**Supporting Information for**

# Supercooling and Nucleation of Fatty Acids: Influence of Thermal History on the Behavior of the Liquid Phase

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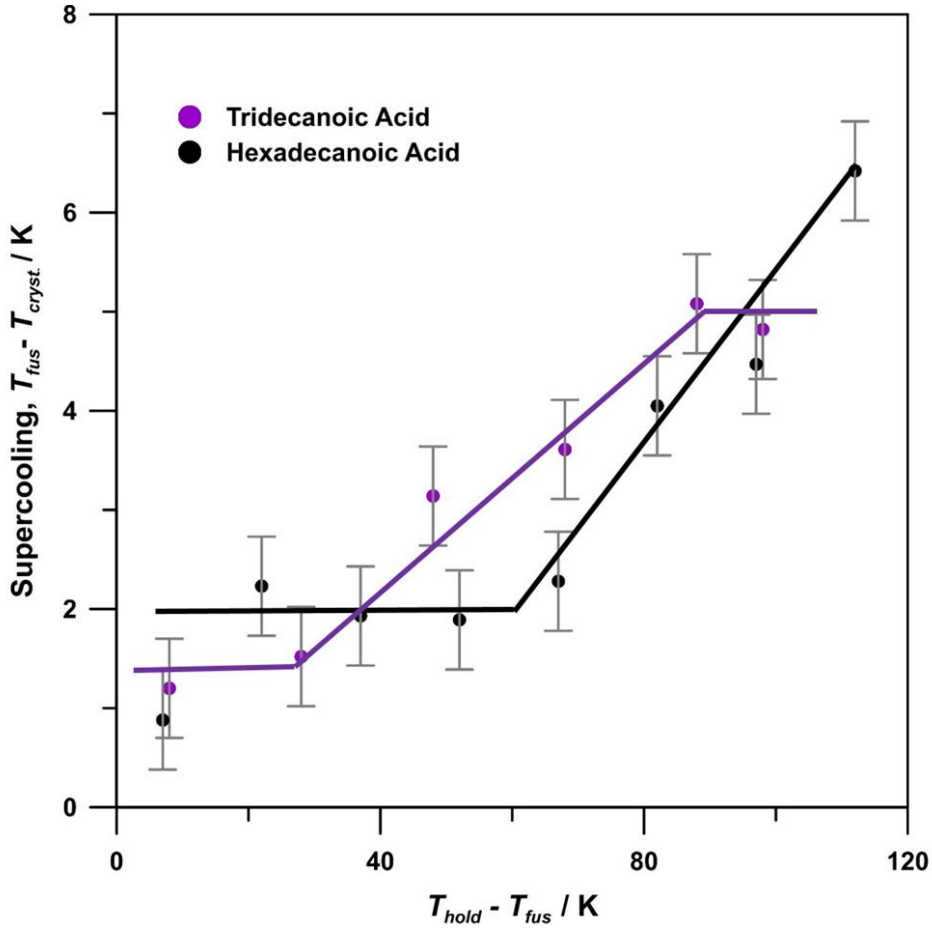


**Figure S1.** Supercooling at crystallization ($T_{fus} - T_{cryst}$), where $T_{cryst}$ is the crystallization temperature, as a function of the holding temperature, $T_{hold}$, relative to the melting temperature, $T_{fus}$, for tridecanoic and hexadecanoic acids.

