

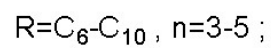
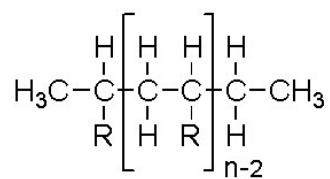
## Supplementary Materials

### **Tribological Properties of Oleic Acid-modified Zinc Oxide Nanoparticles as the Lubricant Additive in Poly-alpha Olefin and Diisooctyl Sebacate Base Oils**

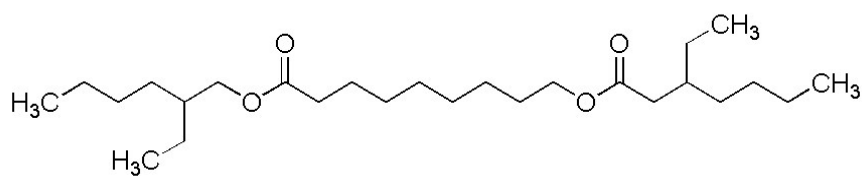
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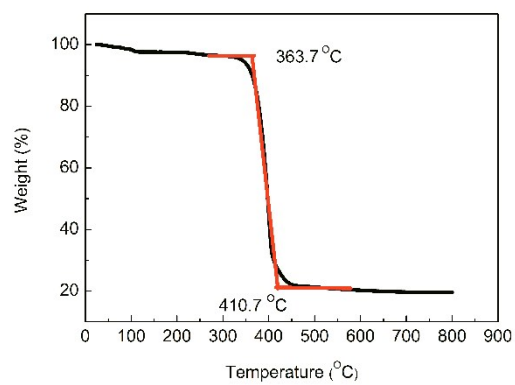
China. E-mail: zsm@henu.edu.cn; Tel: +86 37125152066



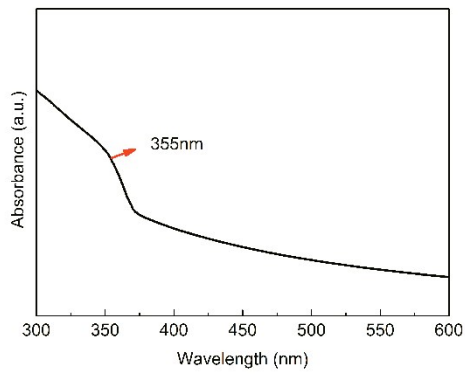
**Figure S1.** The structure of PAO.



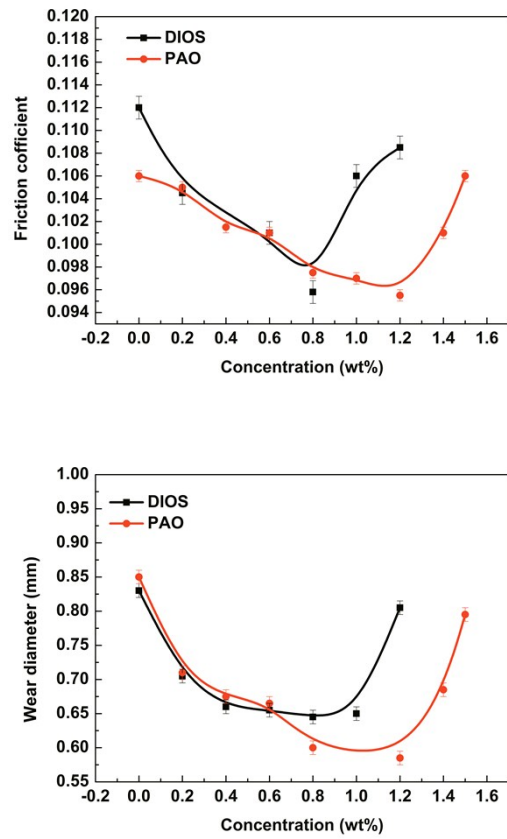
**Figure S2.** The structure of DIOS



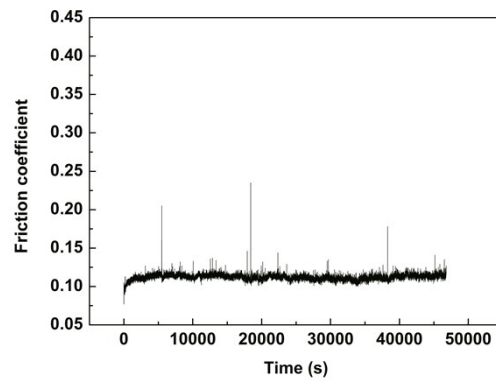
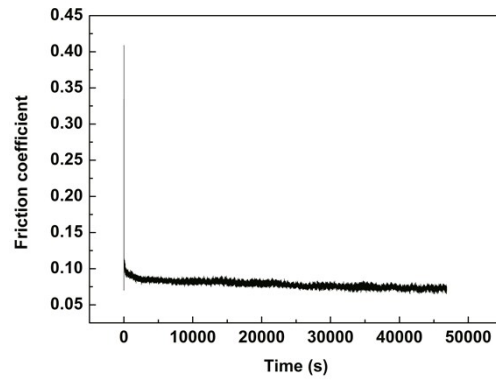
**Figure S3.** TGA curve of OA-modified ZnO nanoparticles.



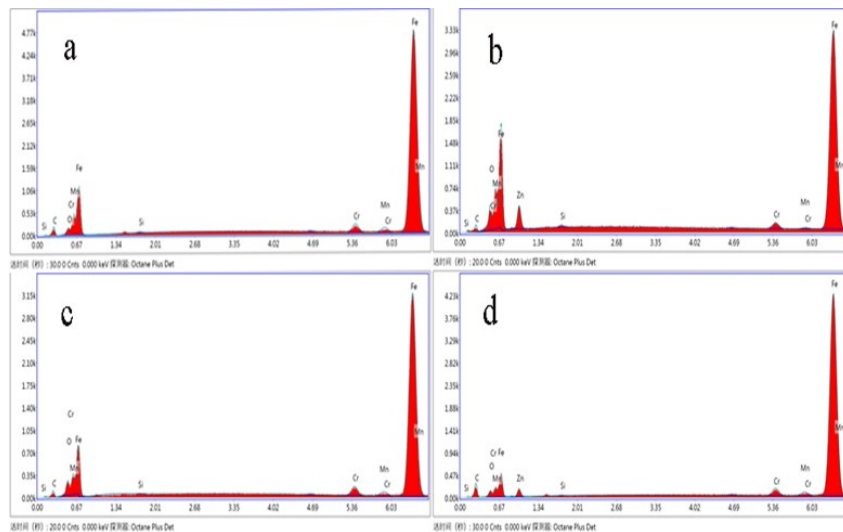
**Figure S4.** UV-vis spectrum of OA-modified ZnO nanoparticles.



**Figure S5.** Variations in friction coefficient and wear scar diameter of the steel-steel sliding pair with the concentration of OA-modified ZnO nanoparticles in DIOS and PAO (load: 392 N; speed: 1200 rev/min; time: 60 min; temperature: 75 °C).



**Figure S6.** The friction coefficient-time curves of PAO with 1.20% OA-modified ZnO and DIOS with 0.80% OA-modified ZnO nanoparticles (load: 392 N; rotation speed: 1200 rev/min; time: 780 min).



**Figure S7.** EDS spectra of the worn steel surfaces lubricated by PAO (a), the suspension of OA-modified ZnO nanoparticles in PAO ((b); additive concentration 1.20%), DIOS (c), and the suspension of OA-modified ZnO nanoparticles in DIOS ((d); additive concentration 0.80%).