Electronic Supplementary Information for:

Highly transparent films of new copolyesters derived from terephthalic and 2,4-furandicarboxylic acids

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1. ATR FTIR analysis of the PET-*co*-2,4-PEF copolyesters and PET and 2,4-PEF homopolyesters

Table S1: Vibrational assignment of the FTIR-ATR spectra of the (co)polyesters.

vibrational modes assignments	wavenumber / cm^{-1}						
	PET	(90/10)	(85/15)	(50/50)	(15/85)	(10/90)	2,4-PEF
=C–H stretching, typical of the furan ring	-	3143	3143	3143	3143	3143	3143
asymmetric and symmetric stretching mode of the C-H groups	2961, 2855	2961, 2855	2961, 2855	2961, 2855	2961, 2855	2961, 2855	2961, 2855
C=O stretching vibration, characteristic of ester groups	1713	1713	1713	1713	1713	1713	1713
C=C asymmetric stretching characteristic of the furan heterocycle	-	1589	1589	1589	1589	1589	1589
vibrational mode characteristic of the benzenic ring	1119	1119	1119	1119	1119	1119	-
vibrational mode characteristic of the benzenic ring	726	726	726	726	726	726	

2. ^{1}H, ^{13}C and 2D HSQC analysis of the PET-*co*-2,4-PEF copolyesters

Table S2: ^{1}H NMR resonances [300 MHz, TCE-d$_2$, reference δ (TCE-d$_2$) =6 ppm] of PET-co-2,4-PEF copolyesters, PET and 2,4-PEF homopolyesters.

				Integration area					
					PET-co-2,4-PEF					
δ /ppm	Multiplicity [a]	Assignments	PET	(90/10)	(85/15)	(50/50)	(15/85)	(10/90)	2,4-PEF
8.15	s	f	-	0.05	0.08	0.41	1.00	1.00	1.00
8.10	s	a	1.00	1.00	1.00	1.00	0.71	0.37	-
7.50	s	e	-	0.03	0.04	0.31	0.98	0.93	1.00
4.69	s	b	0.78	0.84	0.79	0.81	0.17	0.24	-
4.65	s	g, c	-	0.09	0.13	0.50	0.66	0.78	-
4.61	s	l	-	0.11	0.17	0.84	1.62	1.45	1.95
4.59	s	j,d	-	-	-	-	0.58	0.54	0.69
4.58	s	i,h	-	-	-	-	0.54	0.47	0.52
4.56	s	k	-	0.02	0.03	0.28	1.15	1.04	1.16
4.47	t	C$\underline{H}_2$CH$_2$OCH$_2$C$\underline{H}_2$	-	0.06	0.04	tr.	0.02	tr.	tr.
3.96	t	C$\underline{H}_2$OC$\underline{H}_2$	-	0.06	0.04	tr.	0.02	tr.	tr.

[a] s = singlet, t = triplet, m = multiplet, tr. = trace
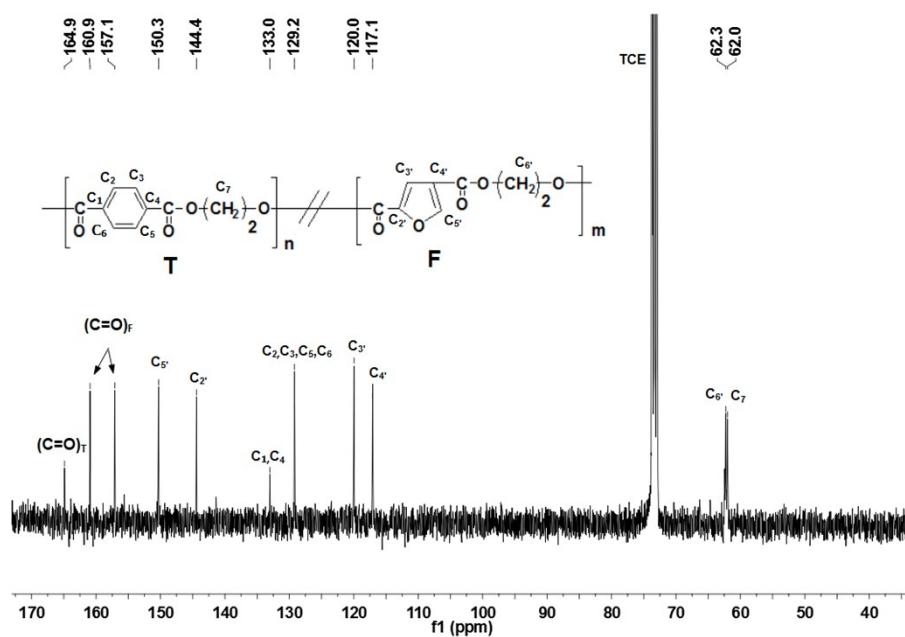
Fig. S1: ^{13}C NMR spectrum of PET-*co*-2,4-PEF 15/85 in TCE-d2.

