

Supplementary Materials for
**Rediscovering phthalonitrile resins: Novel
liquid monomer towards high-performance
resin**

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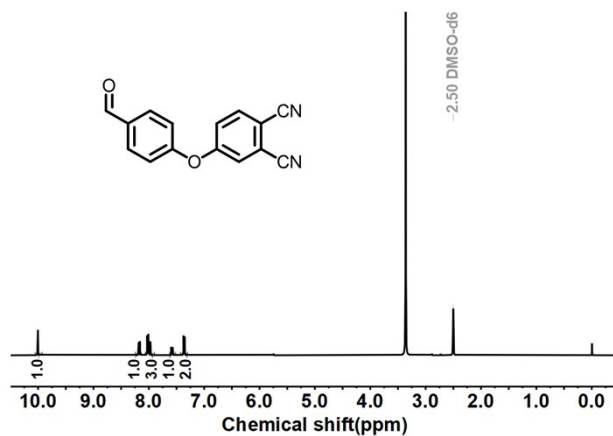


Figure S1. ¹H NMR spectrum of CHO-Pn.

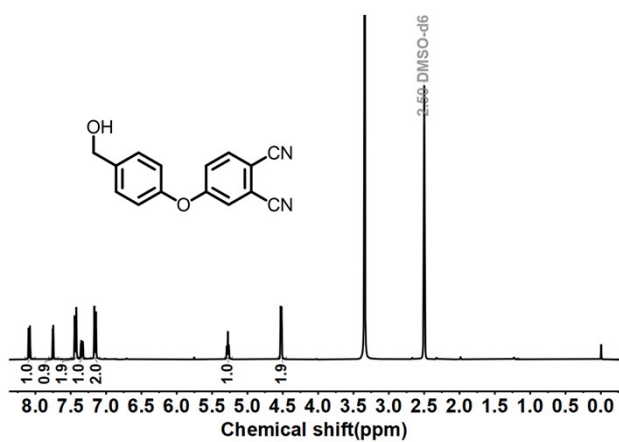


Figure S2. ¹H NMR spectrum of OH-Pn.

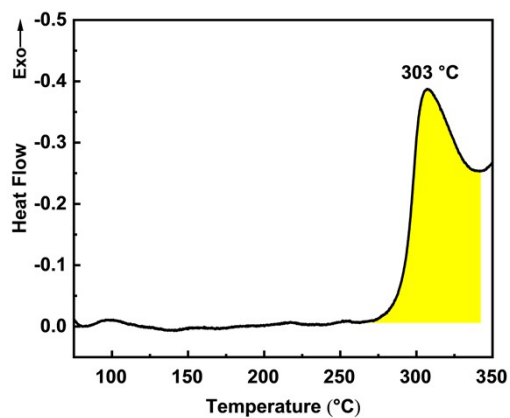


Figure S3. DSC curve for the mixture of SiPn and *p*-APB.

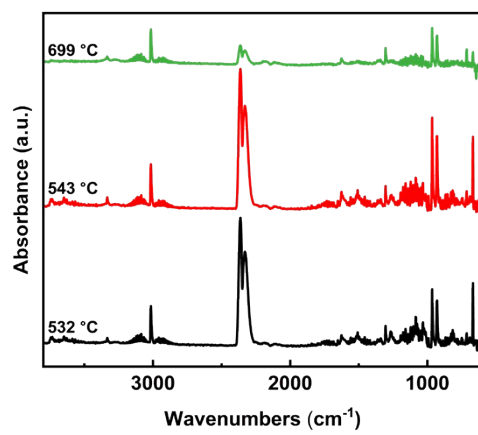


Figure S4. FTIR spectra of volatile products at representative temperature of SiPN resin.