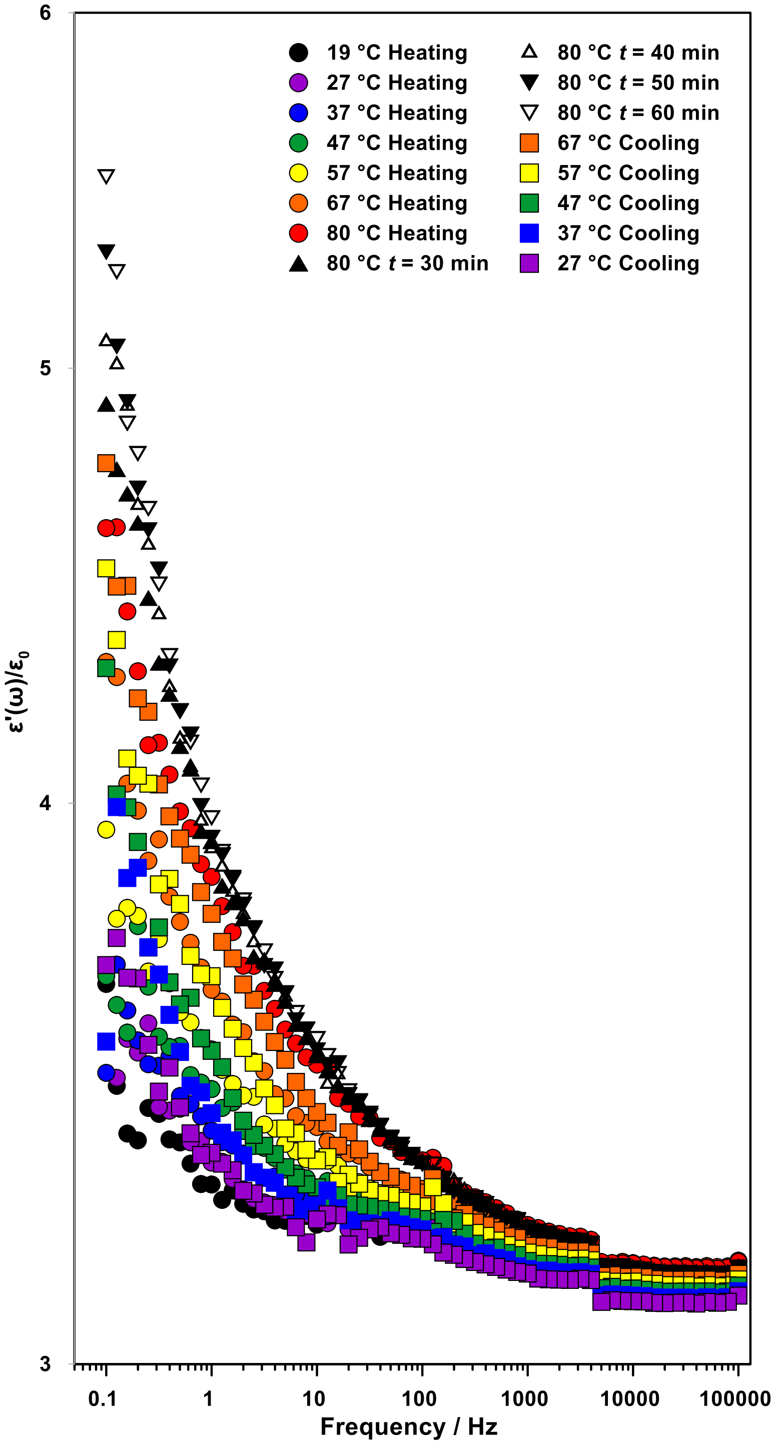


**Figure S2.** The real portion of the dielectric constant of octanoic acid ($T_{fus}$ = 16 °C) as a function of frequency on heating, over the isothermal holding period at 132 °C, and on cooling. The fatty acid was held at 80 °C for 60 min between the heating and cooling cycles. Measurements made on heating are represented by circles; measurements made on cooling are represented by squares, with the same colour for a given temperature.

