Preparation and Tribological Behavior of Nitrogen-Doped Willow Catkins/MoS_2 Nanocomposites as Lubricant Additives in Liquid Paraffin

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	Molybdate dehydrate (g)	Thioacetamide (g)	willow catkins (ml)
$WC_3M_1S_1$	1	1	30
$WC_0M_2S_1$	2	1	/
$WC_2M_2S_1$	2	1	20
M_1S_1	1	1	/
M_1S_2	1	2	/
M_2S_1	2	1	/
$WC_3M_2S_1$	2	1	30
$WC_4M_2S_1$	2	1	40

Table S1. The catalogue and component content of the composites

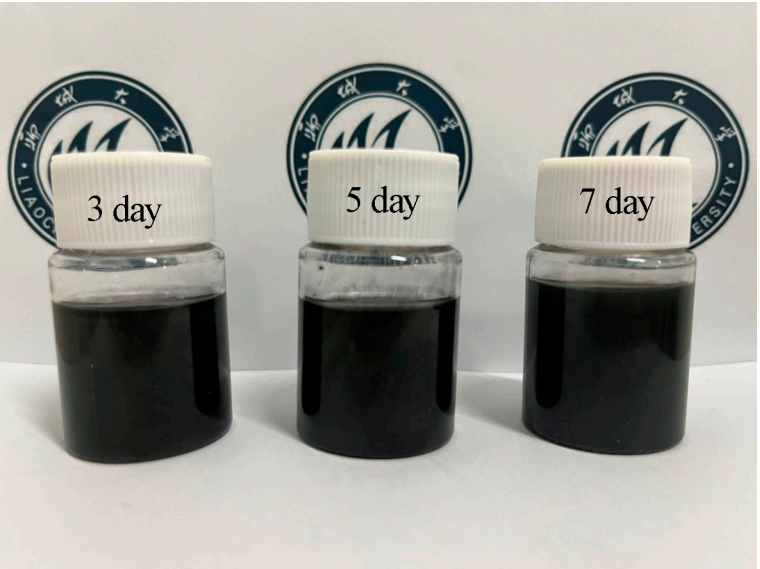
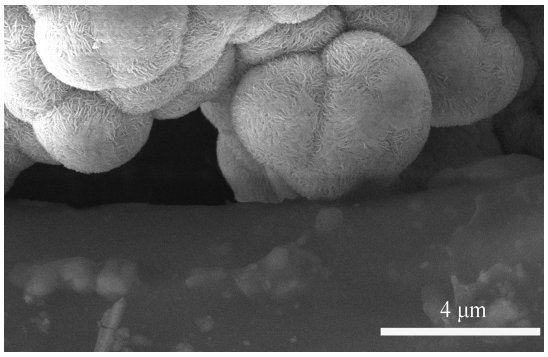
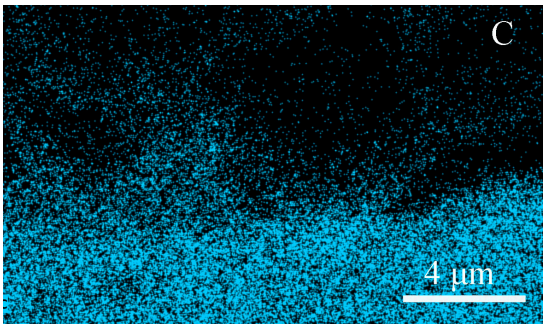
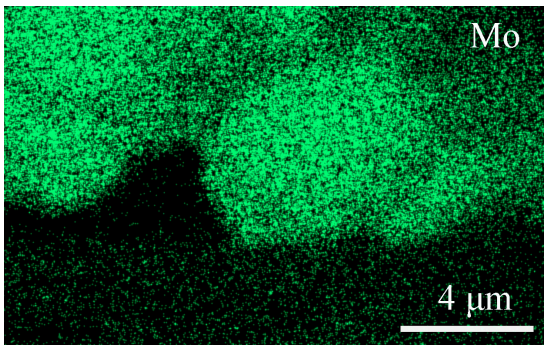
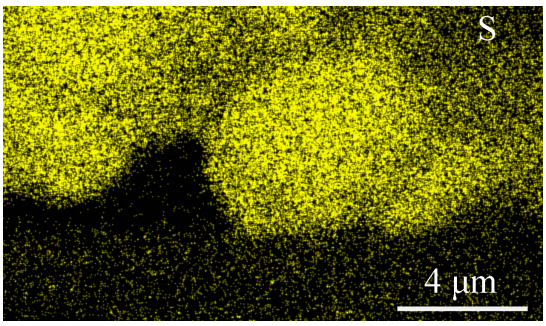


