

Supporting Information

Investigation on the Fast Phase Transition Mechanism of Flow-induced oriented iPB-1

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1. WAXD Data of Annealing at Different T_a for 5 min

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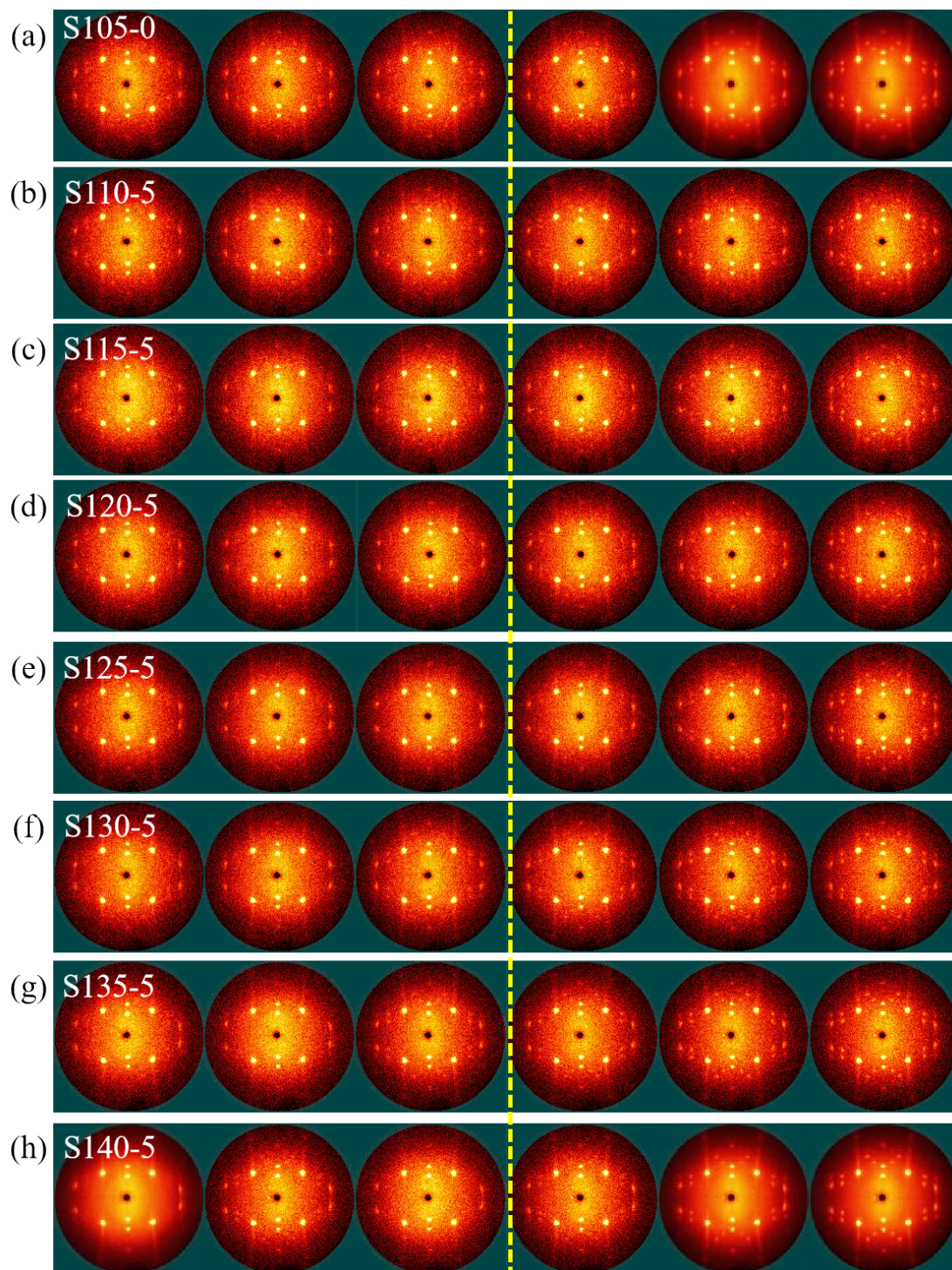


Figure S1. Representative 2D WAXD patterns of (a) S105-0, (b) S110-5, (c) S115-5, (d) S120-5, (e) S125-5, (f) S130-5, (g) S135-5 and (h) S140-5, the yellow dotted line separates the “Annealing” process (on the left side) and “Crystallization” process (on the right side), respectively.