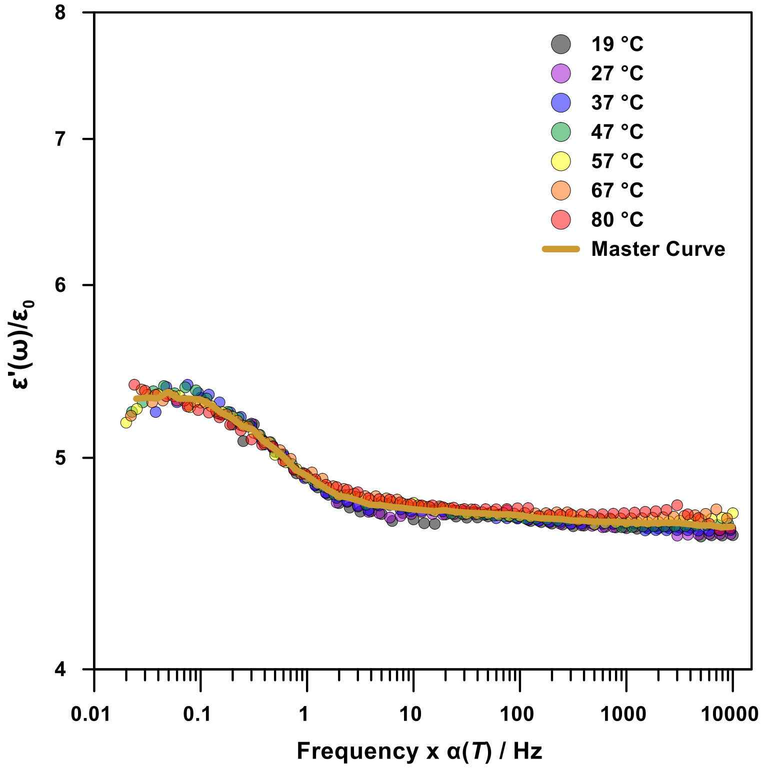


**Figure S3.** Master curve for the real part of the dielectric constant of octanoic acid ($T_{fus}$ = 16 °C) created by shifting the individual $\varepsilon'(\omega)$ curves by a factor $\alpha(T)$ to bring them in line with the reference curve, chosen as the curve from the measurement made at 19 °C.