Figure S1 The stability of lubricants with additives









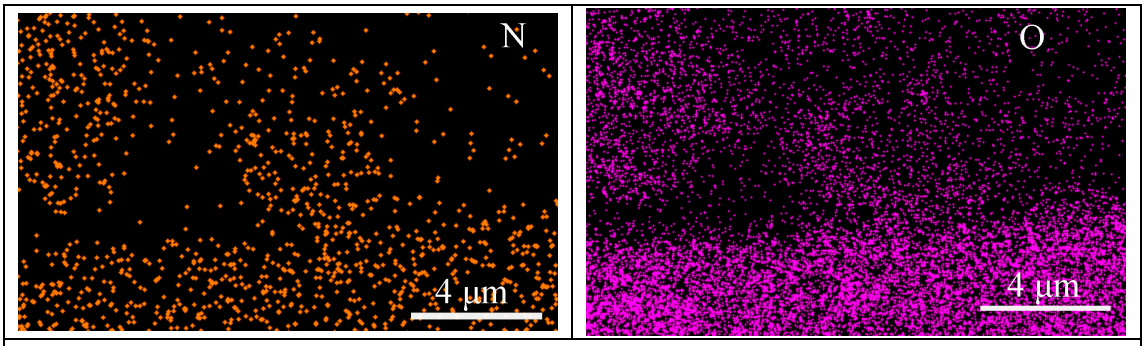


Figure S2 The mapping analysis of the $WC_2M_2S_1s$ with the hydrothermal temperature of 200 ºC

