,2,6-hexanetriol/2,2,6,6-tetrakis(hydroxymethyl)cyclohexanol-ammonium sulfate particle (org:sulf = 2:1) that had previously undergone liquid-liquid phase separation and efflorescence. The movie was recorded using 50x magnification at a temperature of 215 K. Ice nucleates on the outside of the coated particle at the organic-air interface (bottom right side particle). Here, as the ice grows, the organic does not spread around the ice to reduce the surface tension over the entire system, indicating that the organic shell is no longer a flowing liquid.