

Electronic Supplementary Information for

Organophilic Graphene Nanosheets as promising nanofiller for bio-based polyurethane nanocomposite: Investigation of Thermal, Barrier and Mechanical properties

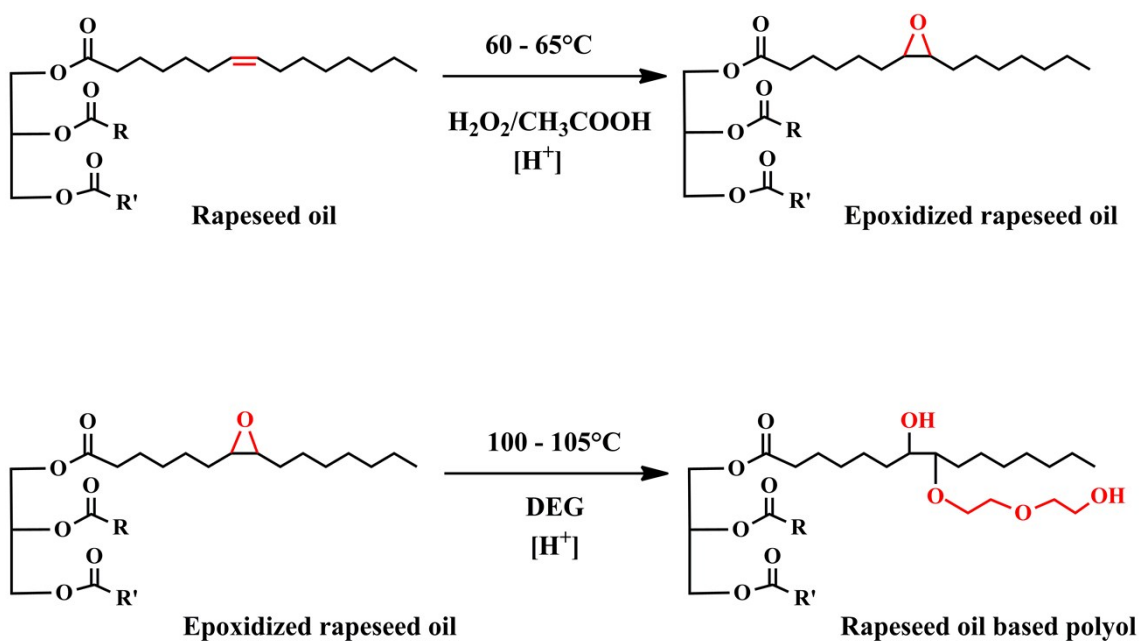
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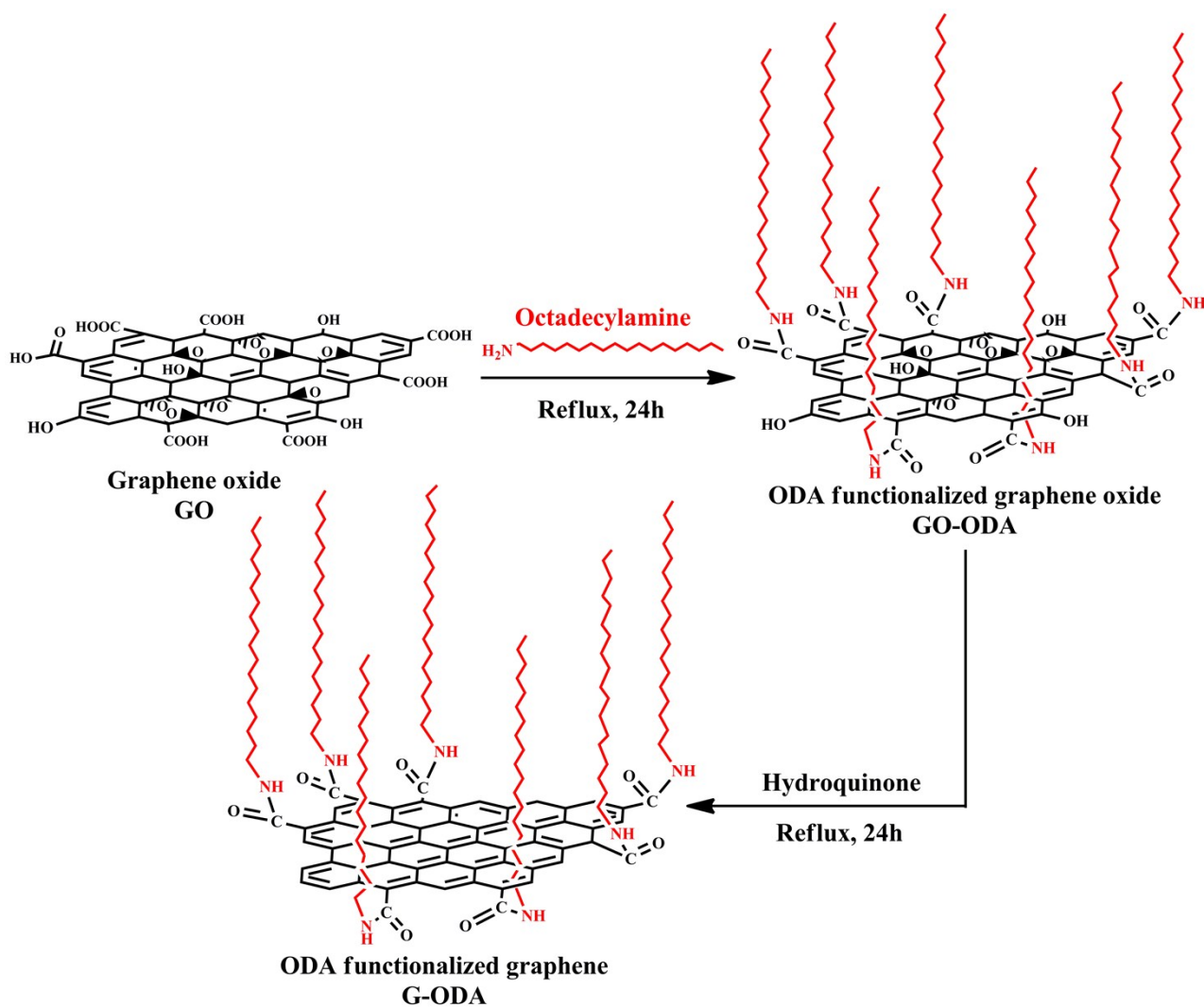
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Scheme.S1. Epoxidation and oxirane ring-opening processes. R, R' - fatty acid chains.



