

Supporting Information

Tailored Growth of Graphene Oxide Liquid Crystals with Controlled Polymer Crystallization in GO- polymer Composites

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KEYWORDS. Graphene oxide, polymer crystals, cooling rate, liquid crystal.

To confirm the possible reduction of GO during the thermal experiment, Raman spectroscopy experiment is performed with alpha300R. We found nearly no reduction of GO during the thermal history of the experiment based on D/G band intensity of the spectra. No systematic changes in the ratio of intensity (D band/ G band) were noted at GO-pure, GO-fast, GO-slow. Noting that the D band results from the presence of oxygen groups in the graphene layer and G band is related to the sp² hybridized carbon atoms, the I_D/I_G ratio provides the structural information for the GO.

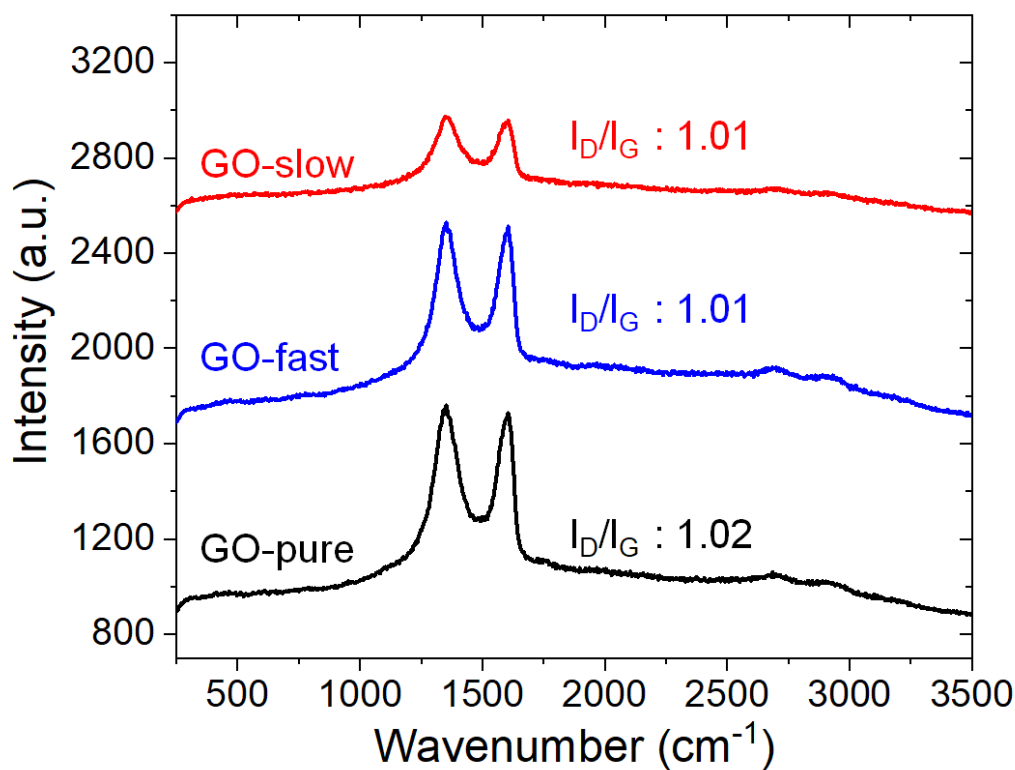