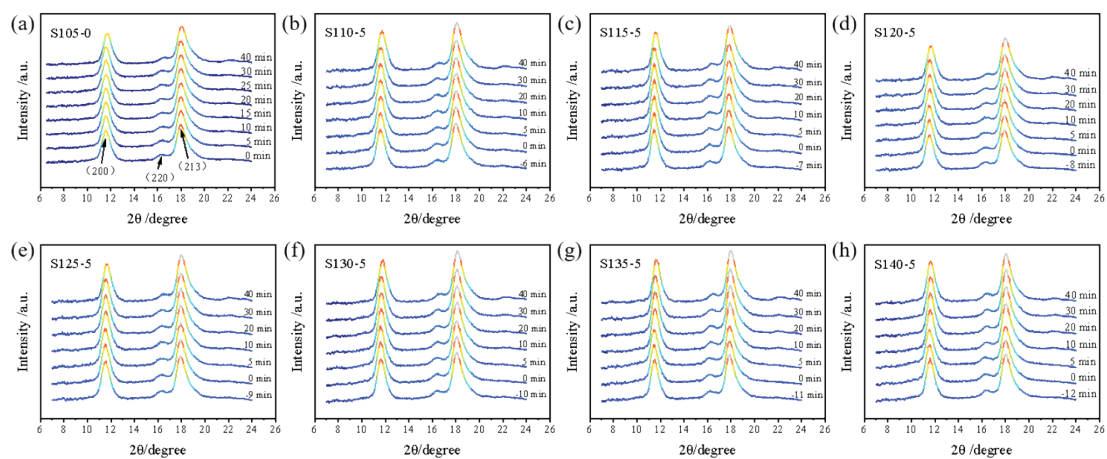


Figure S2. Representative 1D WAXD curves of (a) S105-0, (b) S110-5, (c) S115-5, (d) S120-5, (e) S125-5, (f) S130-5, (g) S135-5 and (h) S140-5, respectively.

