C Journal of Carbon Research

MDPI

Supplementary Material

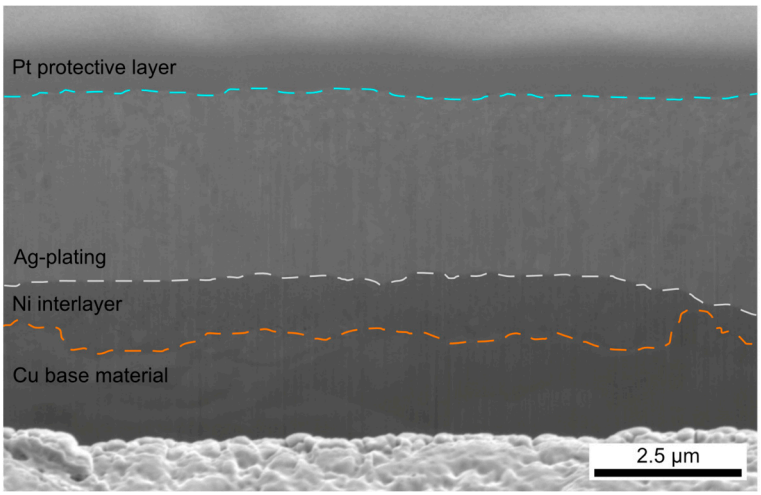

Figure S1. FIB cross section of silver-plated copper electrical contact. The platinum layer was deposited using the SEM with the purpose of protecting the sample and to minimize the curtaining effect during ion milling.

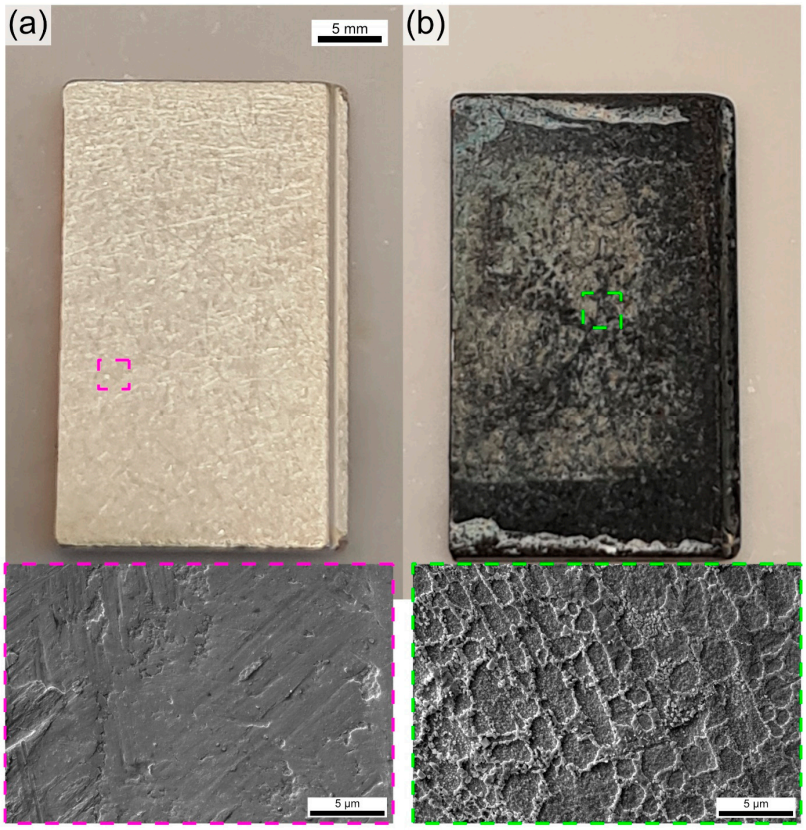

Figure S2. Silver sample **(a)** before and **(b)** after being subjected to sulfur-rich atmosphere. Highlighted regions show SEM micrographs of the surface before and after the accelerated tarnishing process.

Table S1. Colloid, dispersion, and EPD parameters.

