SUPPORTING INFORMATION

Harnessing the maximum reinforcement of graphene oxide for Polyvinylidene fluoride nanocomposite via polydopamine assisted novel surface modification

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Table S1. Elemental composition of GO, PDT-DA, AA-rGO and *f*-rGO obtained from XPS analysis.

Sample	Surface composition (at. %)			
	C	O	N	S
GO	68.8	31.20	-	-
PDT-DA	67.63	18.55	8.64	5.18
AA-rGO	81.31	8.97	9.72	-
f-rGO	63.40	23.25	9.21	4.14

Table S2. Comparison of tensile test values for PVDF-graphene nanocomposites between our sample and earlier reported results.

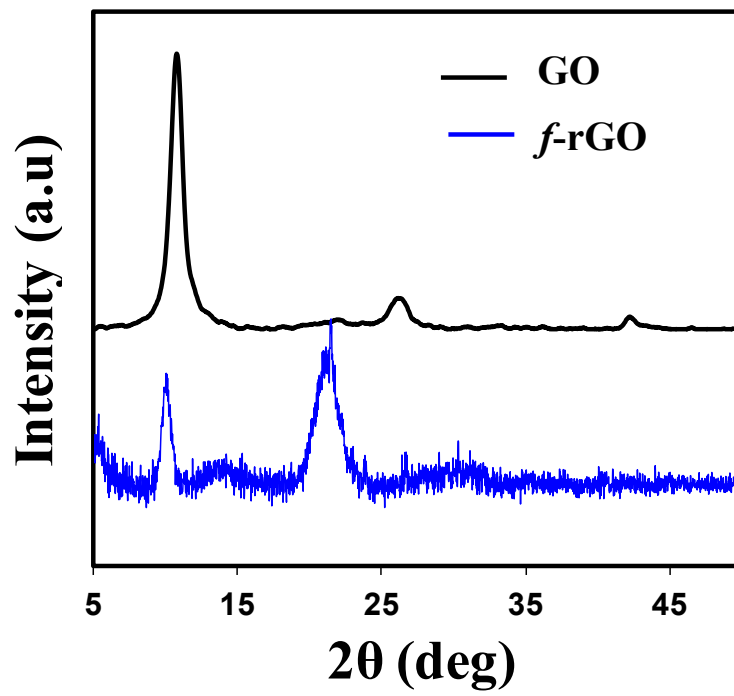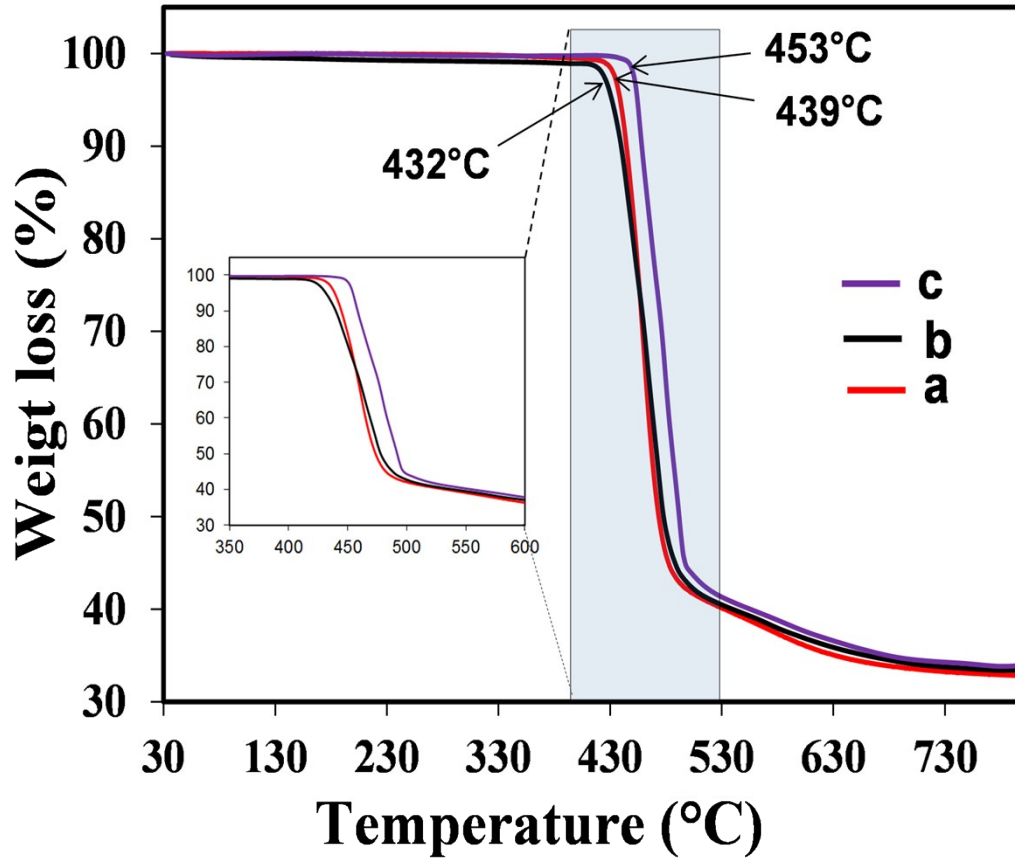| Reference	Sample	Preparation process	Filler content (% wt)	% increment in T.S	% increment in Young's Modulus
Our results	*f*-rGO/PVDF nanocomposites	Solution casting followed by melt mixing	0.4	51 (47-70.8 MPa)	37 (556-761.6 MPa)
J. Appl. Polym. Sci. 2013,**127,** 4697.	rGO nanosheet /PVDF nanocomposite	Melt mixing	0.5	36 (43.1-58.6 MPa)	25 % (1302.4-1624.4 MPa)
J. Mater. Chem. 2011, **21,** 15752.	PMMA coated-MWCNT/ PVDF nanocomposites	Solution casting	0.5	37.6 (10.1- 13.9 MPa)	4.7 (1260-1320 MPa)
Appl. Surf. Sci. 2012, **258,** 7668.	GO nanosheets/ PVDF nanocomposites	Solution casting	2	48 (41-79 MPa)	137 (1462-3467 MPa)
Macromol. Mater. Eng. 2008, **293,** 188.	PVDF homopolymer/1.25 ppm maleic anhydride grafted PVDF/CNT nanocomposite	Solution mixing followed by co-precipitation	2.5	28 (47.6- 60.8 MPa)	31 (1.06-1.39 GPa)
Chem. Res. Chinese Universities 2010, **26,** 491	PVDF/CNT	Ultrasonic dispersion of PVDF and CNT into dimethylacetamide followed by solution casting	2	12 (43-48 MPa)	89 (1414-2675 MPa)

Fig. S1 XRD patterns of GO and *f*-rGO.

Fig. S2 TGA profiles of (a) PVDF (b) 0.4 wt% GO/PVDF nanocomposite and (c) 0.4 wt% *f*-rGO/PVDF nanocomposite under the nitrogen gas condition. Temperature values given in the curve are taken at degradation temperatures for 5% (T_5). Inset shows the same TGA curves with a more magnified area of the curve for better clarification.