Figure S1. The Raman spectroscopy of GO-pure, GO-fast and GO-slow

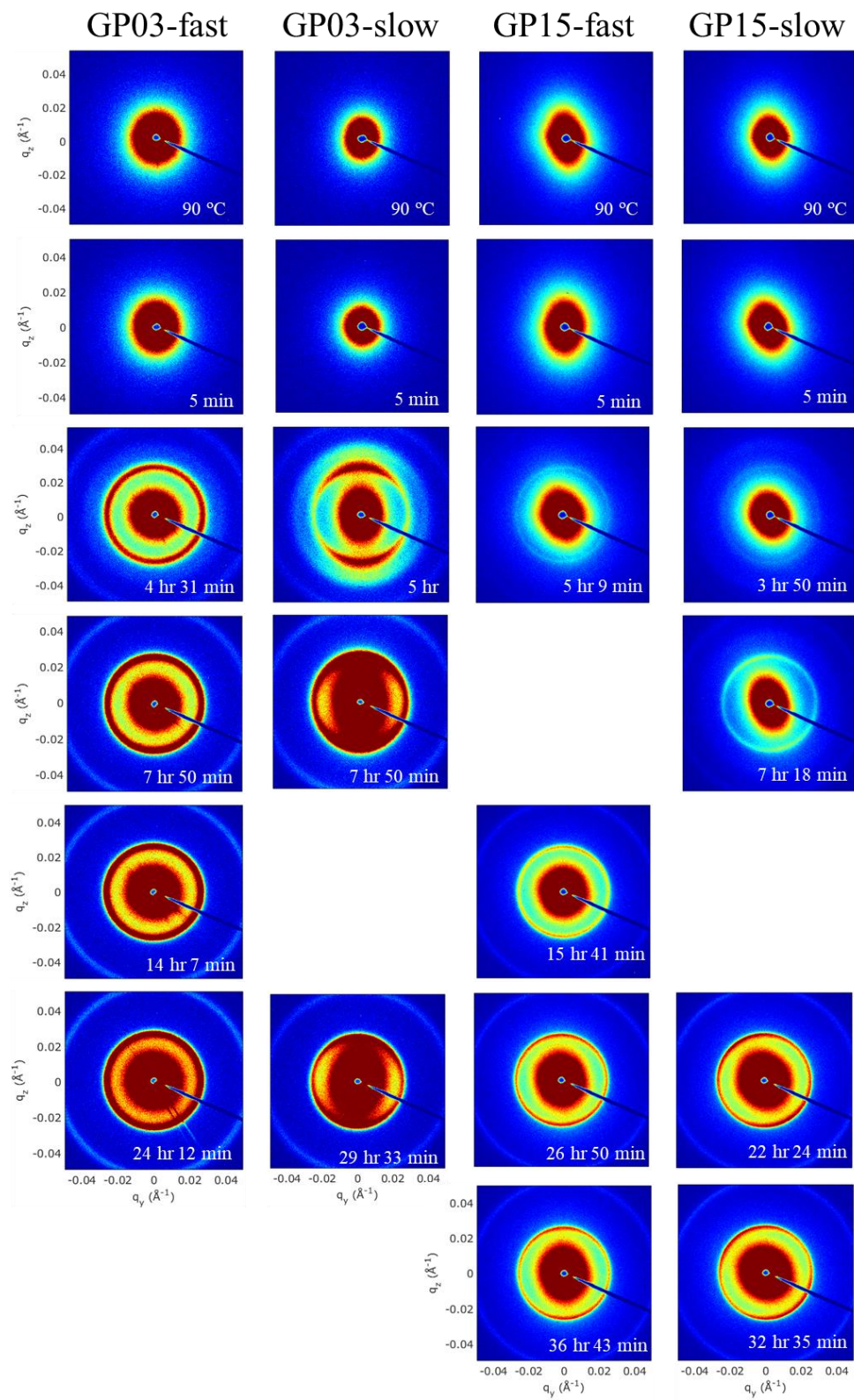


Figure S2. All in situ SAXS 2D patterns of GP samples at different holding times

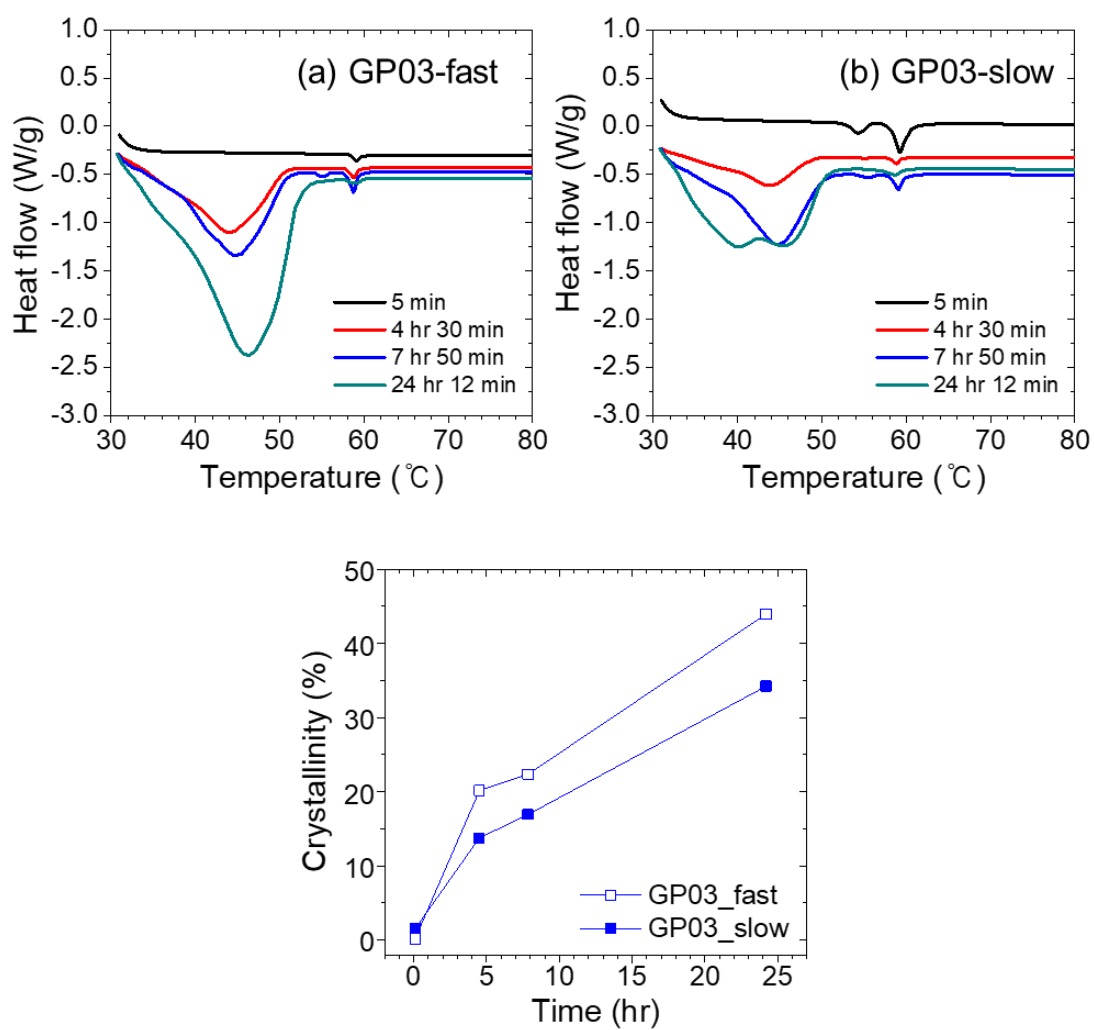


Figure S3. DSC endotherm of GP03-fast (a) and GP03-slow (b), and the calculated degree of crystallinity for GP03 (c)

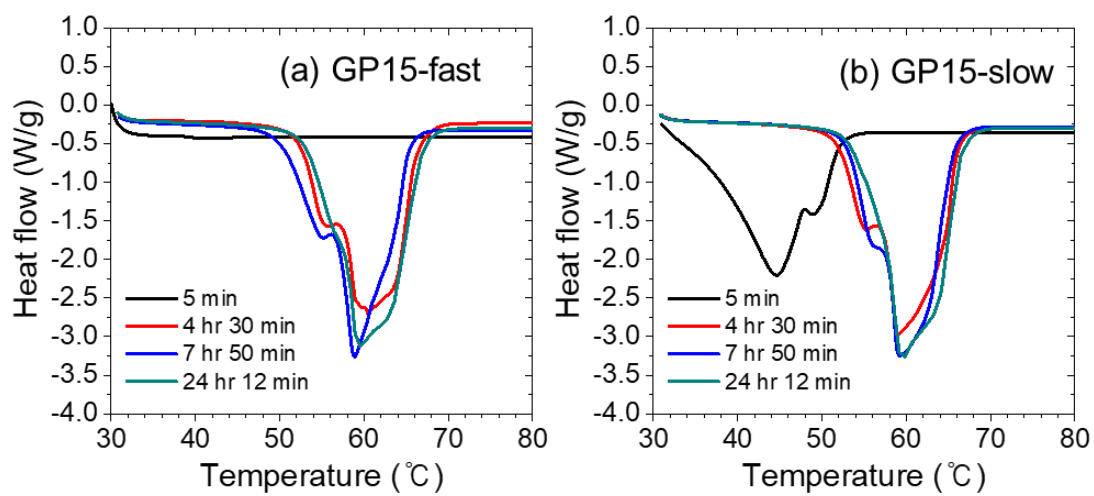
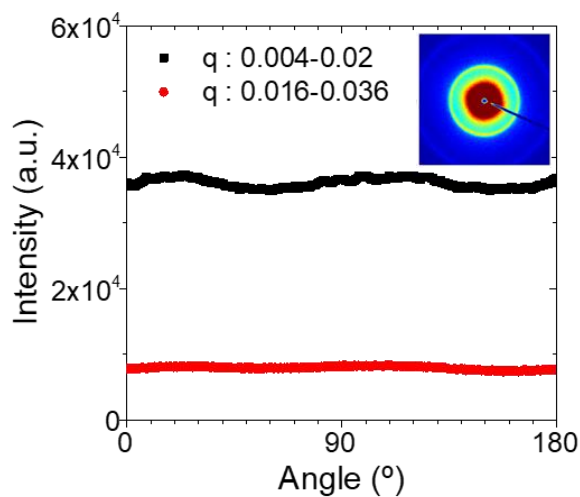