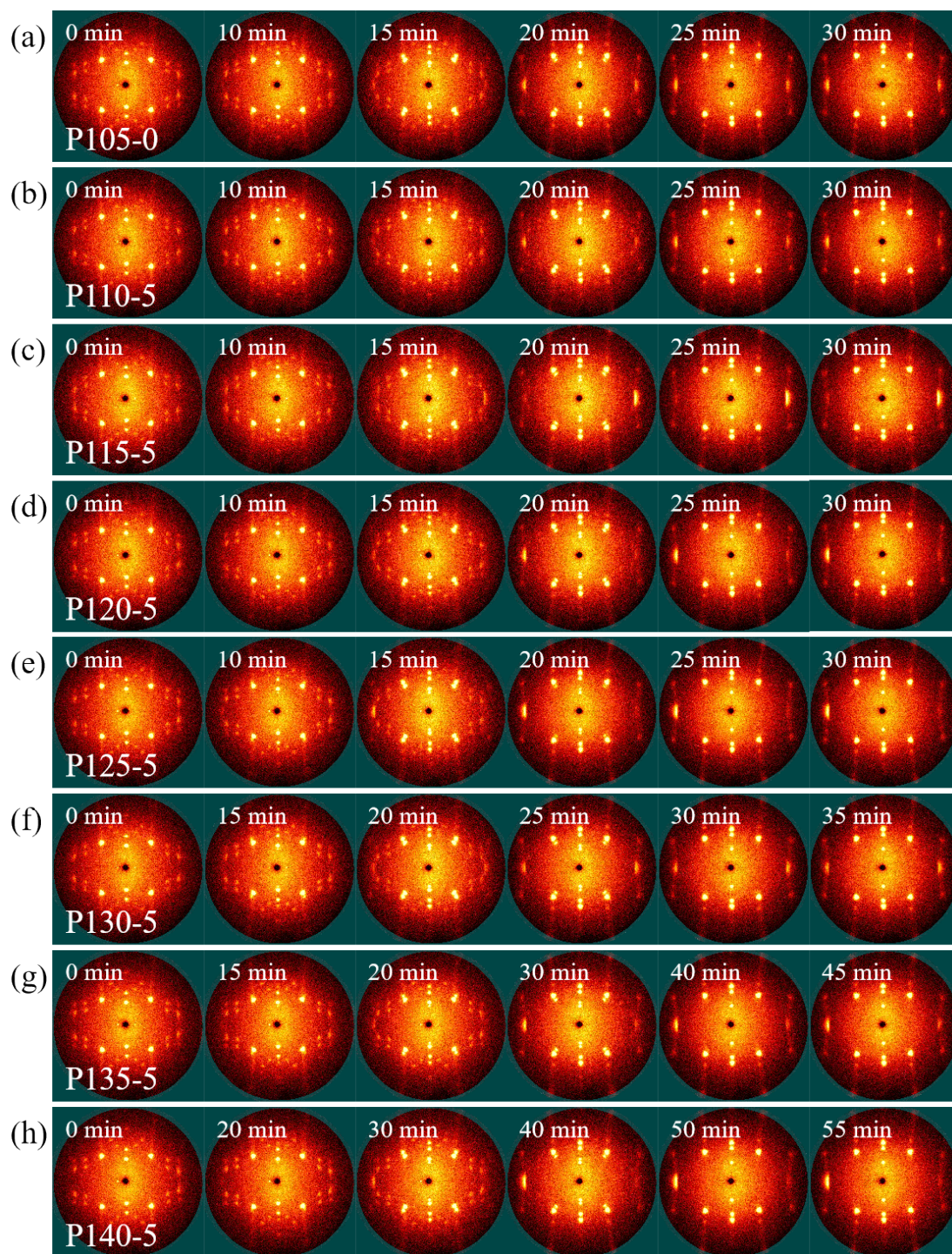


Figure S3. Representative 2D WAXD patterns of (a) P105-0, (b) P110-5, (c) P115-5, (d) P120-5, (e) P125-5, (f) P130-5, (g) P135-5 and (h) P140-5, respectively.

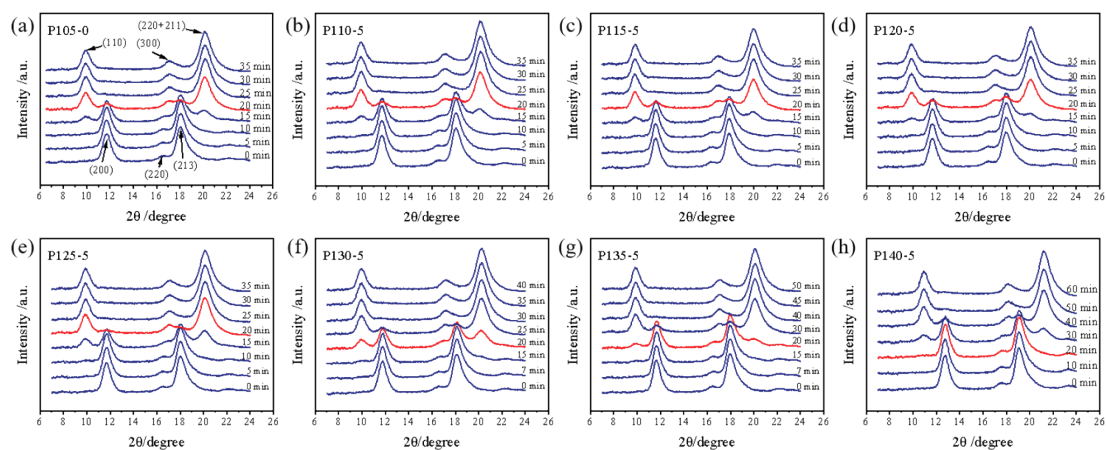


Figure S4. Representative 1D WAXD curves of (a) P105-0, (b) P110-5, (c) P115-5, (d) P120-5, (e) P125-5, (f) P130-5, (g) P135-5 and (h) P140-5, respectively.

