Supplementary Information

Speed dependence of liquid superlubricity stability with H_3PO_4 solution

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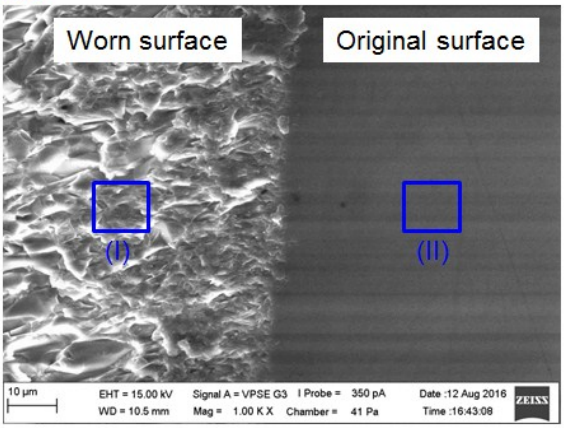
1. SEM image and EDS spectra of the worn area on glass surface after rubbed at 0.628 m/s

The surface morphology and element compositions of wear scar after the running-in procedure at 0.628 m/s and original surface were characterized by SEM and EDS detector. Before the EDS detection, the surface was rinsed by plentiful DI water to eliminate the influence of liquid lubricating film. As shown in Fig. S1, EDS results showed that no obvious difference was identified between worn surface and original surface in the elemental compositions.

(a)



(b)

(I)

Element	Apparent concentration	Wt. %	Atomic percent	Standard sample
O	31.32	47.07	60.69	SiO2
Na	6.90	9.34	8.38	Albite
Mg	1.27	2.35	1.99	MgO
Al	0.34	0.59	0.45	Al2O3
Si	20.36	34.41	25.27	SiO2
Ca	3.61	6.24	3.21	Wollastonite
Total:		100.00	100.00	

(II)

Element	Apparent concentration	Wt. %	Atomic percent	Standard sample
O	32.41	47.63	61.22	SiO2
Na	6.66	8.95	8.00	Albite
Mg	1.37	2.48	2.10	MgO
Al	0.34	0.59	0.45	Al2O3
Si	20.54	34.31	25.12	SiO2
Ca	3.53	6.03	3.10	Wollastonite
Total:		100.00	100	

Fig. S1 (a) SEM image of worn (I) and original surface (II) on glass substrate after cleaning. (b) Element analysis by EDS spectra.