

Supporting Information

Effects of Liquid Crystal Polymer (LCP) on the Structure and Performance of PEEK/CF Composites

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Table S1 Values of T_0 , T_p , D , and $t_{1/2}$ at various cooling rates for PEEK/CF composites with different LCP contents

φ (°C/min)	10	20	30	40	50
PEEK/CF					
T_0 (°C)	312.71	310.01	305.57	303.34	301.56
T_p (°C)	305.12	300.23	296.23	293.12	290.01
D (°C)	24.93	29.79	34.68	38.68	48.01
$t_{1/2}$ (min)	0.82	0.53	0.36	0.31	0.27
PEEK/CF 3%LCP					
T_0 (°C)	308.19	302.45	299.34	295.79	291.79
T_p (°C)	300.23	294.45	287.78	282.01	276.67
D (°C)	23.9	28.46	33.12	38.02	42.25
$t_{1/2}$ (min)	0.80	0.51	0.34	0.30	0.25
PEEK/CF 5%LCP					
T_0 (°C)	306.45	301.12	298.01	293.93	290.19
T_p (°C)	298.38	290.82	285.19	279.26	273.92
D (°C)	19.56	26.68	31.57	36.75	40.65
$t_{1/2}$ (min)	0.77	0.48	0.32	0.28	0.23
PEEK/CF 7%LCP					
T_0 (°C)	309.57	302.9	299.86	296.38	292.38
T_p (°C)	300.75	291.27	286.53	280.23	275.34
D (°C)	21.48	29.13	33.42	38.66	44.61
$t_{1/2}$ (min)	0.81	0.50	0.35	0.31	0.25

**Table S2 Values of $F(T)$ and α from combination of Avrami–Ozawa equation for
PEEK/CF composites with different LCP contents**

$X_t(\%)$	α	$F(T)$
0%LCP		
10	1.24	5.35
30	1.23	7.24
50	1.24	9.31
70	1.24	11.99
90	1.21	18.45
3%LCP		
10	1.29	4.51
30	1.29	6.39
50	1.27	8.71
70	1.33	10.94
90	1.32	15.28
5%LCP		
10	1.25	3.63
30	1.28	5.01
50	1.26	6.92
70	1.28	8.51
90	1.29	11.48
7%LCP		
10	1.27	5.01
30	1.29	6.91
50	1.26	8.91
70	1.28	10.97
90	1.27	15.48

Table S3 $T_{5\%}/^{\circ}\text{C}$ and Temperature of the maximum decomposition rate of LCP, PEEK, and PEEK/CF composites with different LCP

Composite	Initial decomposition temperature $T_{5\%}/^{\circ}\text{C}$	Temperature of the maximum decomposition rate $/^{\circ}\text{C}$	
		Stage1	Stage2
PEEK	572.78	594.14	751.23
PEEK/CF	574.44	590.58	749.64
PEEK/CF/3%LCP	562.98	586.39	747.07
PEEK/CF/5%LCP	559.59	583.45	744.49
PEEK/CF/7%LCP	556.75	581.21	741.91
LCP	490.8	525.34	/