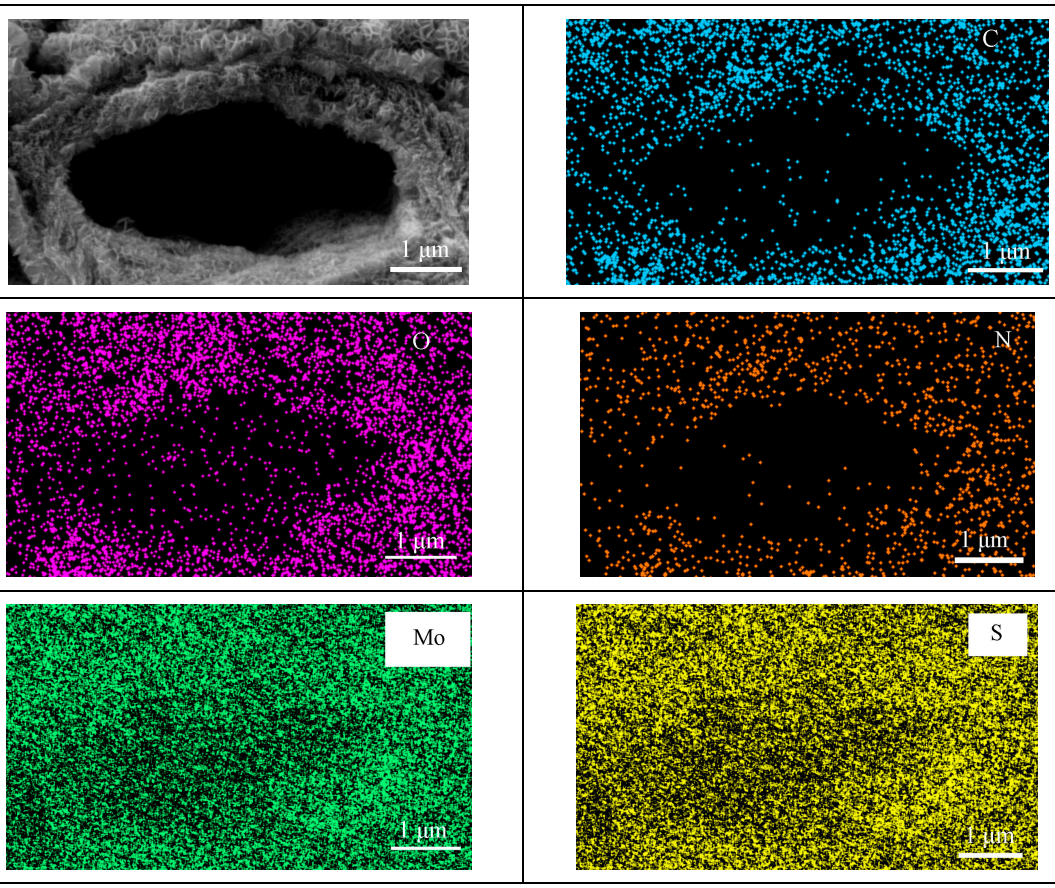
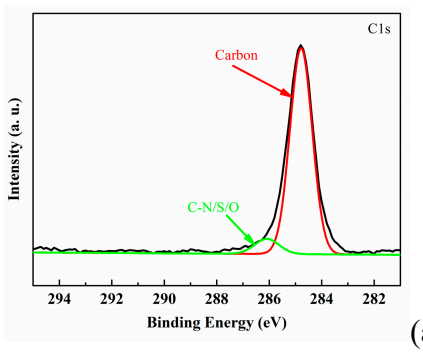
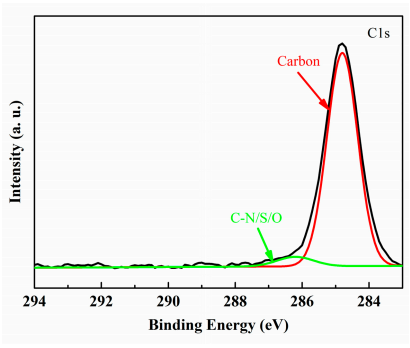


Figure S3 The mapping analysis of the $WC_2M_2S_1s$ with urea at a hydrothermal temperature of 200 ºC



(a)



(f)