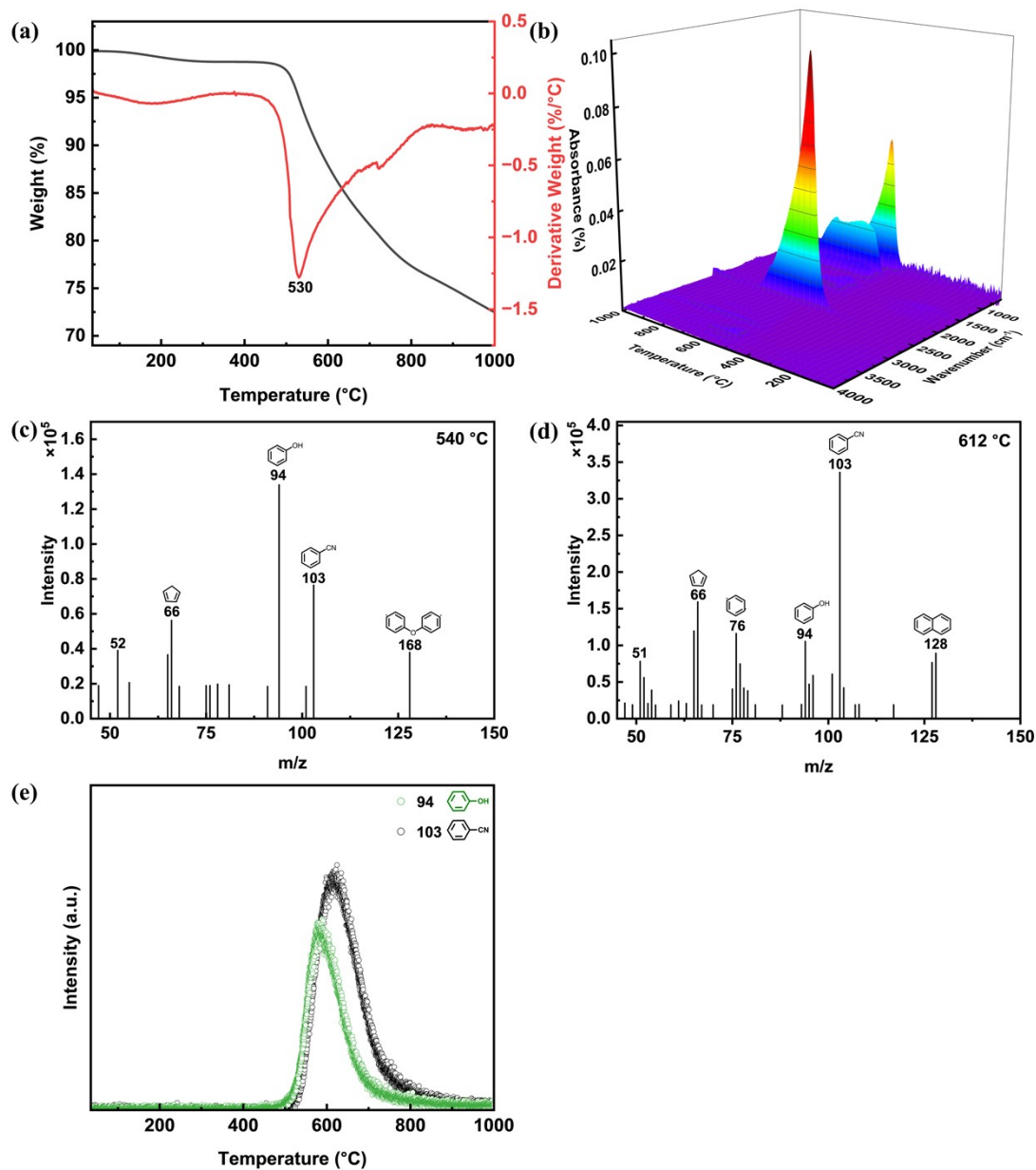


Figure S5. (a) TGA and DTG curves of RPN; (b) 3D FTIR diagram of volatile products; MS spectra of volatile products from RPN at (c) 540 °C, (d) 612 °C and (e) the ion current of phenol ($m/z = 94$) and benzonitrile ($m/z = 103$).

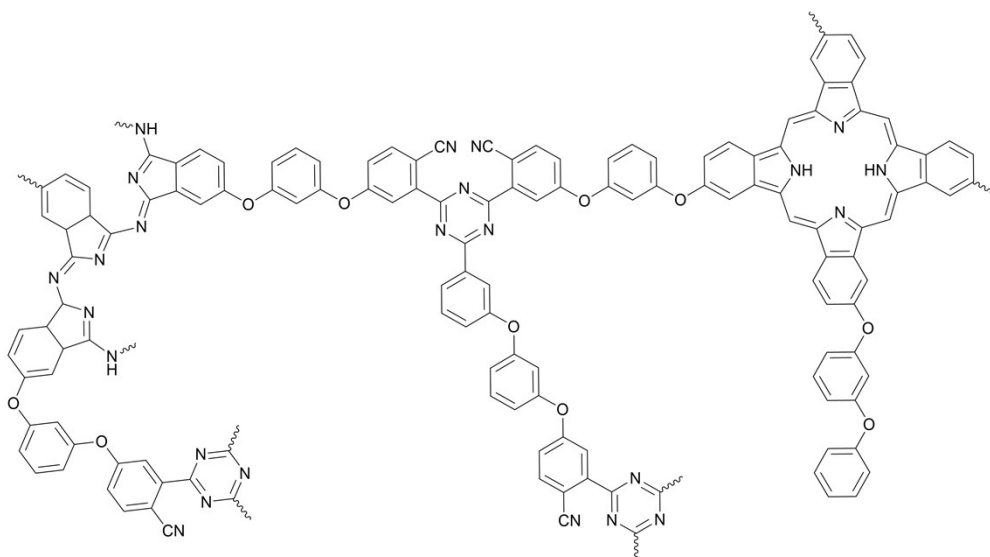


Figure S6. Possible molecular structure of RPN.