Figure S4. DSC endotherm of (a) GP15-fast and (b) GP15-slow

(a) GP15-fast



(b) GP15-slow

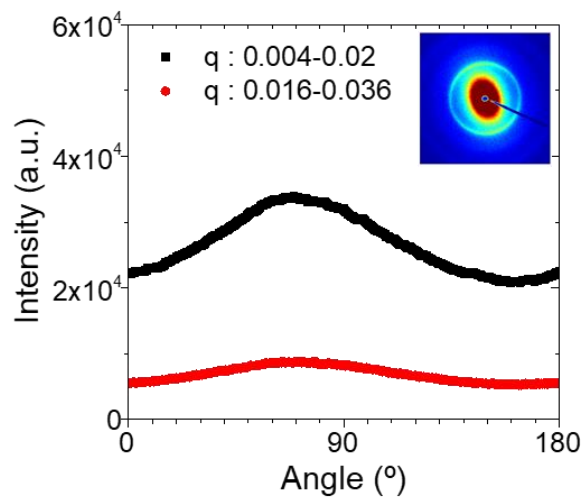
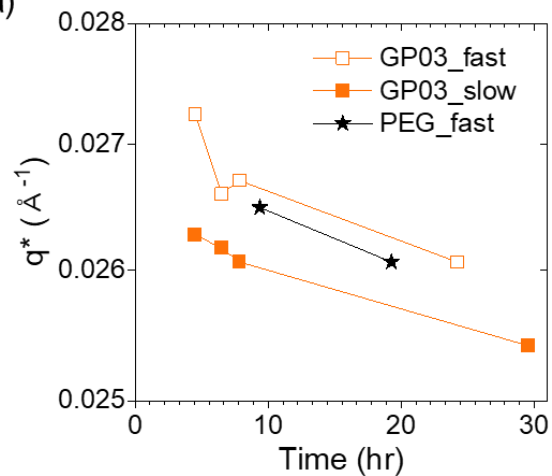


Figure S5. Angle distribution curves of scattering intensity for (a) GP15-fast at the holding time of 15hr 41m and (b) GP15-slow at 7hr 18m

(a)



(b)

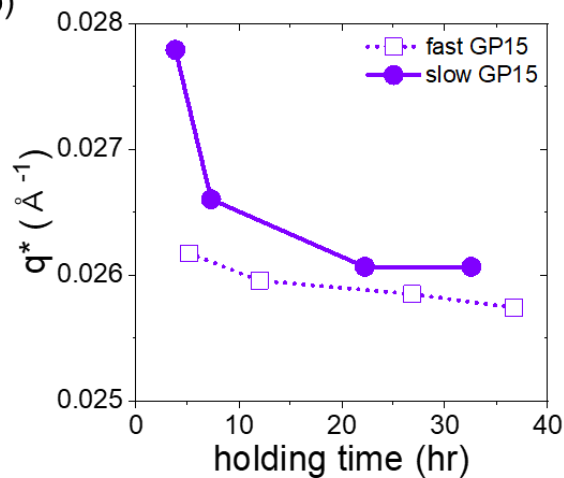


Figure S6. The value of q^* from crystal lamellae as a function of time of (a) GP03 and (b) GP15

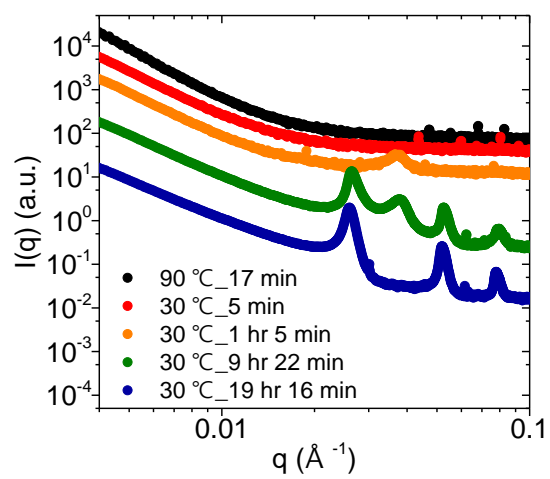


Figure S7. 1D profile of PEG without GO with varying holding time for fast cooling rate