

Electronic Supplementary Information

Synthesis of aminopropyltriethoxysilane grafted/tripolyphosphate intercalated ZnAl LDHs and its performance in the flame retardancy and smoke suppression of polyurethane elastomer

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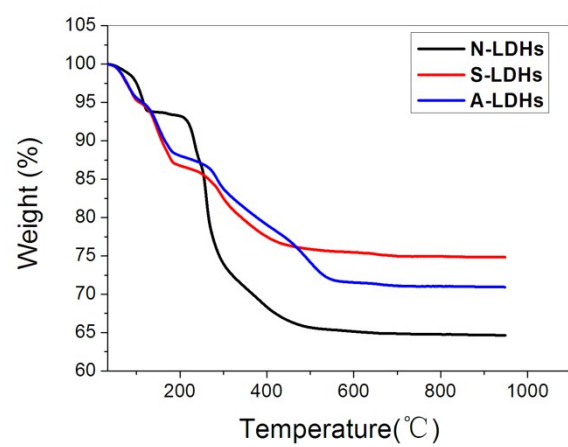


Fig. S1 TG curves of LDHs

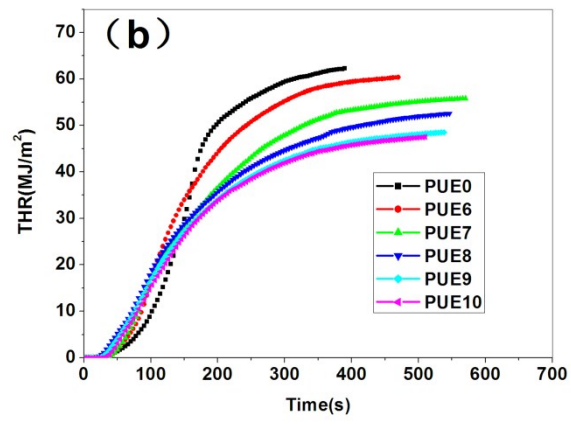
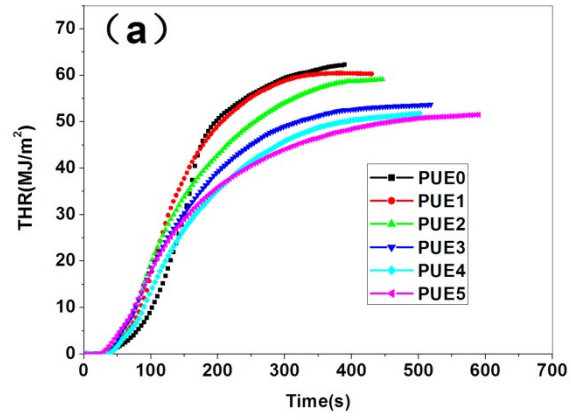


Fig. S2 THR curves of PUE/LDHs composites

Table S1 Characteristic data from TG analysis of PUE/LDHs composites

| Samples | Temperature(°C) | | | | Char (%) |
|---------|-----------------------------|------------------------------|------------------------------|-------------------------------|----------|
| | T ₅ ^a | T ₁₀ ^a | T ₅₀ ^a | T _{max} ^b | |
| PUE0 | 305 | 324 | 435 | 457 | <0.1 |
| PUE1 | 295 | 316 | 415 | 420 | 0.5 |
| PUE3 | 285 | 302 | 396 | 404 | 2.8 |
| PUE5 | 277 | 295 | 382 | 383 | 6.6 |
| PUE6 | 299 | 321 | 418 | 425 | 0.5 |
| PUE8 | 297 | 319 | 402 | 407 | 2.8 |
| PUE10 | 295 | 316 | 393 | 395 | 8.2 |

^a T₅, T₁₀, T₅₀, temperature at which 5%,10%,50% weight loss occurs

^b T_{max}, temperature at which maximum weight loss occurs

Table S2 Smoke density of PUE/LDHs composites

| Samples | Ds _{max} | Ds _{10min} | Samples | Ds _{max} | Ds _{10min} |
|---------|-------------------|---------------------|---------|-------------------|---------------------|
| PUE0 | 421 | 391 | — | — | — |
| PUE1 | 362 | 347 | PUE 6 | 306 | 286 |
| PUE2 | 345 | 311 | PUE 7 | 224 | 190 |
| PUE3 | 315 | 274 | PUE 8 | 204 | 178 |
| PUE4 | 220 | 196 | PUE 9 | 182 | 176 |
| PUE5 | 208 | 192 | PUE 10 | 180 | 162 |