2. WAXD Data of Annealing at 130 °C with Different t_a

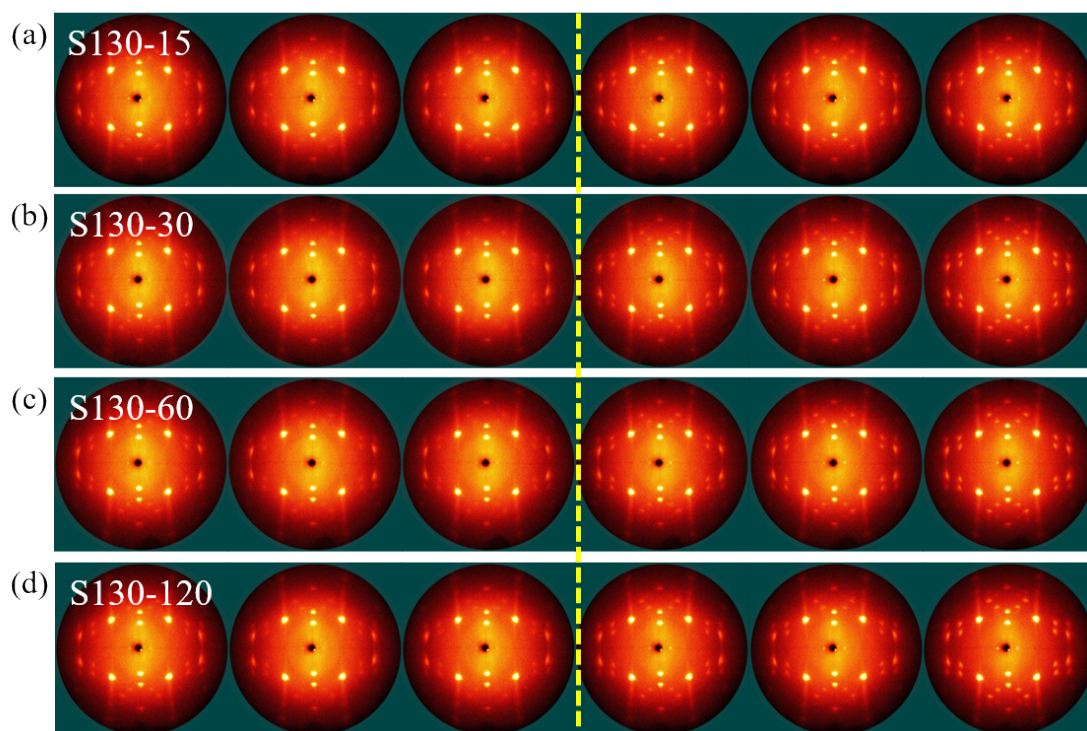


Figure S5. Representative 2D WAXD patterns of (a) S130-15, (b) S130-30, (c) S130-60 and (d) S130-120. FD is horizontal, as indicated by the double-headed arrow.

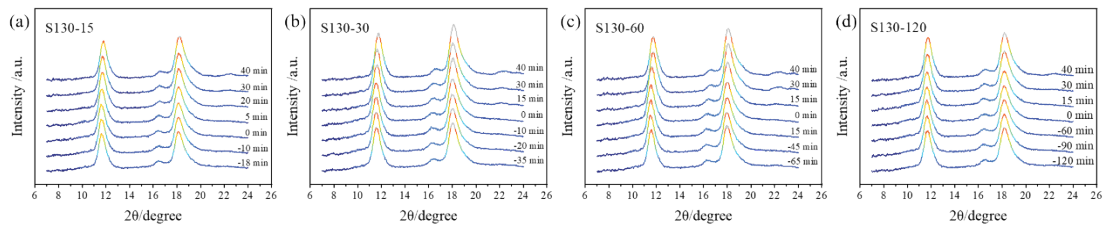


Figure S6. Representative 1D WAXD curves of (a) S130-15, (b) S130-30, (c) S130-60 and (d) S130-120, respectively.