	GF	CNT	CNH
Isopropyl alcohol volume /ml	0.2	0.2	0.05
CNP concentration /mg/ml	80	80	70
TEA volume /ml	10	5	5
Homogenization speed /rpm	7,000	7,000	12,000
Homogenization time /min	10	5	10
Ultrasound /min	10	10	015

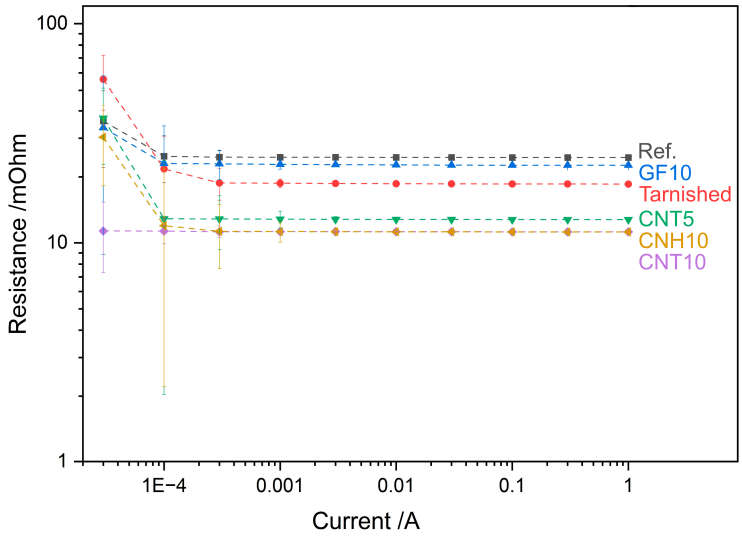

Figure S3. Current-dependent ECR of references, tarnished, and coated samples.

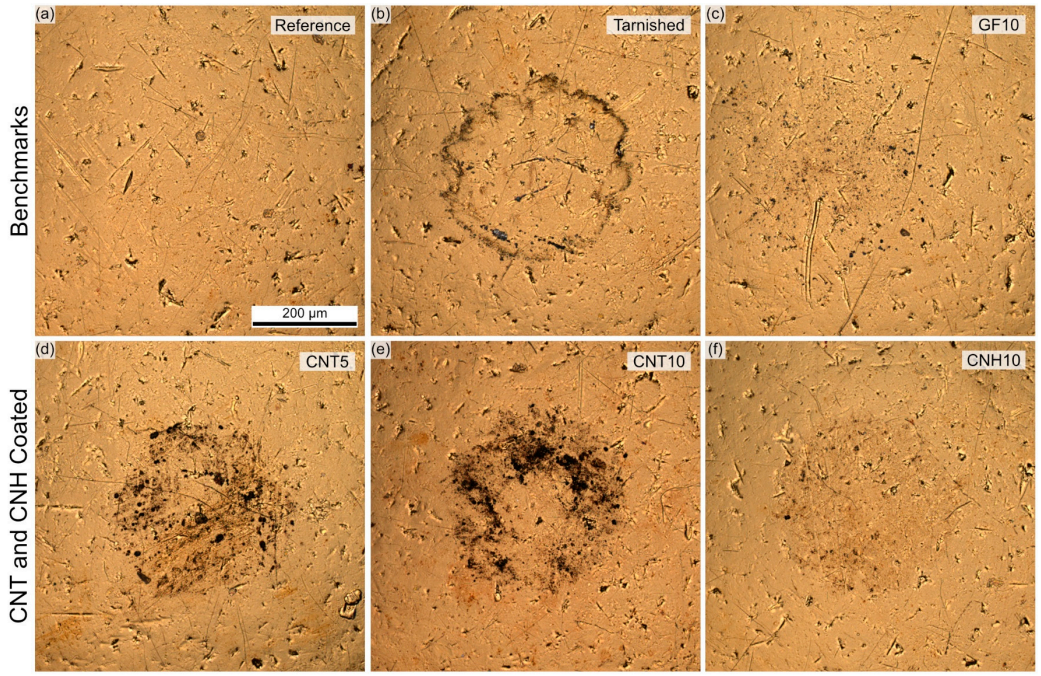

Figure S4. CLSM micrograph of counter electrodes after ECR measurements of **(a)** reference, **(b)** tarnished, **(c)** GF10, **(d)** CNT5, **(e)** CNT10, and **(f)** CNH10 sample.

