

Supporting Information

Urea Modified Fluorinated Carbon Nanotubes: Unique Self-Dispersed Characteristic in Water and High Tribological Performance as Water-Based Lubricant Additives

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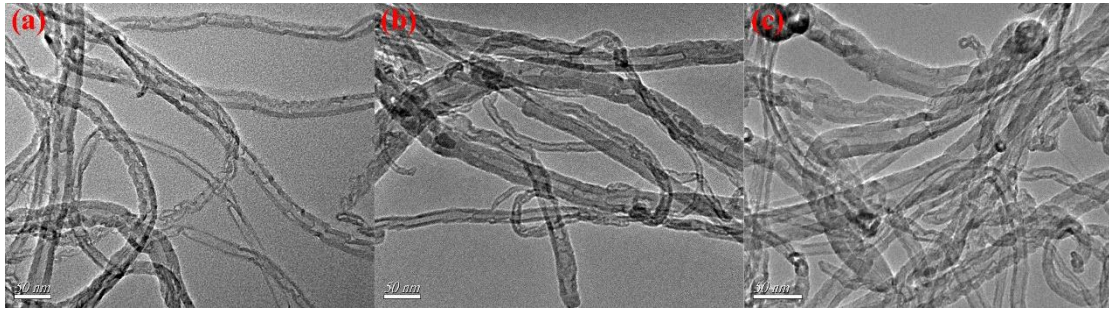


Figure S1. TEM images of (a)CNTs, (b)F-CNTs and (c)UF-CNTs

Figure S2(a) displays the influence of different rotating speeds(200rpm-400rpm) on the variation of friction coefficient with time under a certain load(5N) and test duration(30min) when the UF-CNTs with a mass fraction of 0.15 is used as the test sample. Obviously, the lowest and most stable friction coefficient is at 300rpm under the same conditions. Meanwhile, the average friction coefficient and corresponding wear rate are comparatively shown in Figure S2(b) and the overall trends of them are all decreasing first and then increasing, which means that under the same conditions, when the rotating speed is 300rpm, there possesses better friction test environment. Similarly, Figure S2(c-d) shows a better friction test environment with the applied load of 5N under the same conditions. In a word, the rotating speed of 300 rpm and the applied load of 5N for the test duration of 30 min are the most appropriate condition for conducting the tribological tests.

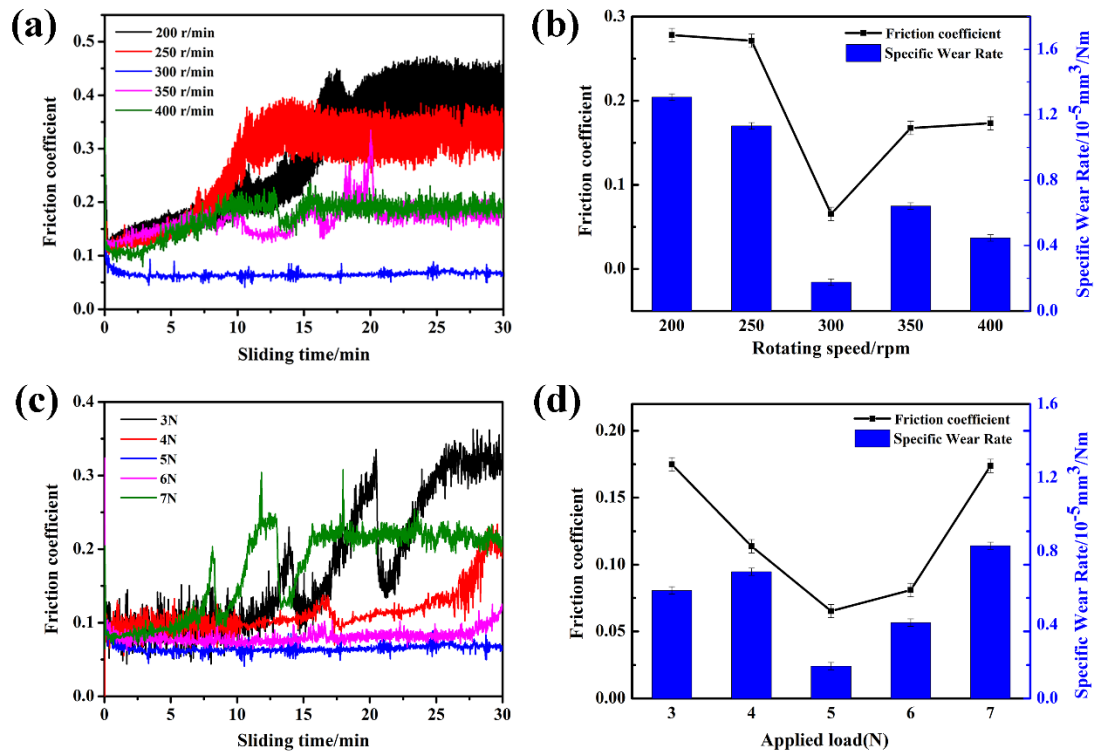


Figure S2. (a) Evolution of friction coefficient of 0.15wt% UF-CNTs evolved with different rotation speed (200rpm-400rpm) under a certain applied load (5N) for the test duration of 30 min; (c) Evolution of friction coefficient of 0.15wt% UF-CNTs evolved with different applied load (3N-7N) under a certain rotation speed (300rpm) for the test duration of 30 min; Figure (b) and Figure (d) are average friction coefficient and wear rate under corresponding conditions of Figure (a) and Figure (c), respectively.