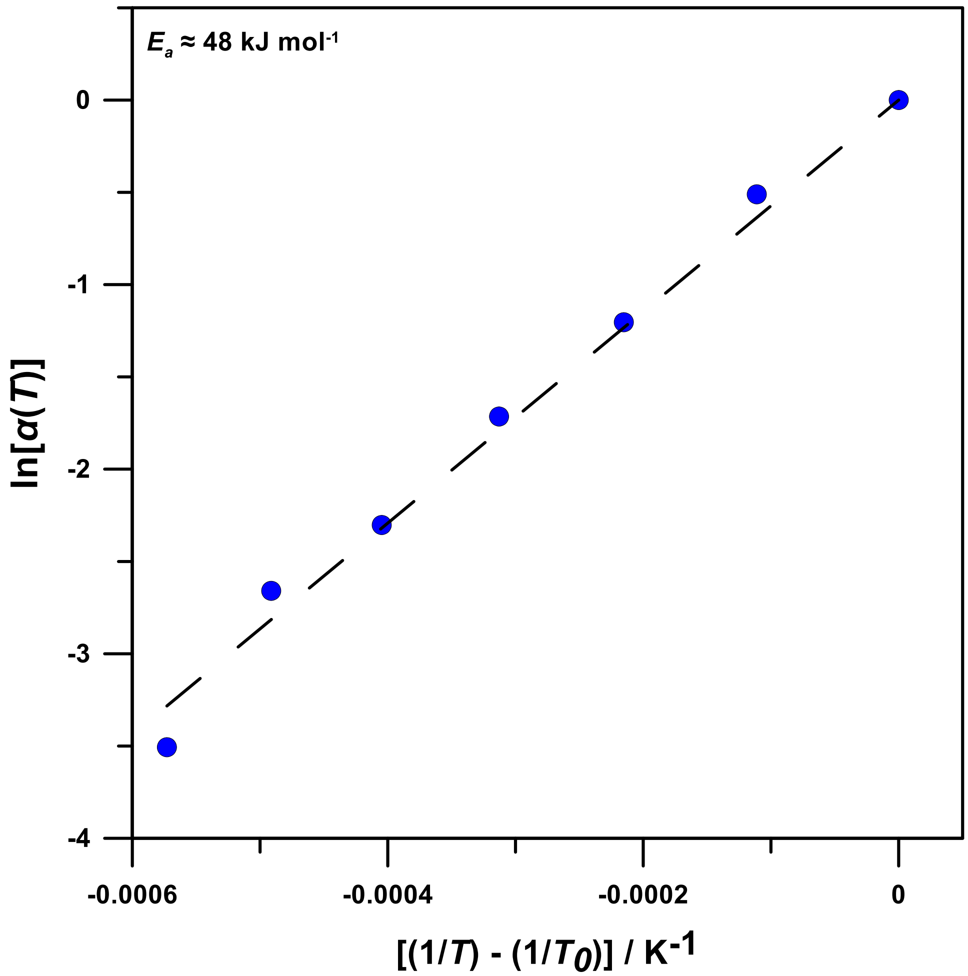


**Figure S4.** Natural logarithm of the values of $\alpha(T)$ used to create the master curve for octanoic acid ($T_{fus}$ = 16 °C) from the $\varepsilon'(\omega)/\varepsilon_0$ curves measured on heating as a function of $(1/T - 1/T_0)$. The dashed line is a linear fit to Equation 3.6.

