

Supplementary Information

CO₂/CH₄ and H₂/CH₄ gas separation performance of CTA-TNT@CNT hybrid mixed matrix membranes

Chhabilal Regmi^{1,*}, Saeed Jamali Ashtiani¹, Zdeněk Hrdlička², Karel Friess^{1,*}

¹Department of Physical Chemistry, University of Chemistry and Technology, Technická 5, 16628, Prague 6, Czech Republic

²Department of Polymers, University of Chemistry and Technology, Technická 5, 16628, Prague 6, Czech Republic

Correspondence: regmic@vscht.cz; friessk@vscht.cz

Results

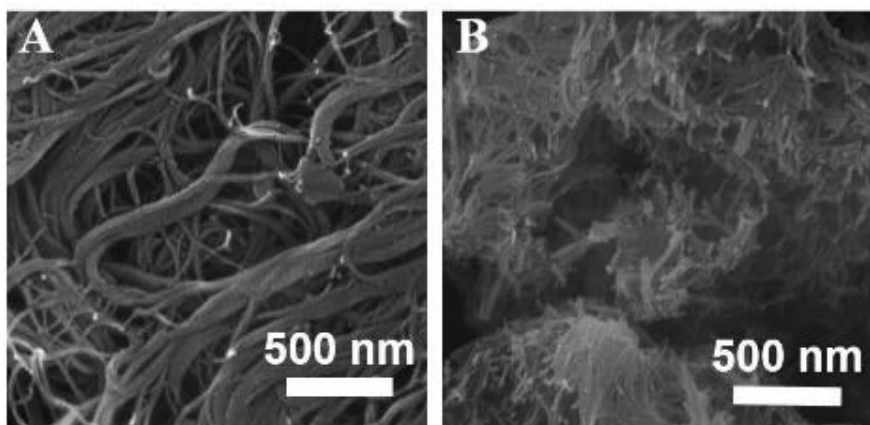


Figure S1 SEM images of; A) CNT and B) TNT nanoparticles.

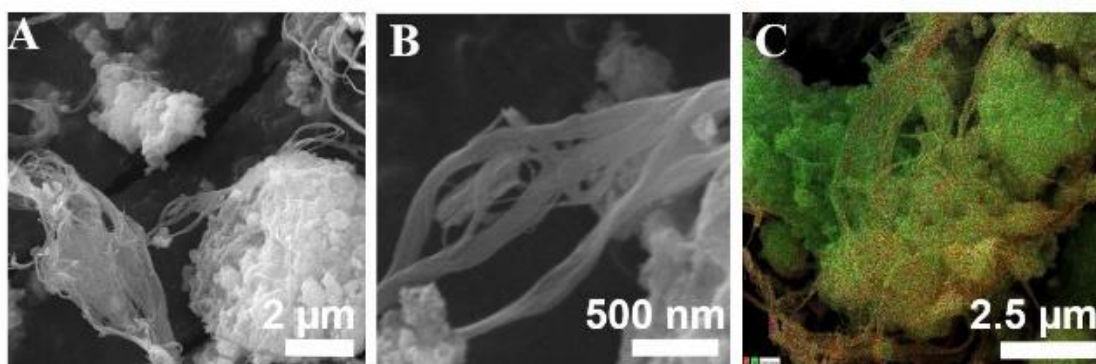


Figure S2 SEM and EDS overlaid images of TNT@CNT hybrid fillers.

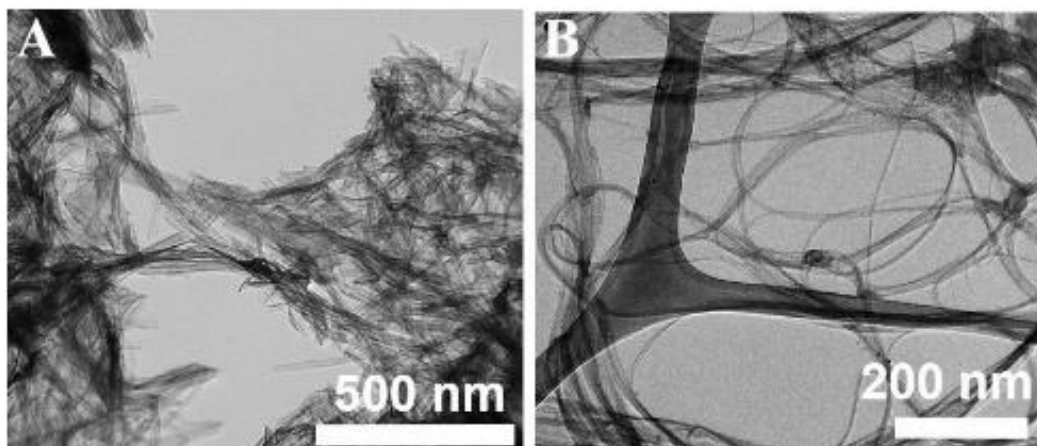


Figure S3 TEM images of; A) TNT and B) CNT nanoparticles.



Figure S4 Image of the nature of the drop onto the membrane during contact angle measurement of CTA and CTA-TNT@CNT MMMs

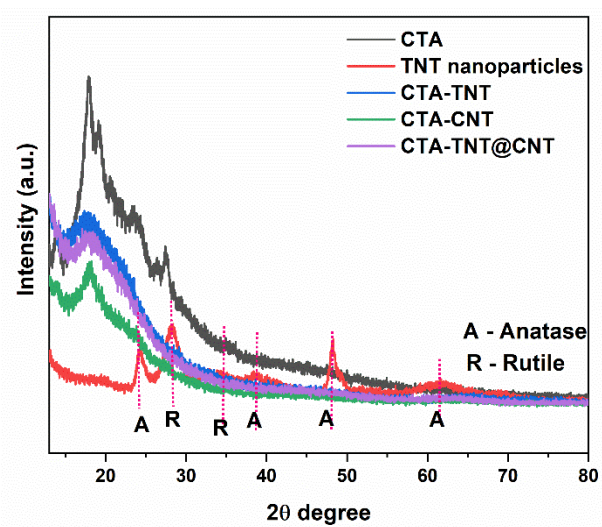


Figure S5 XRD spectra of the synthesized MMMs with different fillers.

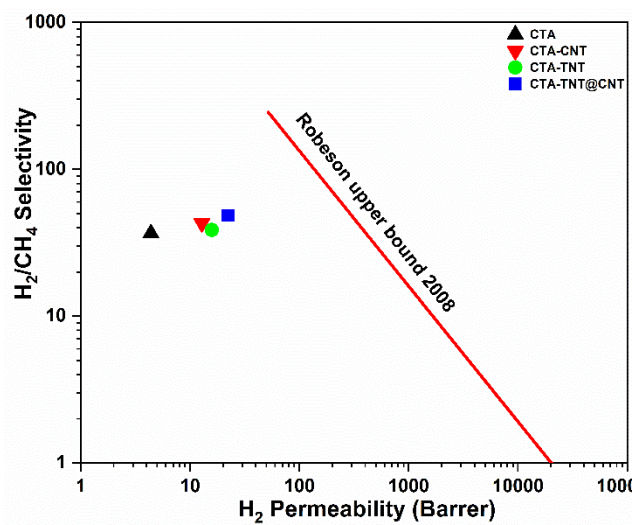


Figure S6 Plot of H_2/CH_4 separation efficiency of synthesized membranes compared with the Robeson upper-bound plot.