Table S3: Assignment of the ^{13}C NMR chemical shifts relative to PET-*co*-2,4-PEF (co)polyesters

δ /ppm	Assignments
164.9	(C=O)$_T$
160.9	(C=O)$_F$
157.1	(C=O)$_F$
150.3	C5'
144.4	C2'
133.0	C1,C4
129.2	C2,C3,C5,C6
120.0	C4'

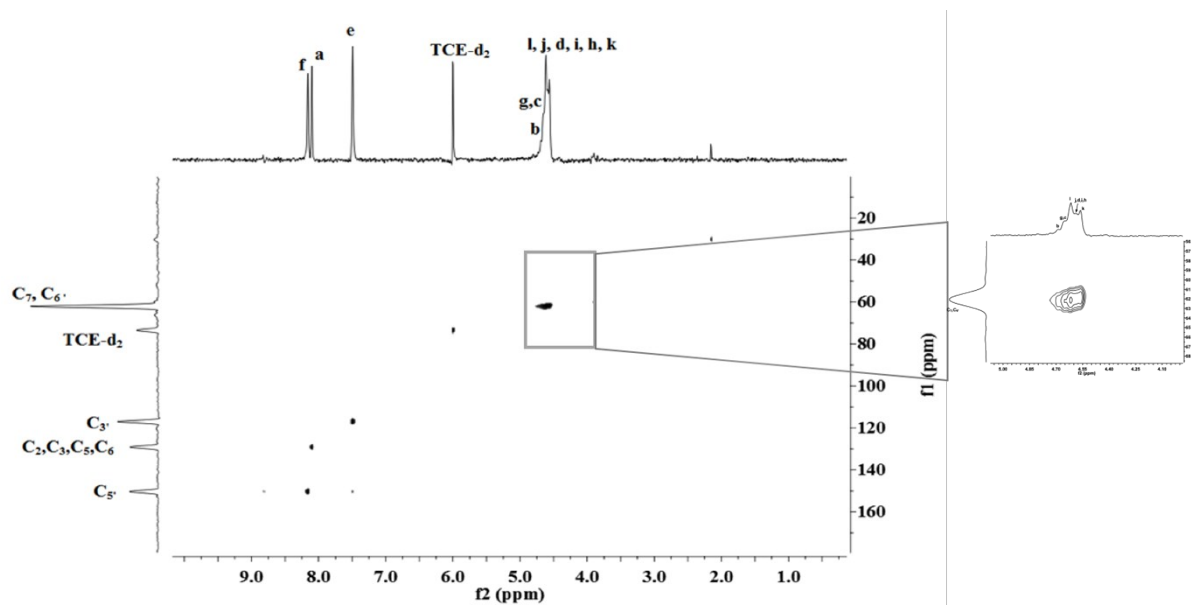|	
117.1	C3'
62.3	C7
62.0	C6'

Fig. S2: 2D HSQC NMR spectrum of PET-*co*-2,4-PEF (15/85) recorded in TCE-d$_2$ and insight zoom in the region comprehended in between 4.56 and 4.69 ppm.

Table S4: Correlation between the nomenclature followed in ^{13}C and ^{1}H NMR attributions.

^{3}C NMR nomenclature	^{1}H NMR nomenclature
C2	a
C3	a
C5	a

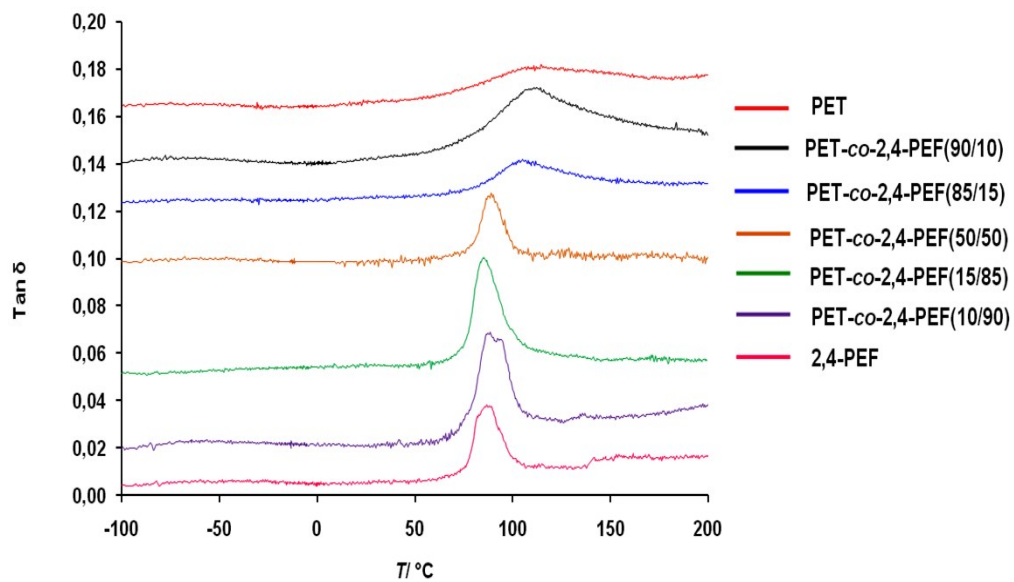|	
C6	**a**
C7	**b, c, g**
C3'	**e**
C5'	**f**
C6'	**I, j, k, h, l**

3. DMTA analysis

Fig. S3: Tan *δ* of PET-*co*-2,4-PEF (co)polyesters at 1 Hz.