

Reversible switching between hydrophobicity and oleophobicity of the polyelectrolyte-functionalized multiwalled carbon nanotubes via counterion exchange

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Raman spectra were performed on LabRam HR800 (HORIBA Jobin Yvon, France).

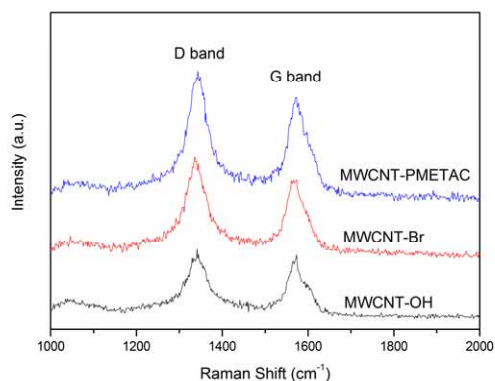


Figure S1. Raman spectra of the MWCNT-OH, MWCNT-Br and MWCNT-PMETAC.

Raman spectra were performed on the MWCNT-OH, MWCNT-Br and MWCNT-PMETAC in order to study changes about their structures, as shown in Figure S1. The band at $\sim 1341\text{ cm}^{-1}$ (referred to as D band) is assigned to disordered sp^3 carbon structure, and the band at $\sim 1571\text{ cm}^{-1}$ (G band) is attributed to sp^2 ordered crystalline graphite-like structure.¹⁻³ The intensity ratio between the D band and G band (I_D/I_G) increased slightly from 1.20 to 1.31 as a result of functionalization of the MWCNT-OH with 2-bromoisobutyryl bromide. After the grafting of PMETAC onto MWCNTs, the I_D/I_G increased to 1.46, indicating the increase of disordered sp^3 carbon structure. These results further proved the successful graft reaction of PMETAC.

References

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