

## Electronic Supplementary Material

A low-density polyethylene composite with phosphorus-nitrogen based flame retardant and multi-walled carbon nanotubes for enhanced electrical conductivity and acceptable flame retardancy

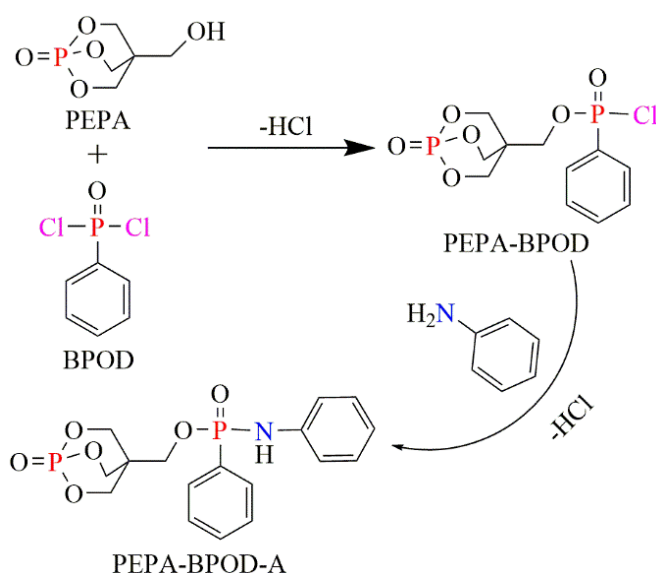
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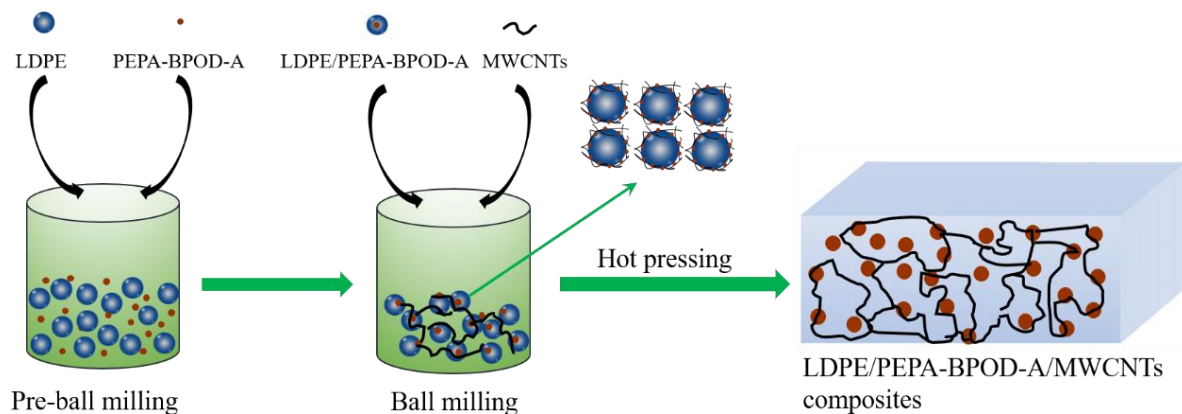
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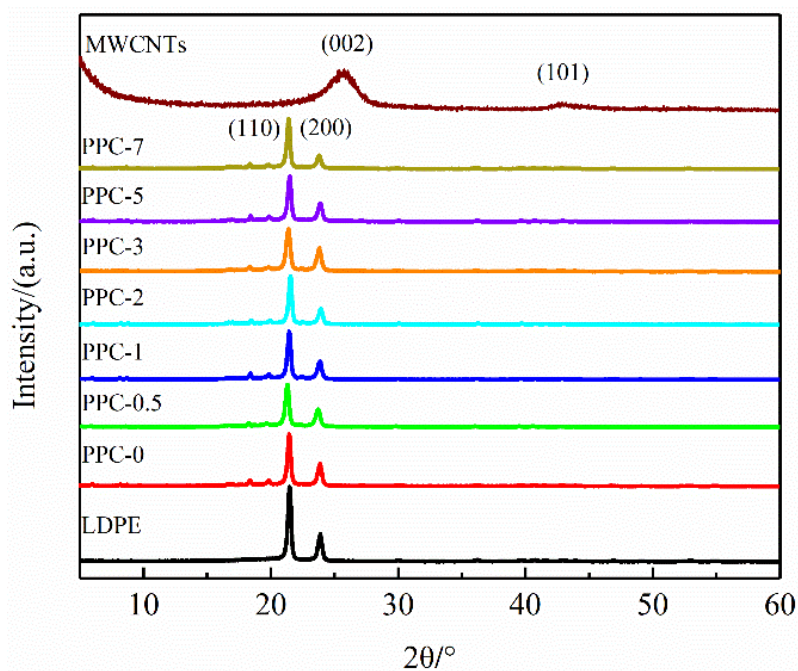
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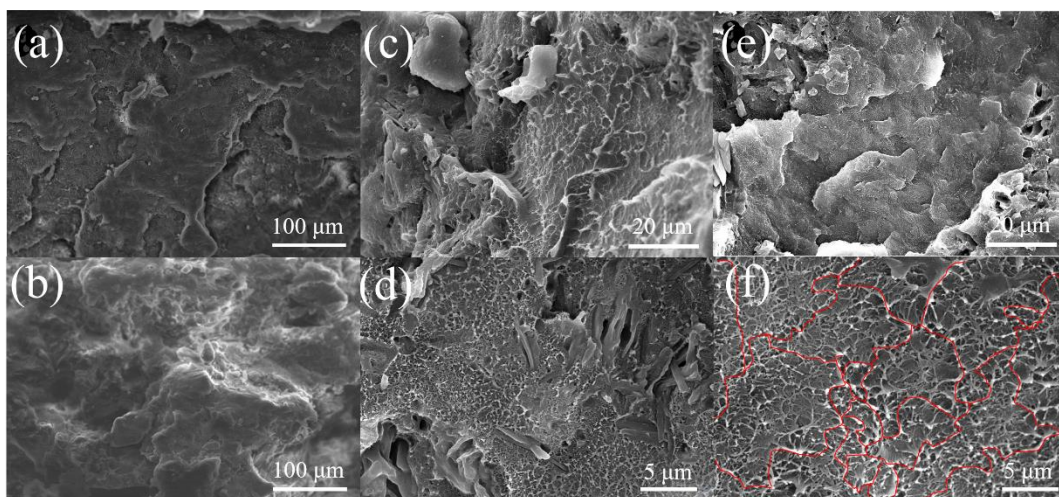
**Scheme S1** Synthesis route of PEPA-BPOD-A.



