

Supporting Information

Preparation of functionalized zirconium phosphate and its effect on the flame retardancy of silicone rubber

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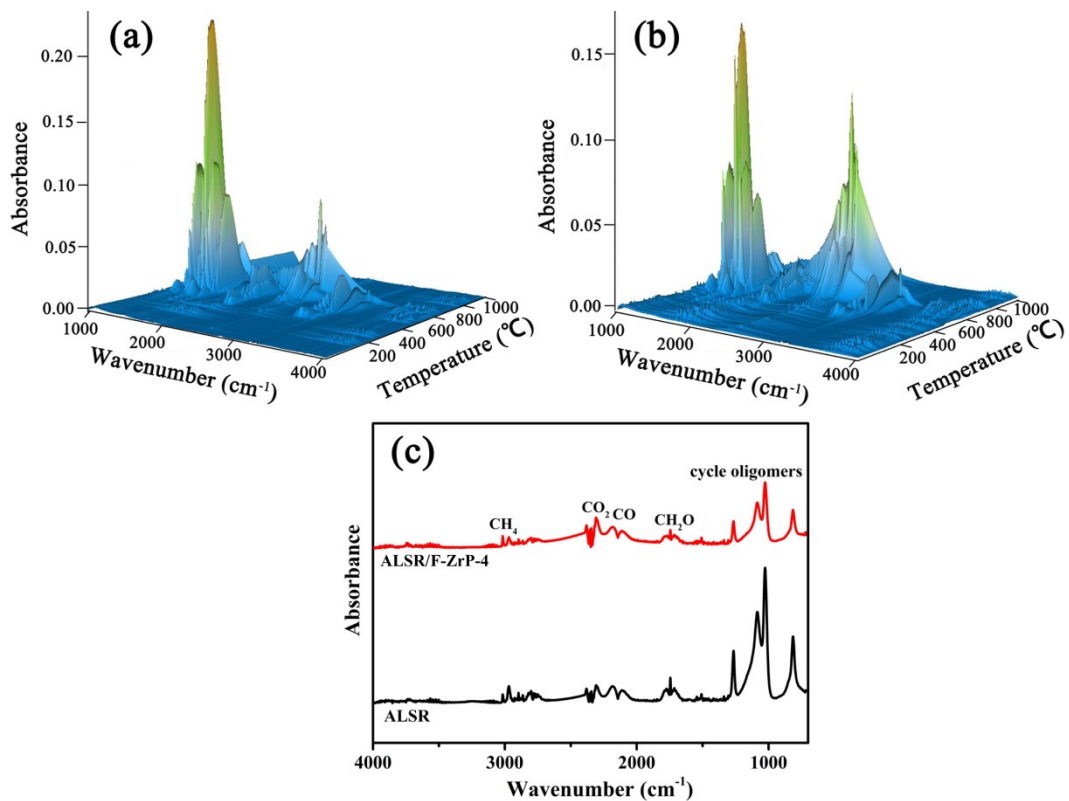


Fig. S1 The 3D TG-IR spectra of gas phase in the thermal degradation of ALSR (a) and ALSR/F-ZrP (b), and (c) FTIR spectra of pyrolysis products of ALSR and ALSR/F-ZrP-4 at the maximum volatile release temperature under air atmosphere.

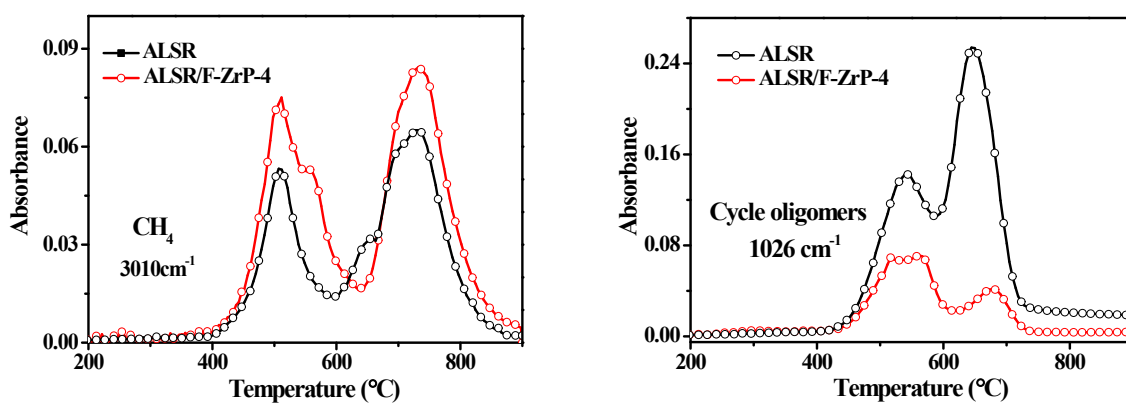


Fig.S2 FTIR absorbance vs. temperature curves of pyrolysis products of ALSR and ALSR/F-ZrP-4 in the nitrogen.

Table S1 The standard of the classifications for silicone rubber in the vertical burning

Criteria	test			
	V-0	V-1	No rating Self-extinguishing	No self-extinguishing
Afterflame time for each individual specimen t_1 or t_2	$\leq 10s$	$\leq 30s$	$> 30s$	$> 30s$
Total afterflame time for any condition set (t_1 plus t_2 for the 5 specimens)	$\leq 50s$	$\leq 250s$	Or $> 250s$	Or $> 250s$
Afterflame plus afterglow time for after the second flame application (t_2+t_3)	$\leq 30s$	$\leq 60s$	Or $> 60s$	Or $> 60s$
Afterflame or afterglow of any specimen up to the holding clamp	No	No	No	Yes
Cotton indicator ignited by flaming particles or drops	No	No	No	No

Table S2 The mechanical properties of ALSR composites

Sample	Tensile strength (MPa)	Elongation at break (%)	Tear Strength (kN/m)
ALSR	7.62±0.4	572±44	20.6±2.1
ALSR/ α -ZrP	7.44±0.3	431±38	19.9±1.8
ALSR/PMVP	7.98±0.3	543±49	23.9±2.2
ALSR/F-ZrP-1	8.09±0.2	495±20	24.6±1.8
ALSR/F-ZrP-2	8.14±0.5	491±32	23.8±2.3
ALSR/F-ZrP-3	8.26±0.4	552±60	24.4±1.6
ALSR/F-ZrP-4	8.35±0.5	531±57	26.0±2.7