

## Supporting information

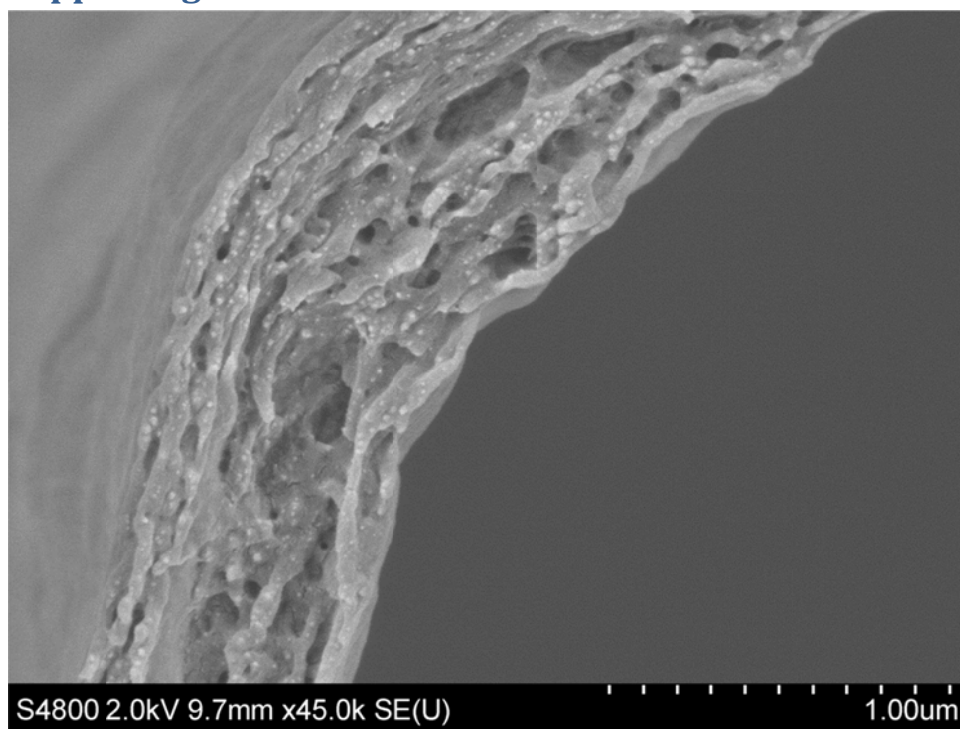


Figure S1. Cross section of a pore wall.

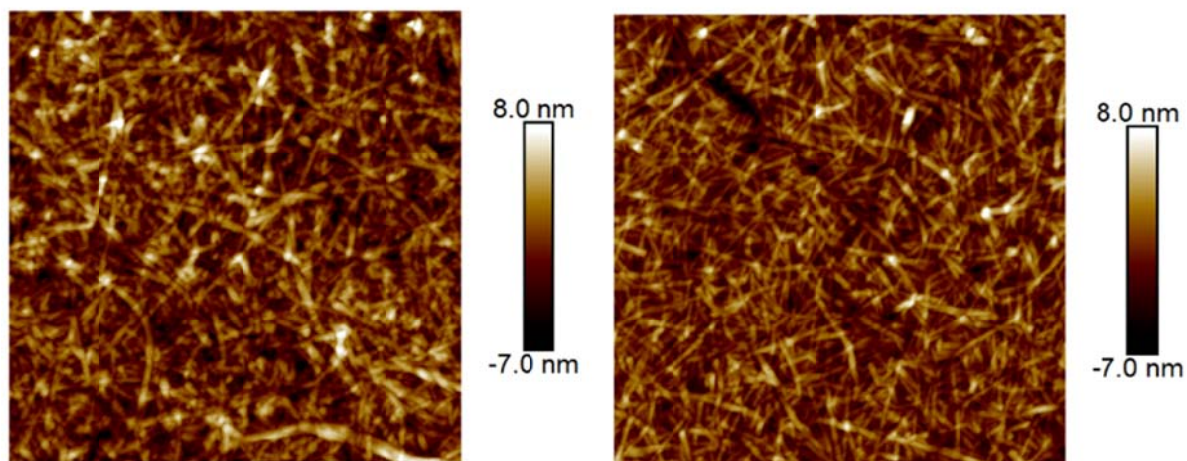


Figure S2. AFM images of adsorbed CNFs Ox30 and non-oxidized.

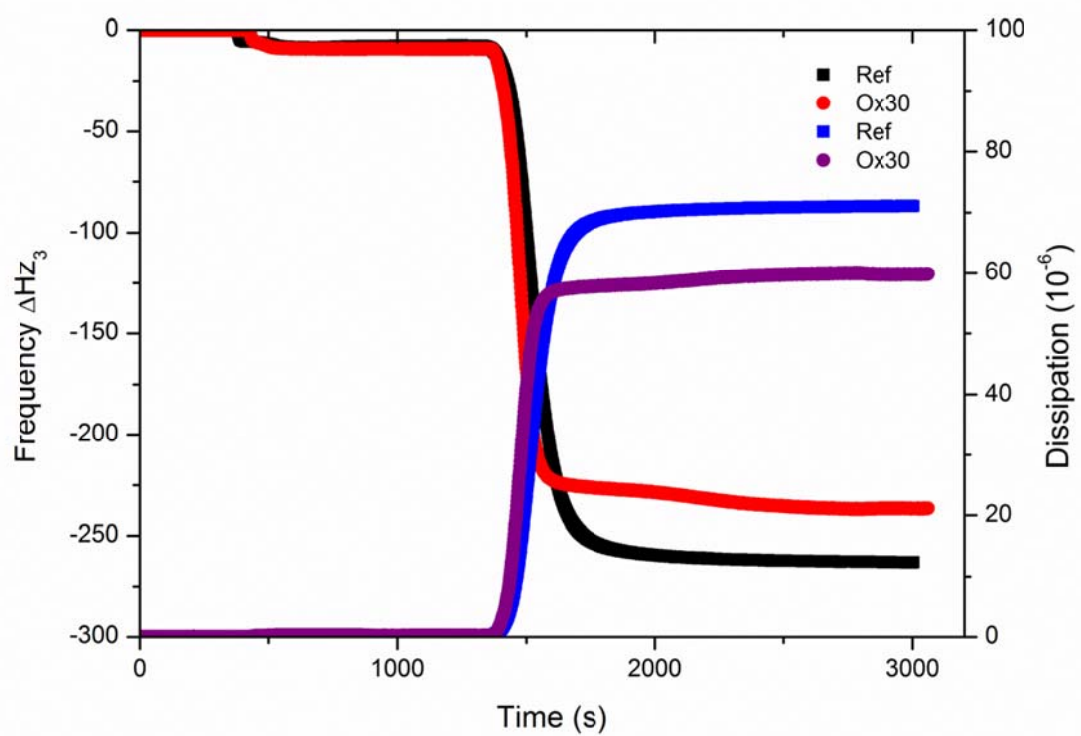


Figure 3. QCM-D data of frequency and dissipation change for the 3<sup>rd</sup> overtone during adsorption of non-oxidized CNFs and Ox30 CNFs.