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Supporting Information

Stearyl Methacrylate-based Polymers as Crystal Habit Modifiers for Triacylglycerols

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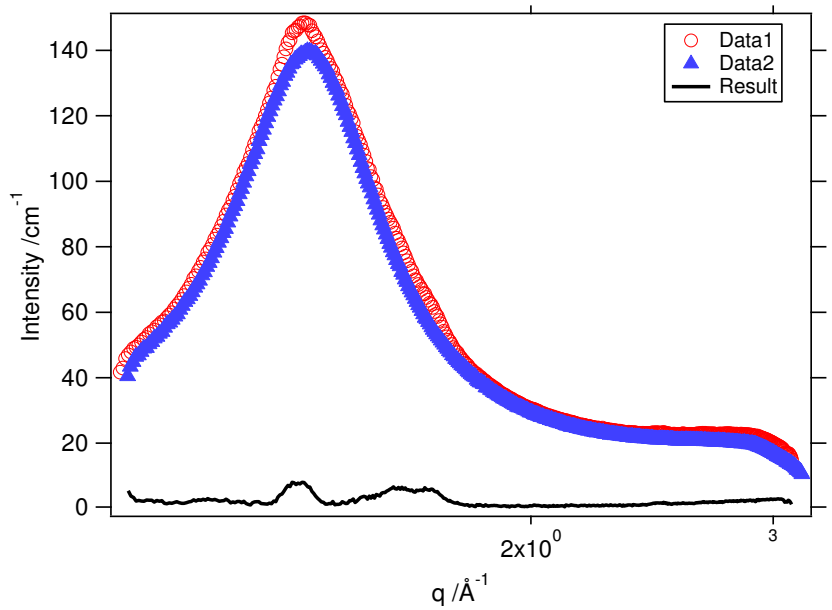

Figure S1. An example of wide-angle X-ray diffraction subtraction procedure, in which data from a sample containing SSS (5 wt% in OOO) crystallised at 0 °C (red symbols) is overlapped with OOO at 0 °C (blue symbols). After the subtraction, it was possible to identify 3 diffraction peaks (black line), even at such a low concentration of crystals.

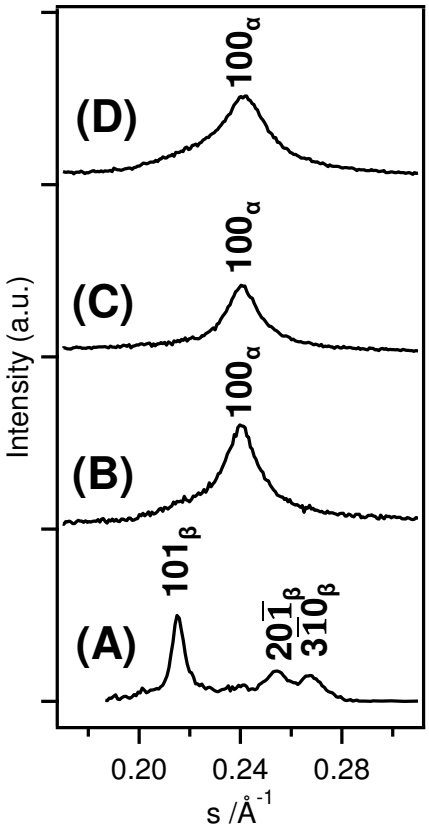

Figure S2. Subtracted WAXD data collected for SSS (5 wt% in OOO) at 0 °C after crystallization in the presence of the (A) **O_{67}**, (B) **S_{37}**, (C) **$S_{37}O_{11}$**, (D) **S_{37} O_{26}**

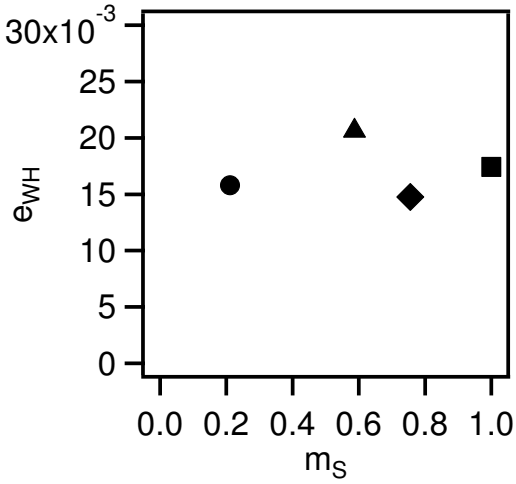

Figure S3. A plot of crystal lattice strain values (e_{WH}) measured by Williamson-Hall analysis of SSS (5 wt% in OOO) crystallized in the presence of polymer additives with different fractions of stearyl methacrylate (m_S): $S_{37}O_{138}$(●), $S_{37}O_{26}$ (▲), $S_{37}O_{11}$ (♦) and S_{37} (■).The calculated strain values were relatively constant across all samples, with no obvious trend related to the additive composition.