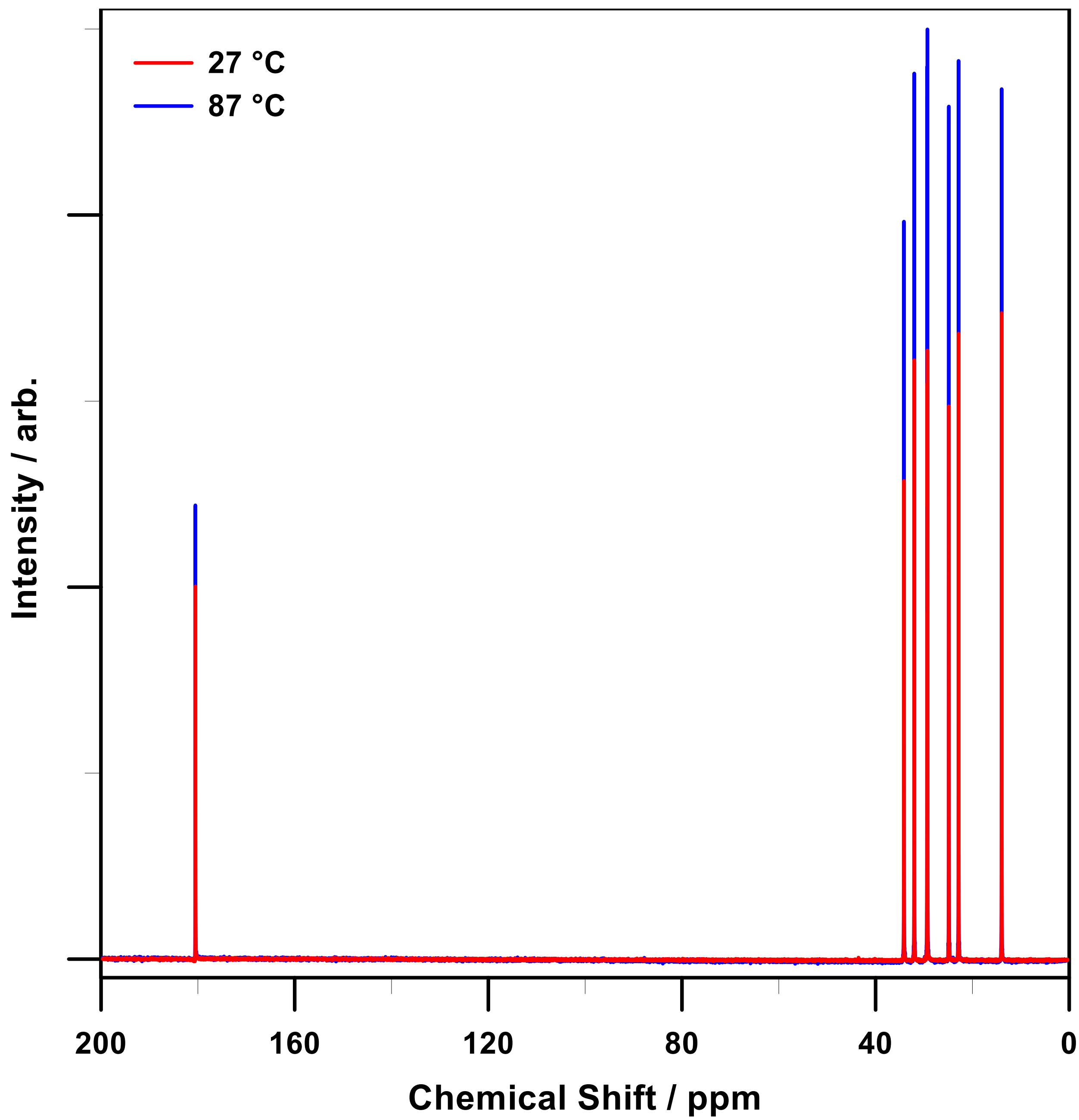


**Figure S5.** NMR spectrum of neat octanoic acid at 27 °C and 87 °C. The peaks corresponding to $C_4$ and $C_5$ are unresolved.