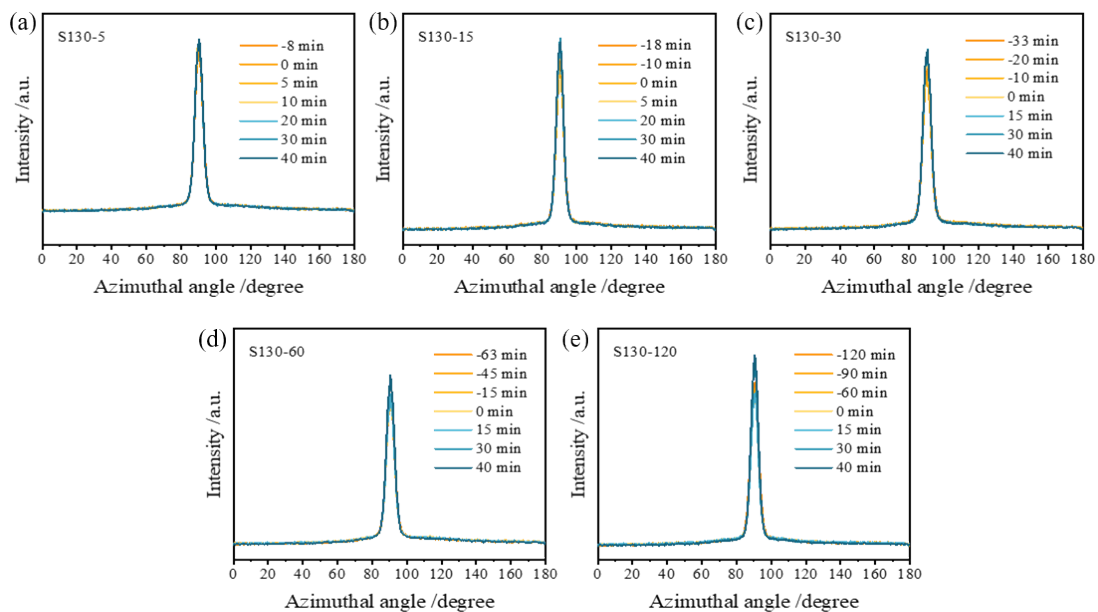


Figure S7. Representative the azimuthal angle distribution of II(200) plane of (a) S130-5, (b) S130-15, (c) S130-30, (d) S130-60 and (e) S130-120, respectively.