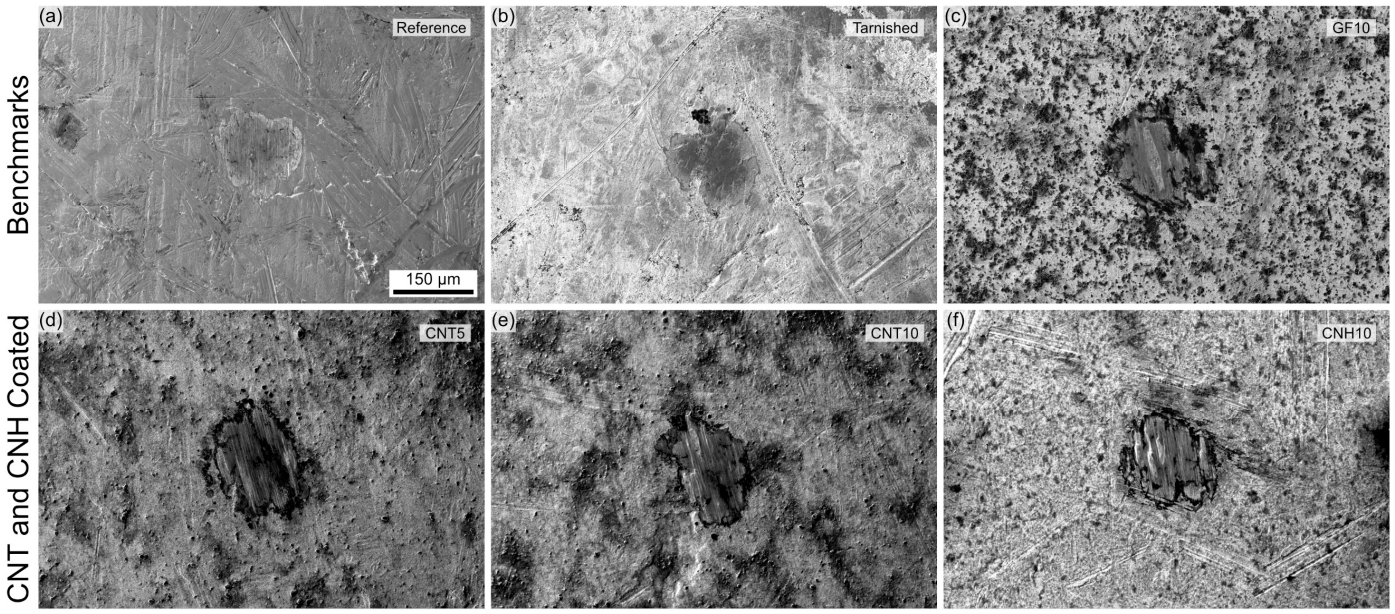

Figure S5. Secondary electron micrograph of fretting marks after 5,000 cycles of **(a)** reference sample, **(b)** tarnished sample, **(c)** GF10, **(d)** CNT5, **(e)** CNT10, and **(f)** CNH10. Micrographs **(a)** and **(b)** were acquired at 15 kV due to the presence of surface contaminants, whereas the rest were acquired at 5 kV acceleration voltage.

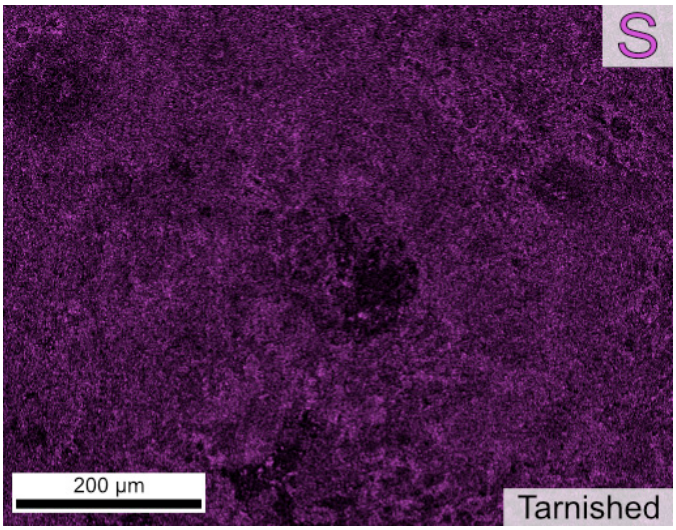

Figure S6. EDS map of the fretting mark after 5,000 cycles in the tarnished sample showing the signal for sulfur.