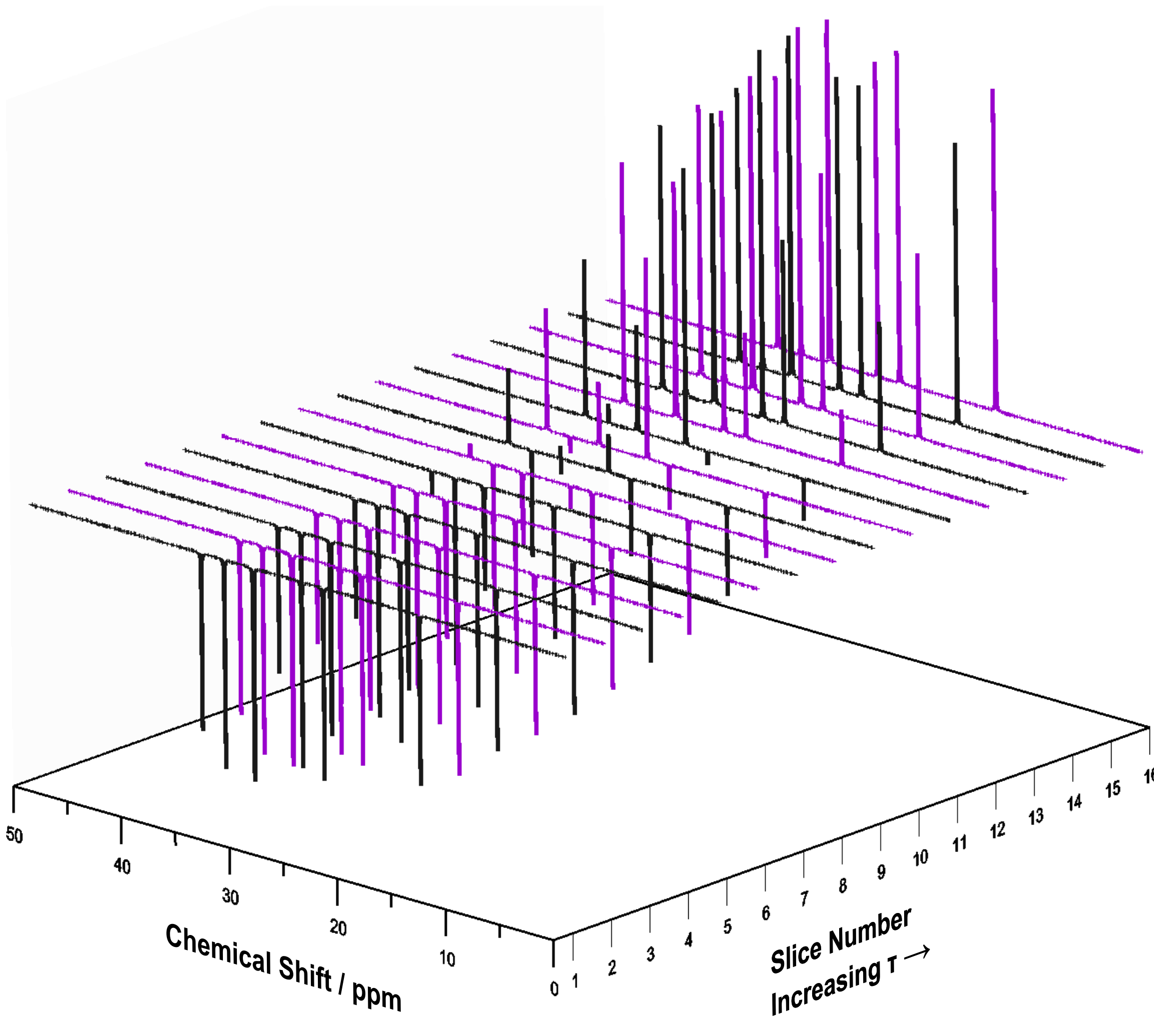


**Figure S6.** Example of a series of NMR spectra collected in an inversion recovery measurement. This example shows octanoic acid at 42 °C in the range of 0 to 50 ppm with spectra collected with 16 values of $\tau$, where 0.001 s < $\tau$ < 40 s.

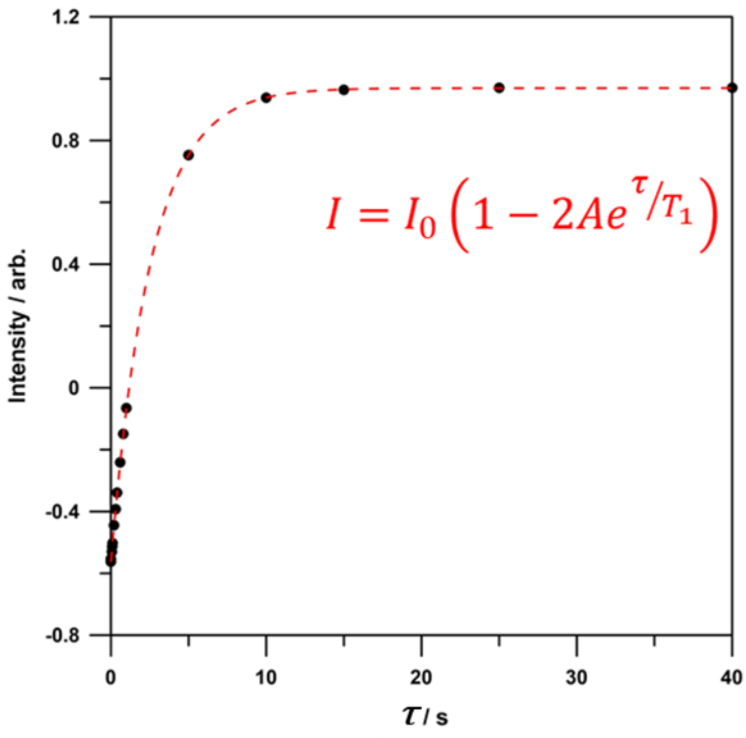


**Figure S7.** Example of data acquired from an inversion recovery experiment and the fitting procedure used to determine the spin-lattice relaxation time, $T_1$.