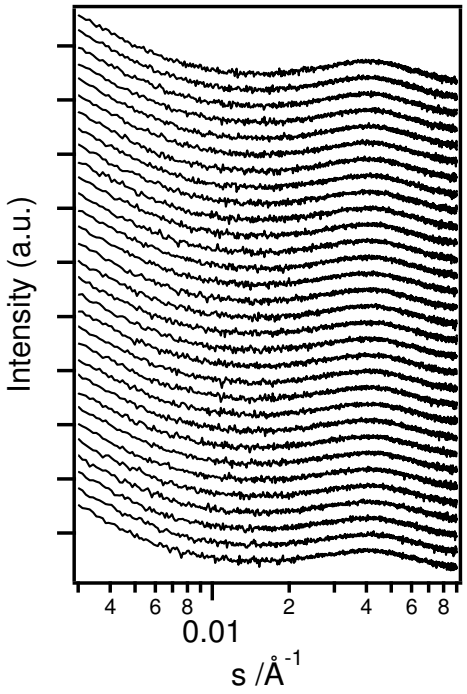

Figure S4. Time-resolved SAXD data for $\mathbf{S_{37}}$ in OOO (1 wt%) while cooling from 30 °C (bottom trace) to 0 °C (top trace) at a rate of 1 °C/min. No crystals of $\mathbf{S_{37}}$ were observed to form during this cooling experiment.

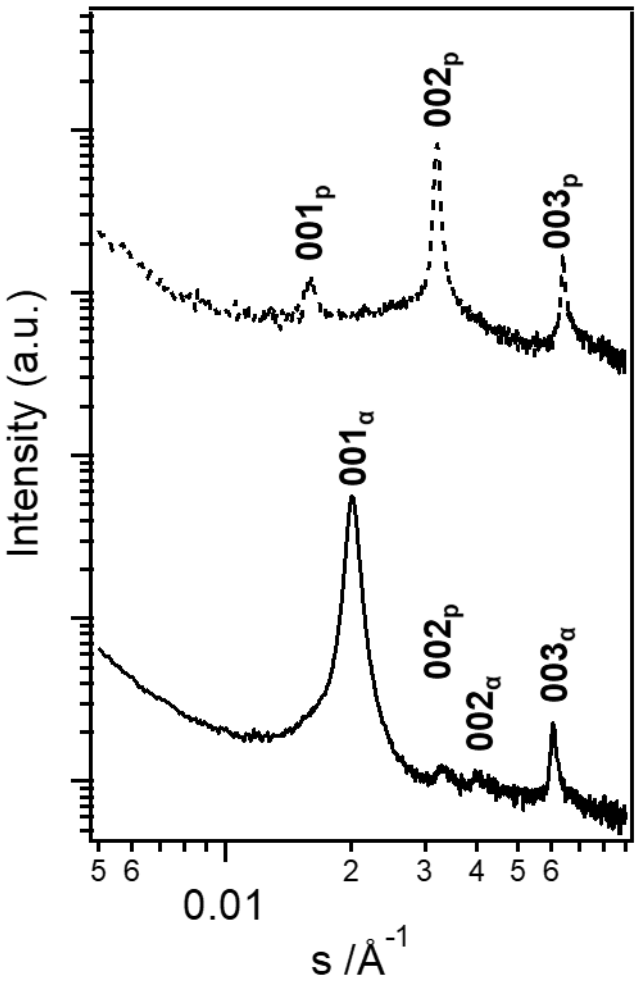

Figure S5. Subtracted SAXD data collected for SSS (5 wt% in OOO) at 0 °C after crystallization in the presence of $\mathbf{S_{37}}$ (solid line) stacked against data from pure $\mathbf{S_{37}}$ at 0 °C after crystallization under the same conditions (dashed line). The additional peak evident at s = 0.033 $Å^{-1}$ in the lower plot can be attributed to crystals of $\mathbf{S_{37}}$ forming in addition to SSS crystals. SAXD peaks of α-phase of SSS and polymer lamellar crystals are indicated by Miller indices.