

Supporting Information File for

**Synthesis of a novel DOPO-based ionic liquid flame retardant and its
application in epoxy resin**

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Table S1 Theoretical element ratio of [DAmim]Ps /DDM/EP composites.

Sample	E-51 (g)	[DAmim]Ps (g)	DDM (g)	P (%) ^a	S (%) ^b
EP-0	100	0	25.3	0	0
EP-1	100	1	25	0.05	0.05
EP-2	100	3	24.5	0.15	0.16
EP-3	100	5	24	0.25	0.26
EP-4	100	7	23.7	0.35	0.36
EP-5	100	9	23.3	0.45	0.46

^a The contents of P were obtained by $P\% = ([\text{DAmim}]\text{Ps quality} / \text{Total mass of system}) \times 6.5 \text{ wt}\% \times 100\%$, (6.5% is the mass fraction of P in the ILs structure).

^b The contents of S were obtained by $S\% = ([\text{DAmim}]\text{Ps quality} / \text{Total mass of system}) \times 8.8 \text{ wt}\% \times 100\%$, (8.8% is the mass fraction of S in the ILs structure).

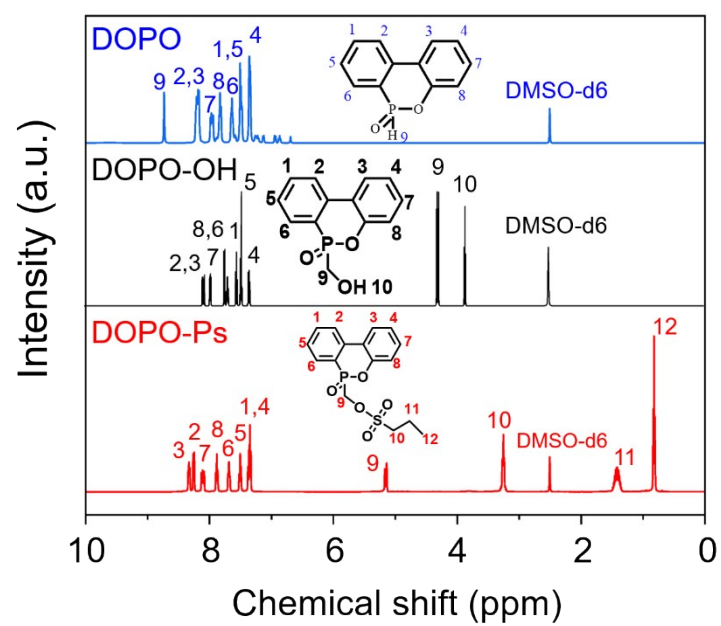
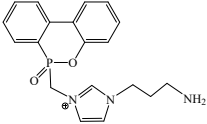
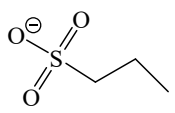
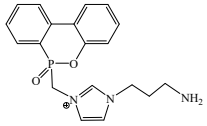
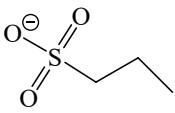
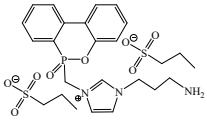


Figure S1. ^1H NMR spectra of DOPO, DOPO-OH, DOPO-Ps.

Table S2 Molecular weights corresponding to mass spectrum fragments.

Mass spectrum fragment	Molecular weight	Structural formula
M	354.37	
A	123.15	
[M] ⁺	353.25	
[A] ⁺	123.07	
[M+2A] ⁺	601.44	

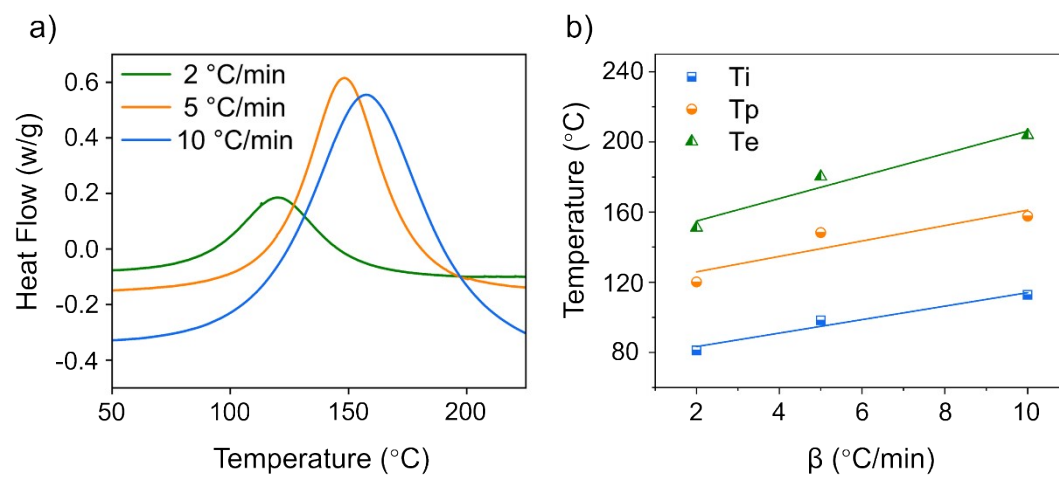


Figure S2. DSC curve (a) and fitting curve (b) of EP-1 composite flame retardant system.

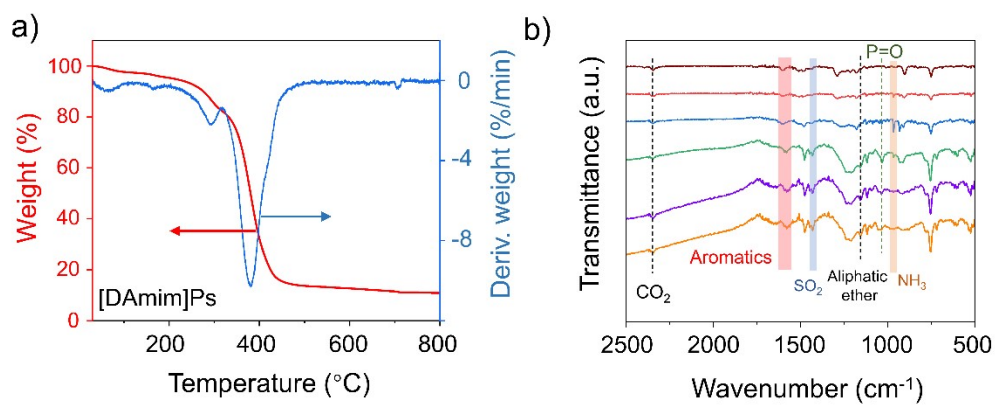


Figure S3. TG-IR results of [DAmim]Ps. (a) Thermogravimetric analysis curve of [DAmim]Ps.

(b) FTIR spectra of [DAmim]Ps in TG-IR.