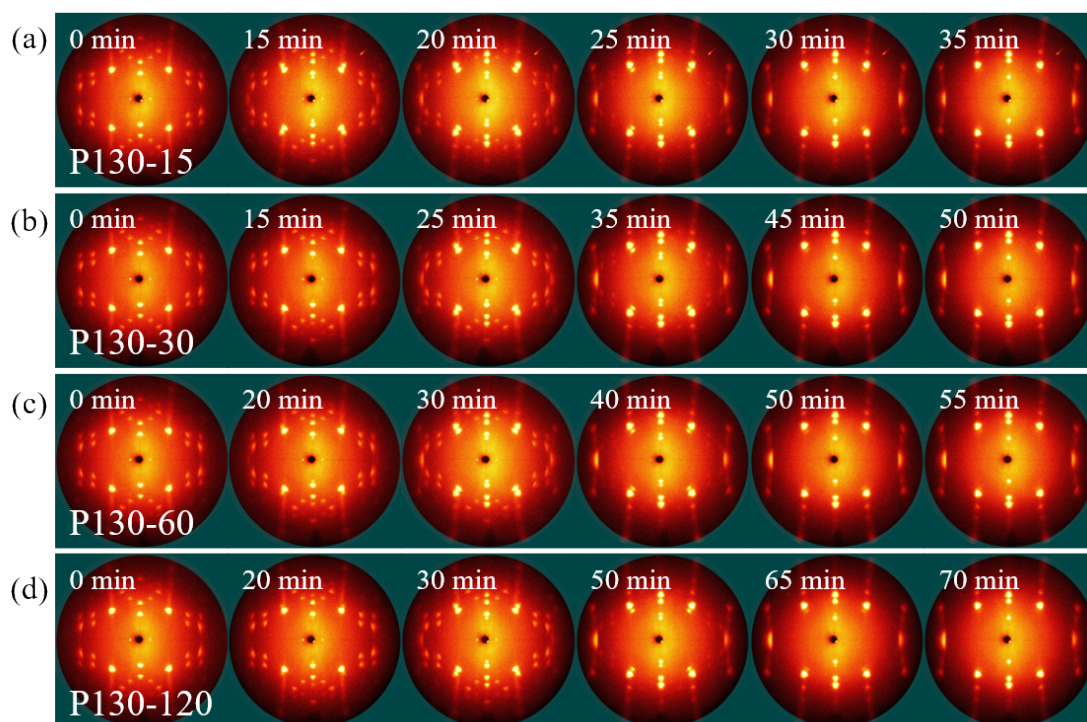


Figure S8. Representative 2D WAXD patterns of (a) P130-15, (b) P130-30 (c) P130-60 and (d) P130-120, respectively.

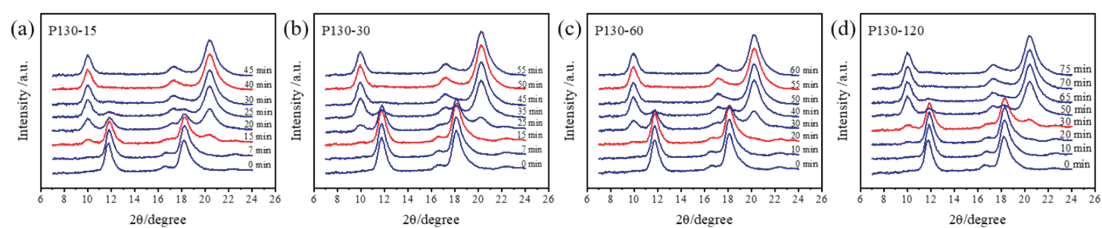


Figure S9. Representative 1D WAXD curves of (a) P130-15, (b) P130-30, (c) P130-60 and (d) P130-120, respectively.

3. WAXD Data of Annealing at 120 °C with Different t_a

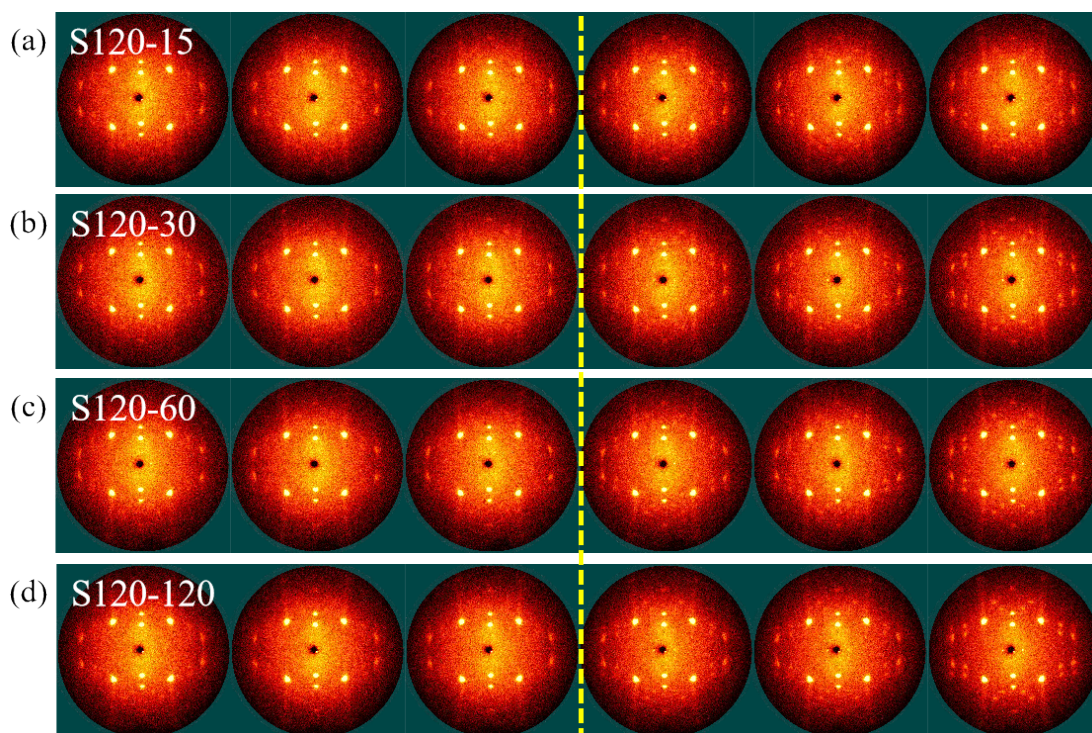


Figure S10. Representative 2D WAXD patterns of (a) S120-15, (b) S120-30, (c) S120-60 and (d) S120-120. FD is horizontal, as indicated by the double-headed arrow.

