

## Supplementary Information

### Bio-based poly(hexamethylene 2,5-furandicarboxylate-co-2,6-naphthalate) copolyesters: A thermal, mechanical, and gas barrier properties study

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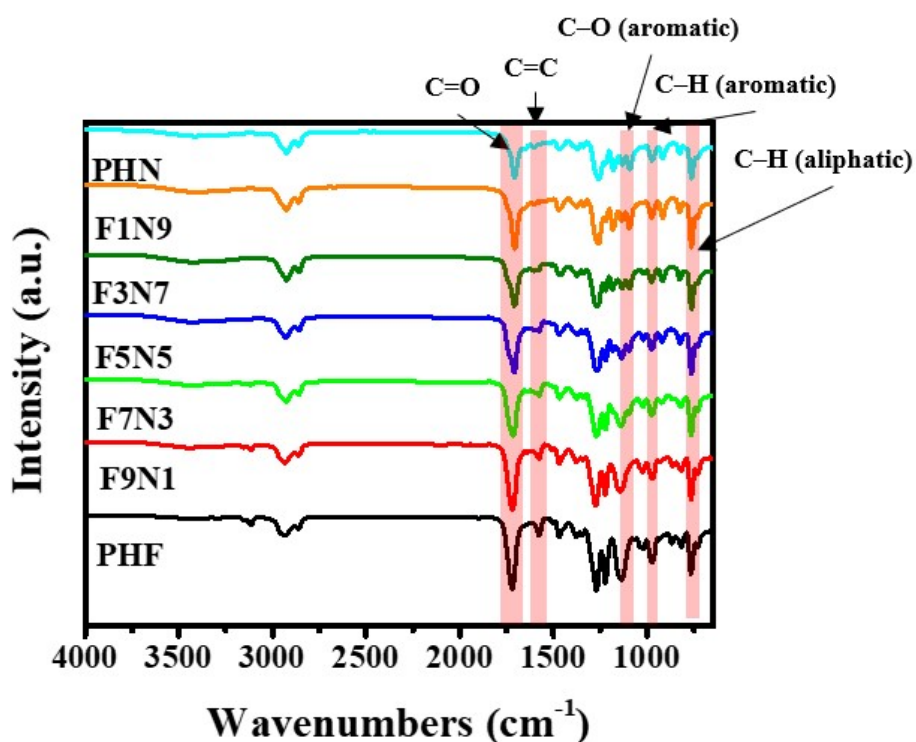
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**Table S1** Component ratio, average sequence length, and degree of randomness of PHF, PHN, and PHFN copolyesters

Sample	Component ratio (%)			Average sequence length		Degree of randomness
	N <sub>FHF</sub>	N <sub>FHN+NHF</sub>	N <sub>NHN</sub>	n <sub>FH</sub>	n <sub>NH</sub>	R
<b>PHF</b>	100	-	-	-	-	-
<b>F9N1</b>	n.a	n.a	n.a	n.a	n.a	n.a
<b>F7N3</b>	51.1	40.5	8.3	3.52	1.41	0.99

<b>F5N5</b>	26.7	50	23.3	2.07	1.93	1.00
<b>F3N7</b>	8.8	43.8	47.3	1.40	3.16	1.03
<b>F1N9</b>	n.a	n.a	n.a	n.a	n.a	n.a
<b>PHN</b>	-	-	100	-	-	-

The FT-IR spectra of copolymers are illustrated in Fig. S1. The characteristic absorption peaks of C–H stretching oscillations on the aromatic ring are located at 3116–3066  $\text{cm}^{-1}$ . The characteristic absorption peaks at 2934–2926  $\text{cm}^{-1}$  are ascribed to the stretching oscillation of C–H. 1720–1708  $\text{cm}^{-1}$  is the signal of C=O of the ester group, and 1602–1576  $\text{cm}^{-1}$  is the characteristic peak of C=C on the aromatic ring. 1270–1258  $\text{cm}^{-1}$  is assigned to the characteristic peak of C–O on the ester functional group. 970  $\text{cm}^{-1}$  and 770  $\text{cm}^{-1}$  are characteristic peaks presented by C–H on the furan structure and aliphatic groups.



**Fig. S1.** FT-IR spectra of the PHF, PHN, and PHFN copolyesters