

## Supplementary information for

### Bio-based arginine surface-modified ammonium polyphosphate: an efficient intumescent flame retardant for epoxy resin

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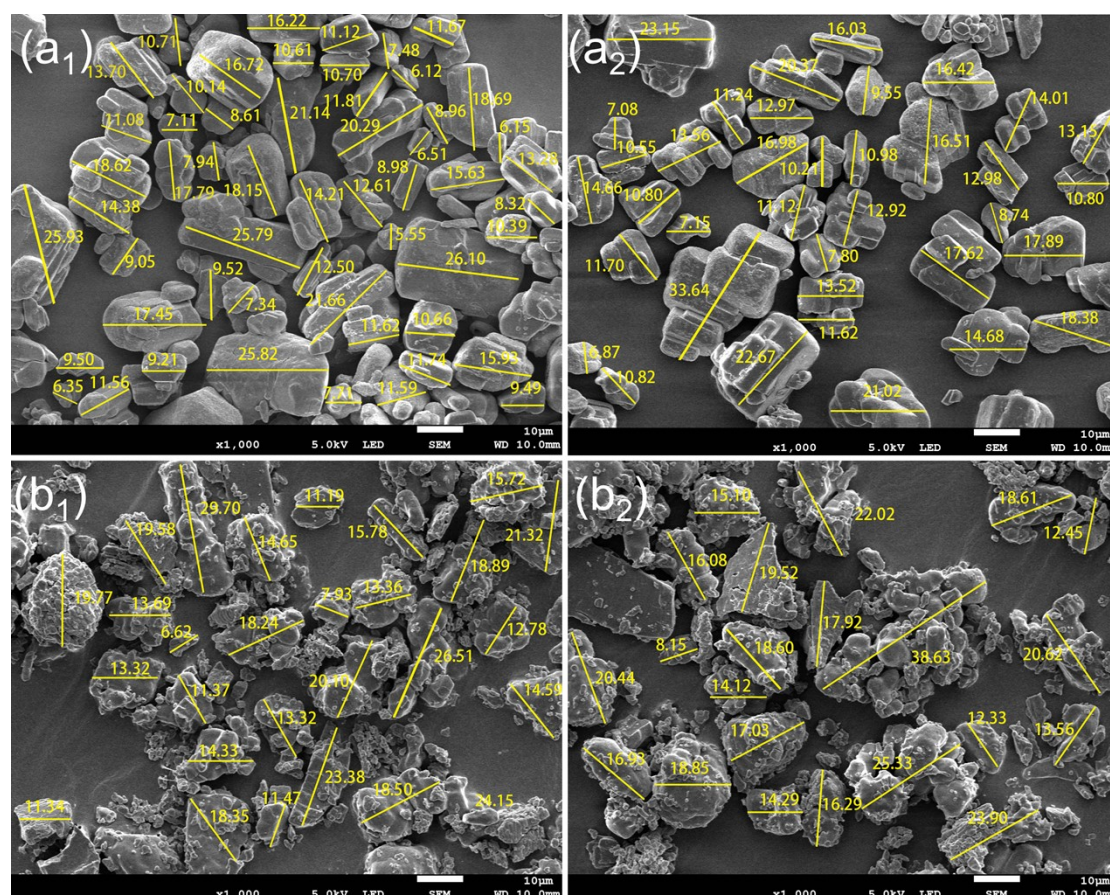


Figure S1. The SEM micrographs of (a<sub>1</sub>)-(a<sub>2</sub>) APP and (b<sub>1</sub>)-(b<sub>2</sub>) Arg-APP

Table S1. The particle sizes of APP and Arg-APP

Sample	Particle size ( $\mu\text{m}$ )
APP	13.46 $\pm$ 5.49
Arg-APP	17.21 $\pm$ 5.66

Table S2. Characteristic XPS results on the C<sub>1s</sub> spectra of the residues

Sample	C-C/C-H (%)	C=C (%)	C-O/C-N (%)	C=O (%)
EP	61.0	7.3	15.8	15.8
EP/APP15	63.7	16.8	11.8	7.7
EP/Arg-APP25	81.5	9.0	9.5	-