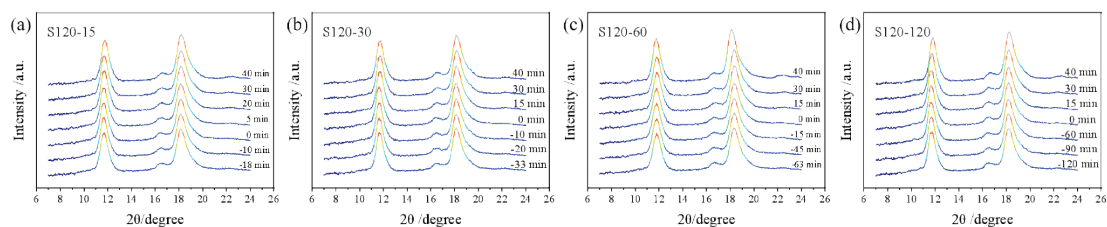


Figure S11. Representative 1D WAXD curves of (a) S120-15, (b) S120-30, (c) S120-60 and (d) S120-120, respectively.

The lateral size is calculated by Scherrer equation as follows¹:

$$D = k\lambda/\beta\cos\theta$$

where, k is a constant (usually 0.89), λ is the wavelength of X-ray, β is the full width at half maximum (FWHM) of the diffraction peak, and θ is the diffraction angle.

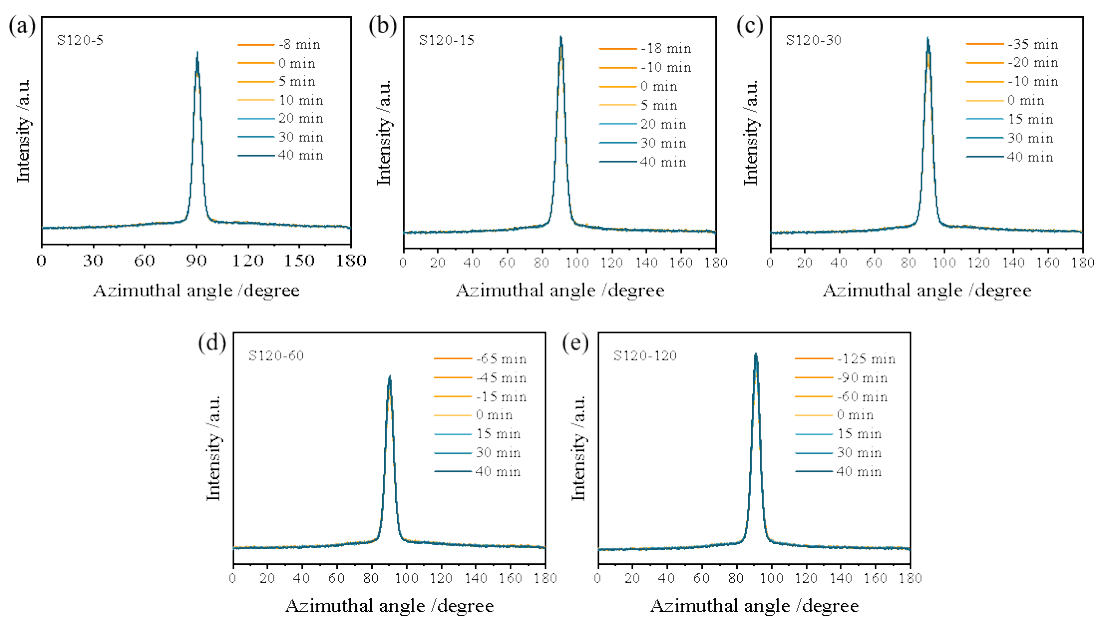


Figure S12. Representative the azimuthal angle distribution of II(200) plane of (a) S120-5, (b) S120-15, (c) S120-30, (d) S120-60 and (e) S120-120, respectively.