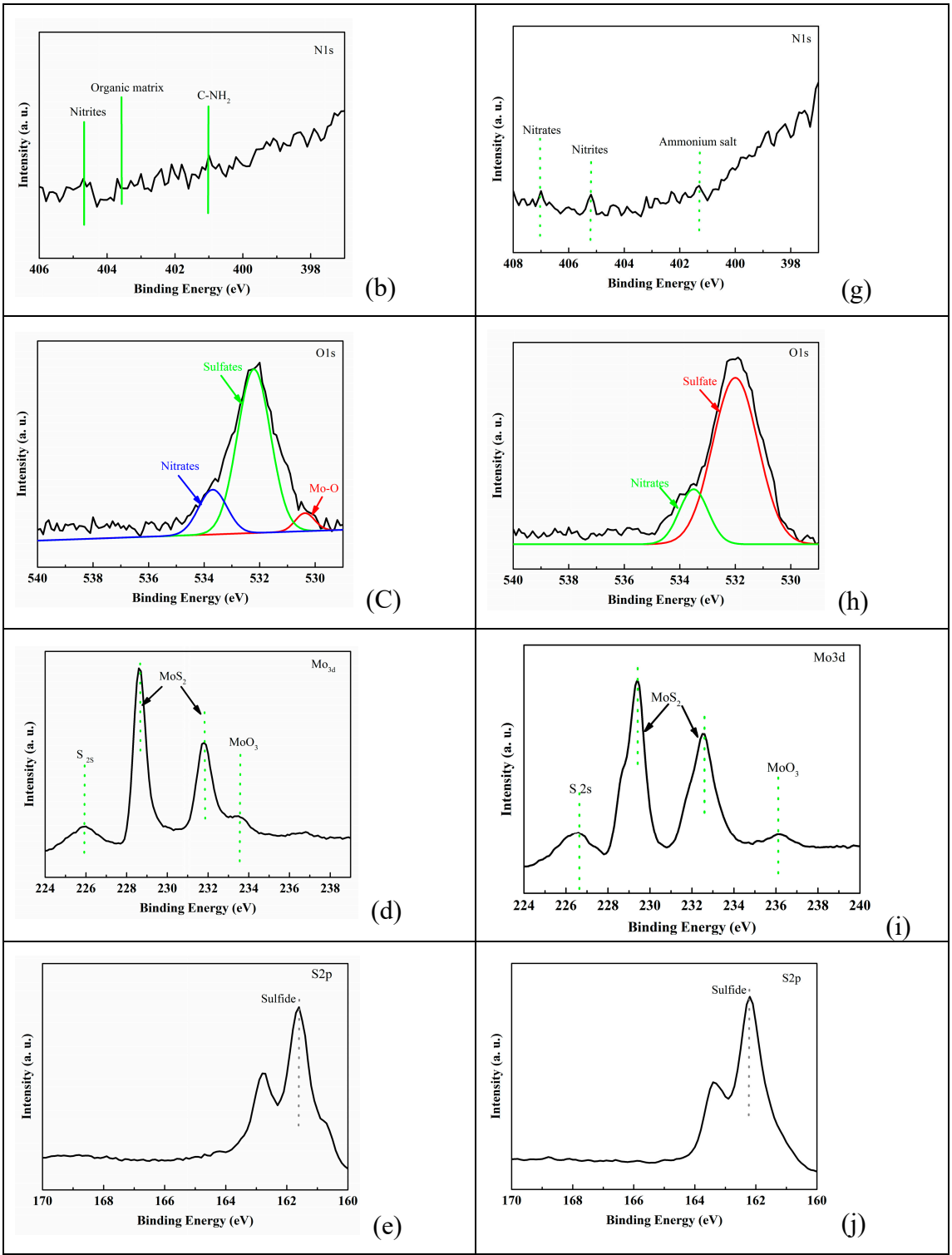
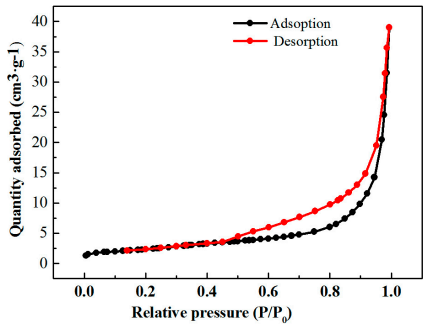
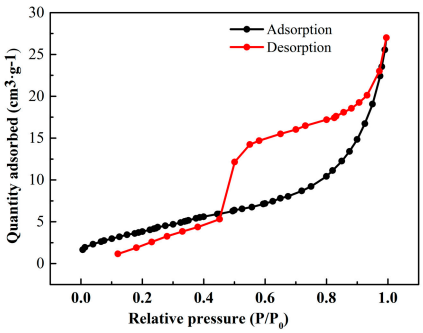


Figure S4 The XPS spectra of the $WC_3M_2S_1$ with (a-e) and without (f-j) urea.



(A)



(B)

Figure S5 N_2 adsortion/desorption isotherms (77K) of M_2S_1s (A) and $WC_3M_2S_1s$ (B), respectively.