Supplementary Information

BET results for glassy and crystalline K-Feldspar

Glassy K-Feldspar (m^2/g)	**Crystalline K-Feldspar (m^2/g)**
1.430	4.062
1.710	5.195
2.204	5.769
1.781	**5.009**

Generalised logistic function

The following function was used to fit the frozen faction curves in Figure 5a,

$$Y(t) = \mathrm{A} + \frac{\mathrm{K}-\mathrm{A}}{(\mathrm{C}+\mathrm{Q}e^{-\mathrm{B}t})^{1/\gamma}}. \quad \text{(s1)}$$

Where all of the parameters have no physical meaning but provide enough degrees of freedom to allow a good, monotonic, fit to the data. The monotonicity of the fit is important, as any section of positive gradient will lead to unphysical nucleation rates, ruling out the use of a power law for the fit. Equation s1 can be analytically differentiated and combined with equation 3 to produce the dashed lines in Figure 5c. However, these have all been cropped to exclude the last 5 droplets to freeze, where the Poisson error exceeds 10% [64]