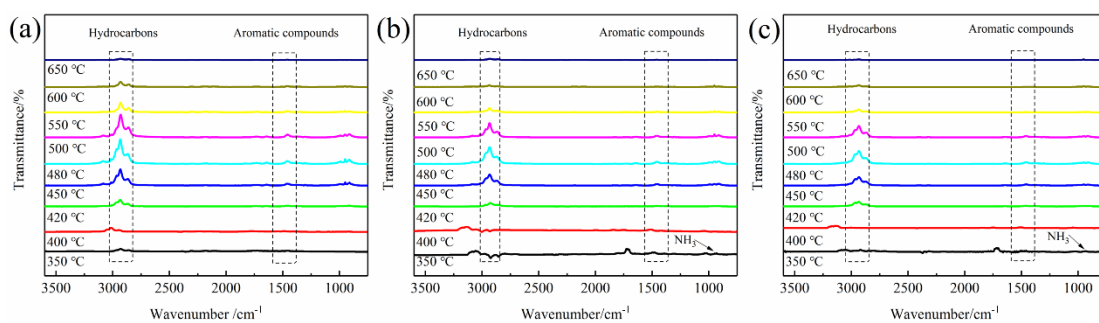
**Scheme S2** Preparation process for the LDPE/PEPA-BPOD-A/MWCNTs composites.



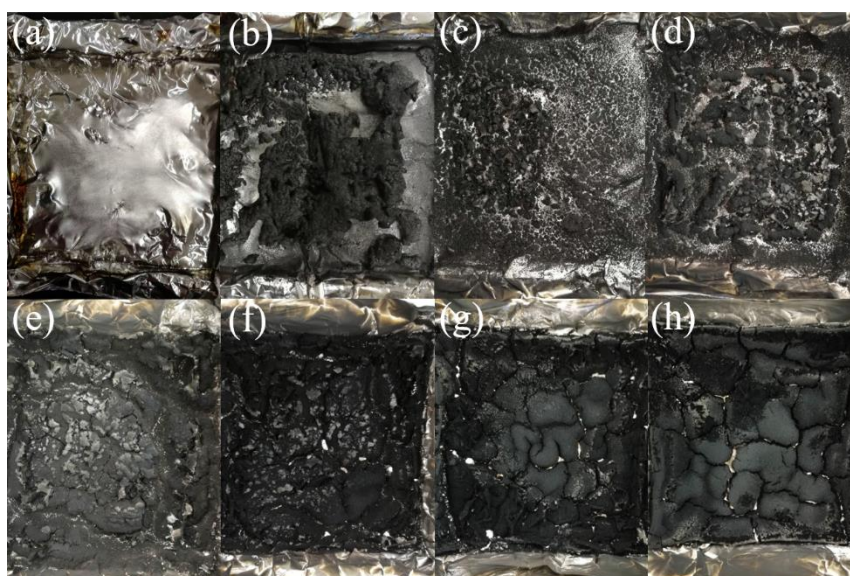
**Fig. S1** The XRD patterns of MWCNTs, pure LDPE and its composites containing different MWCNTs loadings.



**Fig. S2** SEM images of fracture surfaces of pure LDPE (a), PPC-0 (b), PPC-3 (c, d), PPC-7 (e, f).



**Fig. S3** FTIR spectra of the pyrolysis products for pure LDPE (a), PPC-0 (b), and PPC-7 (c) at different temperatures.



**Fig. S4** Photographs of residues of pure LDPE (a), PPC-0 (b), PPC-0.5 (c), PPC-1 (d), PPC-2 (e), PPC-3 (f), PPC-5 (g), and PPC-7 (h) at flame-out after burning.