Supporting information for

Phosphorous and nitrogen-containing polyols: synergistic effect on the thermal property and flame retardancy of rigid polyurethane foam composites

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Figure S1. FTIR spectrum of BHPP and MADP

Figure S2. The compressive strength test results of pristine RPUF and FR-RPUFs.

Table S1. The formulae, densities and physical properties of flame-retardant RPUF samples.

Samples	RPUF-0	RPUF-1	RPUF-2	RPUF-3	RPUF-4	RPUF-5	RPUF-6	RPUF-7
LY4110 (g)	100	100	30	30	30	30	30	0
BHPP (g)	0	0	70	46.67	35	23.33	0	50
MADP (g)	0	0	0	23.33	35	46.67	70	50
A33 (g)	1	1	1	1	1	1	1	1
LC (g)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Water (g)	1	1.25	1.5	2.5	2.5	2.5	3	2.5
Si-Oil (g)	2	2	2	2	2	2	2	2
TEA (g)	3	3	3	3	3	3	3	3
EG(g)	0	44	43.15	47.6	49.5	51.3	55.6	52.9
PM-200 (g)	135	139	136	160	170	181	205	191
NCO index	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Density(kg/m^3)	80.1	80.4	72.8	68.3	72	71.6	78.8	76.2
K(W/mK)	0.0360	0.0396	0.0384	0.0355	0.0415	0.0418	0.0420	0.0401

#K: thermal conductivity.

Table S2. Elemental analysis results of BHPP and MADP.

Samples	C (%)	H (%)	O (%)	N (%)	P (%)
BHPP (calculated)	55.63	7.62	26.49	0	10.26
BHPP (measured)	55.43	7.52	27.24	0	9.81
MADP (calculated)	45.28	8.18	20.13	26.41	0
MADP (measured)	45.47	8.26	20.44	25.83	0

Table S3. Assignments of the peaks in FTIR spectrum of RPUF composites.

FTIR (cm^{-1})	Assignments
3347	Stretching vibration of N-H and O-H groups
2925	Stretching vibration of C-H
2867	Stretching vibration of C-H
2279	Isocyanate stretching
1724	Stretching vibration of C=O
1680	Stretching vibration of C=N
1594	Phenyl group
1536	Stretching vibration of N-H
1446	Stretching vibration of P-Ph
1280	Stretching vibration of P=O
1090	Stretching vibration of O=P-O
815	Stretching vibration of the triazine rings

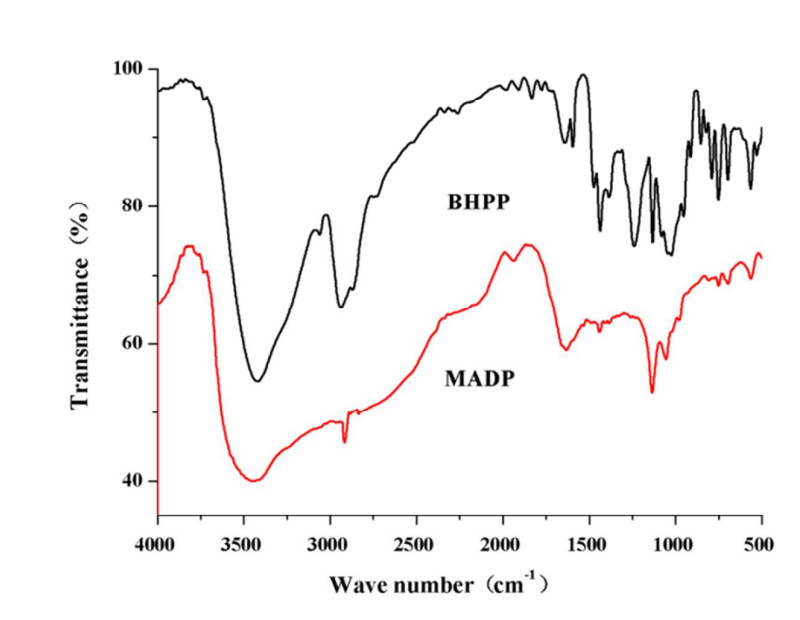

Figure S1. FTIR spectrum of BHPP and MADP.

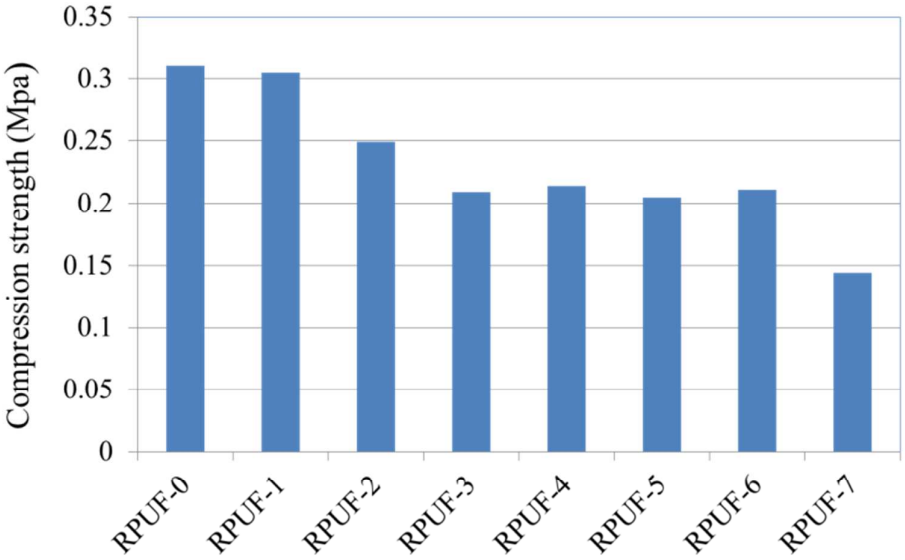

Figure S2. The compressive strength test results of pristine RPUF and FR-RPUFs.