Scheme.S2. Proposed structure of the prepared graphene based materials.

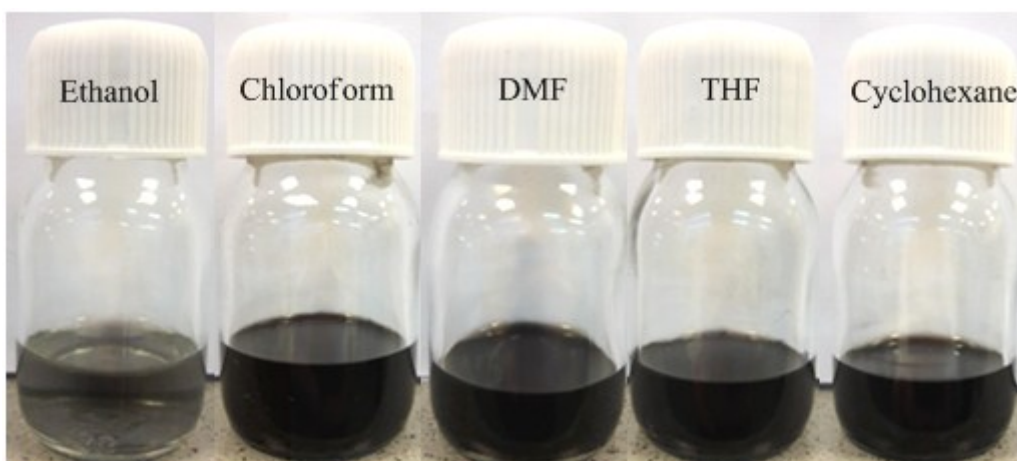


Fig.S1. Digital photos of G-ODA suspensions in different solvents

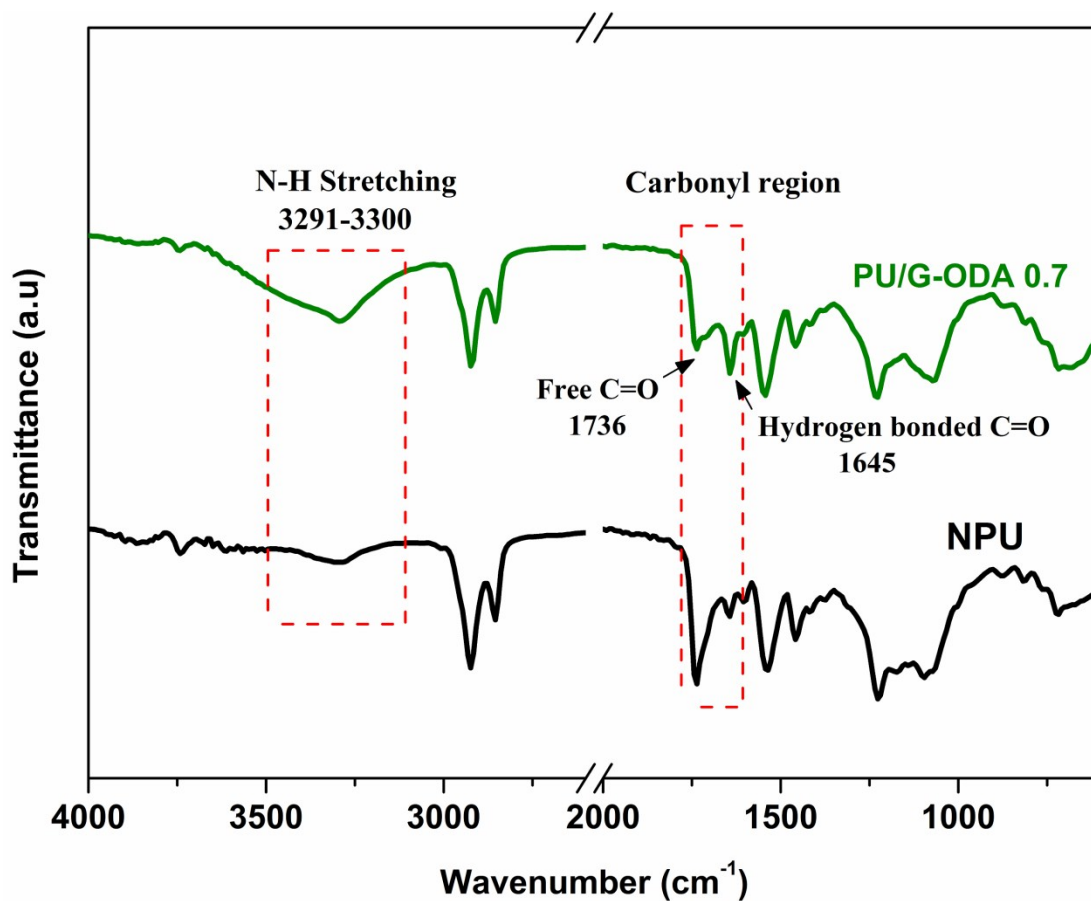


Fig.S2. FTIR spectrum of NPU and PU/G-ODA 0.7 showing the variation of band intensity in the carbonyl region and N-H stretching band.

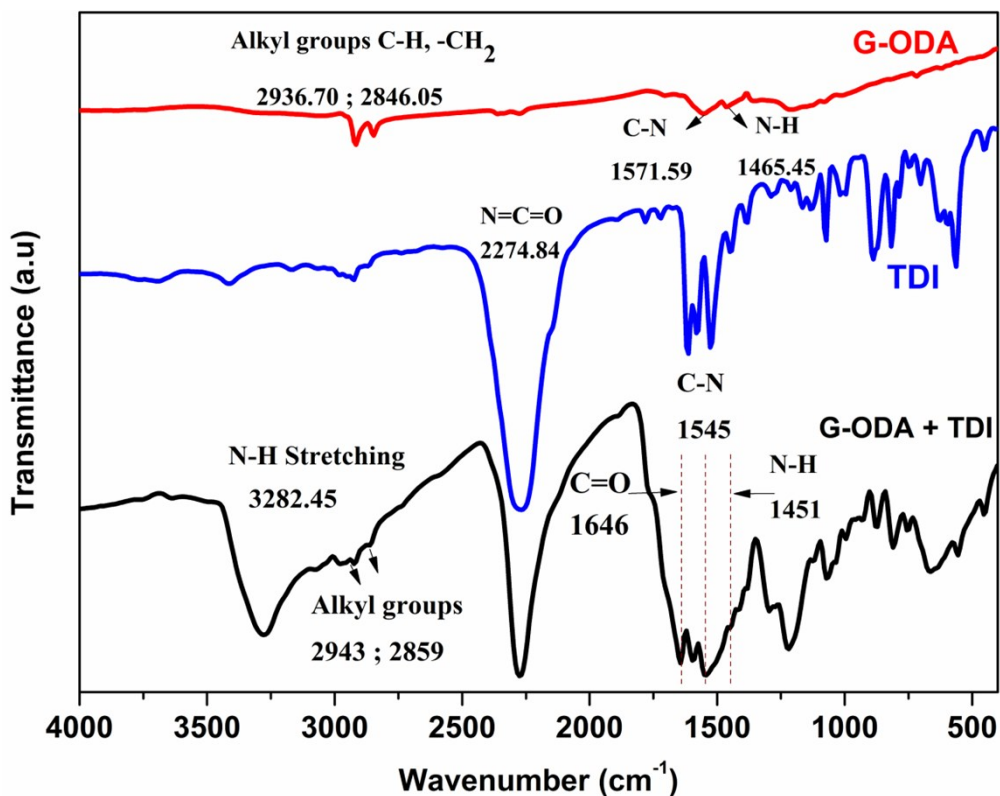


Fig.S3. FTIR spectrum of the control sample (G-ODA + TDI)

Table S2. T_g and T_m values of the prepared nanocomposites films

Film code	T_g (°C)	T_m (°C)
NPU	-20.24	72.65
PU/G-ODA 0.1	-19.94	73.16
PU/G-ODA 0.3	-17.95	74.39
PU/G-ODA 0.5	-14.37	77.58
PU/G-ODA 0.7	-12.91	80.23

Table S3. Contact angle measurements of the prepared nanocomposite films

Film code	Contact angle (deg)
NPU	72.1±3.6
PU/G-ODA 0.1	89.3±5.1
PU/G-ODA 0.3	96.2±4.2
PU/G-ODA 0.5	103.2±6.3
PU/G-ODA 0.7	113.2±5.8