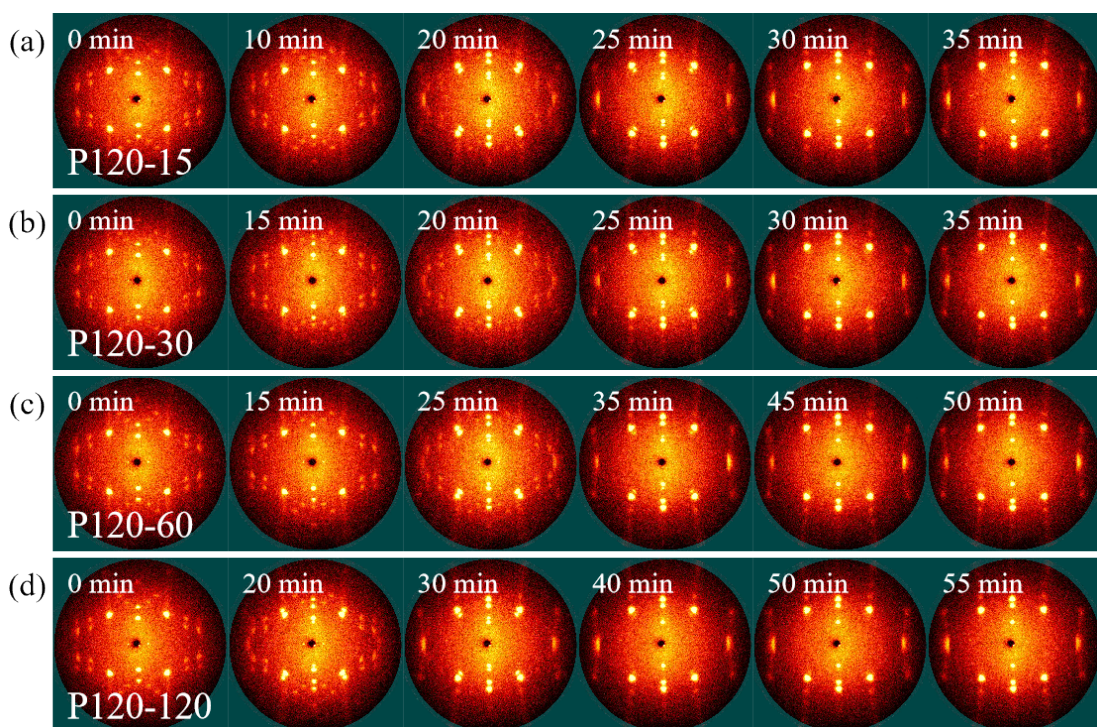


Figure S13. Representative 2D WAXD patterns of (a) P120-15, (b) P120-30 (c) P120-60 and (d) P120-120, respectively. FD is horizontal, as indicated by the double-headed arrow.

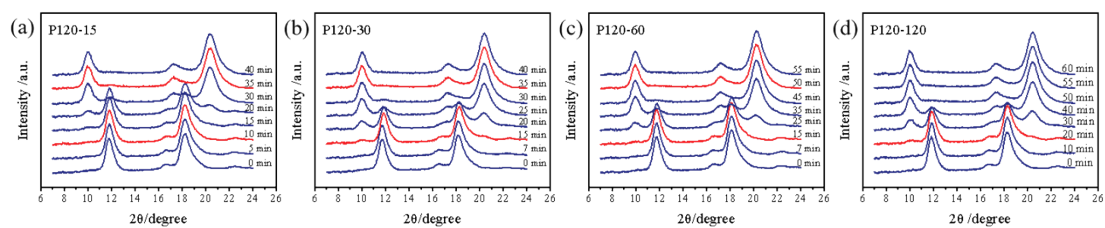


Figure S14. Representative 1D WAXD curves of (a) P120-15, (b) P120-30, (c) P120-60 and (d) P120-120, respectively.

References

1. A. L. Patterson, *Physical Review*, 1939, **56**, 978-982.