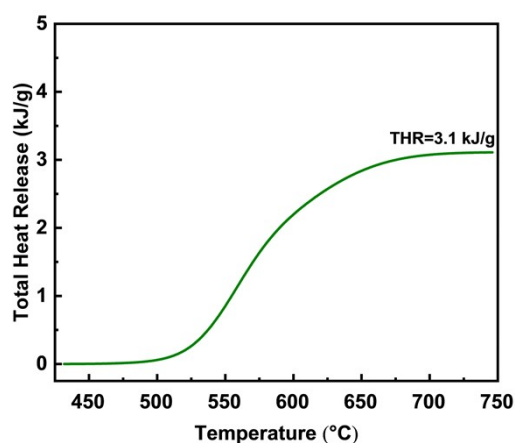
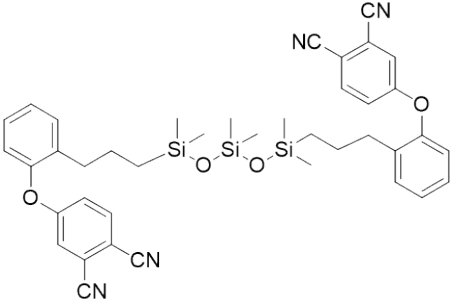
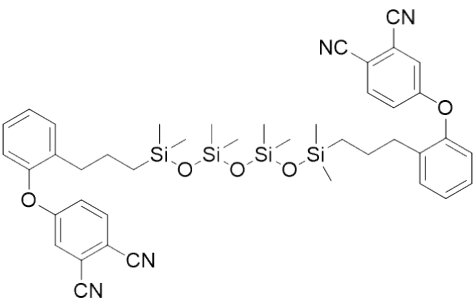
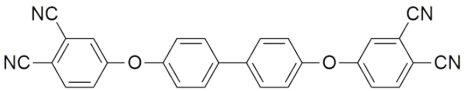
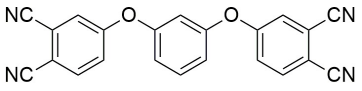
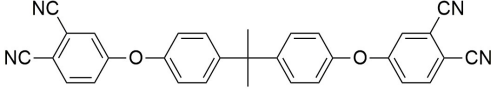
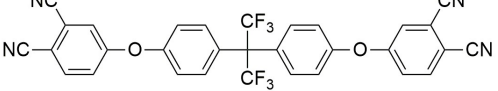
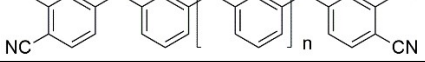
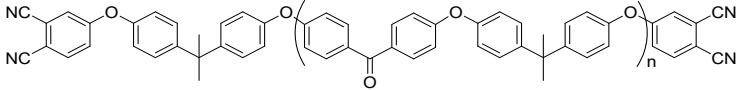
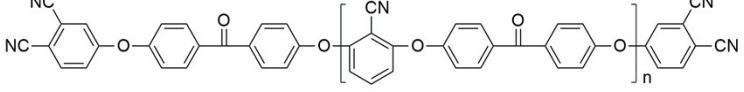
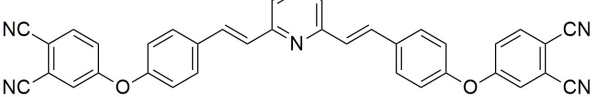
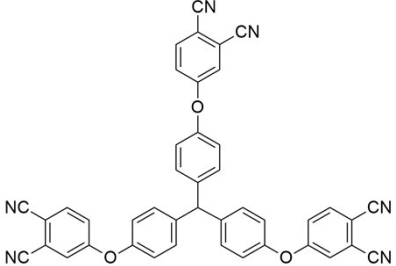
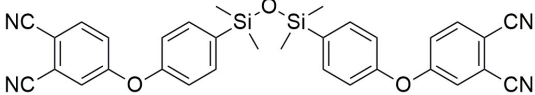
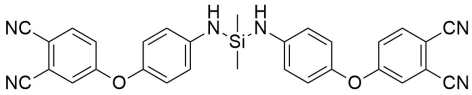


Figure S7. Total heat release as a function of the temperature for SiPN.

Table S1. The molecular structures and T_m (or T_g) of the monomers considered in comparison to the known monomers.

Molecular Structure	T_g/T_m /°C	Reference
	-12.1	29

	-25.9	
	-35.6	
	233-238	15
	183-188	17
	194-200	16
	235-238	
	39-42	27
	70	26
	109-142	41
	92	19

	103	20
	4	24
	40-60	21
