

Supplementary Material

Epoxy Coatings Containing Nature-Inspired Antifouling Compounds Loaded in Halloysite Nanocontainers

Daniela Pereira ^{1,2}, Monica Tonelli ³, Joana R. Almeida ⁴, Marta Correia-da-Silva ^{2,4}, Honorina Cidade ^{2,4,*} and Francesca Ridi ^{3,*}

¹ LSRE-LCM, ALiCE, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal; dmvpereira@fe.up.pt (D.P.)

² Laboratory of Organic and Pharmaceutical Chemistry, Department of Chemical Sciences, Faculty of Pharmacy, University of Porto, Rua de Jorge Viterbo Ferreira n° 228, 4050-313, Porto, Portugal; m_correiasilva@ff.up.pt (M.C.S.)

³ Department of Chemistry "Ugo Schiff" and CSGI, University of Florence, Via della Lastruccia 3 Sesto Fiorentino, I-50019, Florence, Italy; monica.tonelli@unifi.it (M.T.)

⁴ CIIMAR/CIMAR LA – Interdisciplinary Centre of Marine and Environmental Research, University of Porto, Terminal de Cruzeiros do Porto de Leixões, Av. General Norton de Matos s/n 4450-208, Matosinhos, Portugal; jalmeida@ciimar.up.pt (J.R.A.)

* Correspondence: hcidade@ff.up.pt (H.C.); francesca.ridi@unifi.it (F.R.)

Contents:

Figure S1. XRD diffractograms of pristine HNTs and HNTs functionalized with APTES.	2
Figure S2. Raman spectra of pristine HNTs and HNTs functionalized with APTES.	2
Figure S3. SEM images of the investigated samples: A) C: pristine coating; B) C-H: coating with HNTs; C) C-FH: coating with functionalized HNTs; D) C-H-GBA26: coating with compound GBA26 loaded into HNTs; E) C-FH-DH345: coating with compound DH345 loaded into functionalized HNTs; F) C-FH-CC345G: coating with compound CC345G loaded into functionalized HNTs; G) C-FH-C1P: coating with compound C1P loaded into functionalized HNTs.	3
Figure S4. Thermogravimetric (TG) analysis of HNTs Dragonite.	4
Figure S5. TG analysis of HNTs Dragonite functionalized with APTES.	4
Figure S6. TG analysis of compound GBA26.	5
Figure S7. TG analysis of compound GBA26 loaded in HNTs Dragonite.	5
Figure S8. TG analysis of compound DH345.	6
Figure S9. TG analysis of compound DH345 loaded in HNTs functionalized with APTES.	6
Figure S10. TG analysis of compound CC345G.	7
Figure S11. TG analysis of compound CC345G loaded in HNTs functionalized with APTES.	7
Figure S12. TG analysis of compound C1P.	8
Figure S13. TG analysis of compound C1P loaded in HNTs functionalized with APTES.	8

Figure S14. Raman spectra of the synthesize active molecules together with HNTs and HNTs loaded with the AF compounds: A) compound GBA26, HNT and HNT loaded with GBA26, B) compound DH345, HNT-APTES and HNT-APTES loaded with DH345, C) compound CC345G, HNT-APTES and HNT-APTES loaded with CC345G, D) compound C1P, HNT-APTES and HNT-APTES loaded with C1P. 9

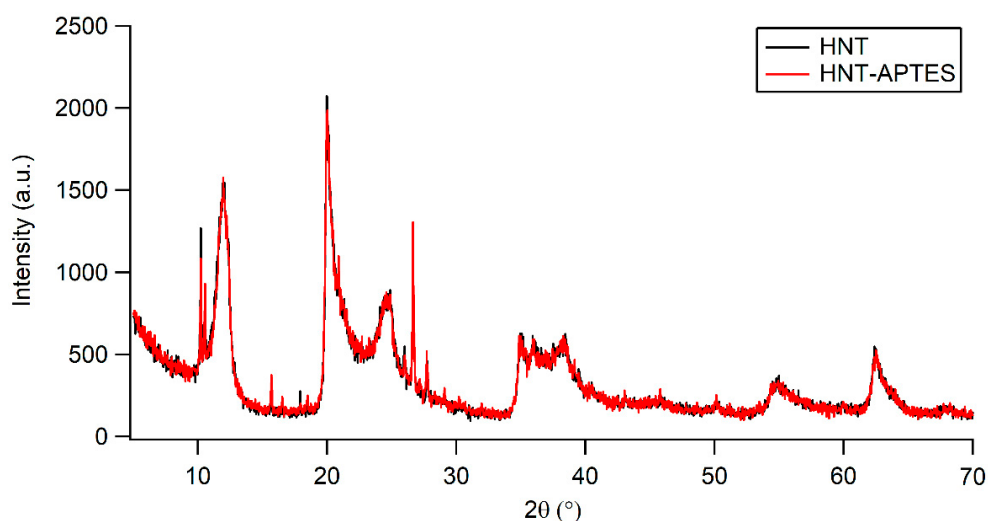


Figure S1. XRD diffractograms of pristine HNTs and HNTs functionalized with APTES.

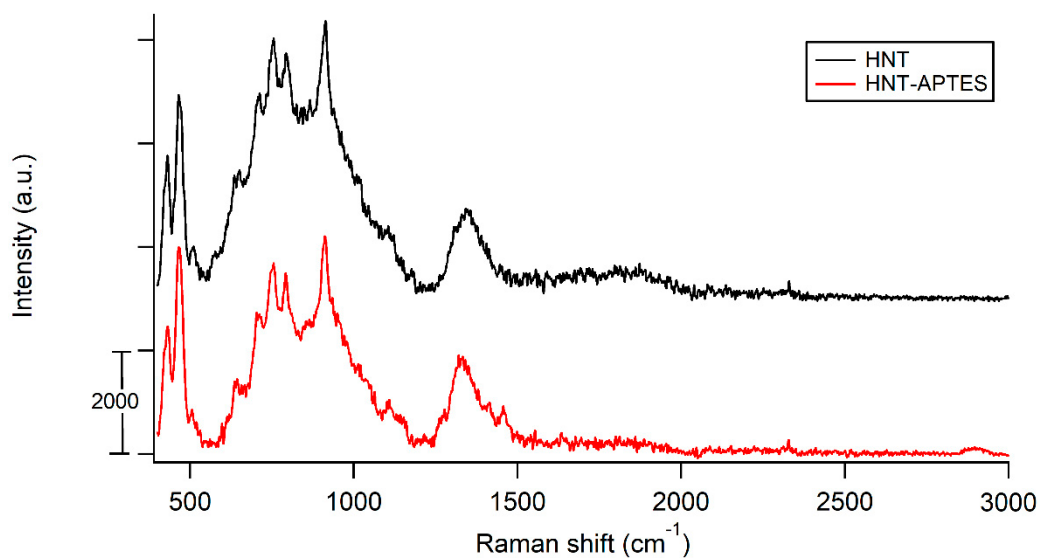


Figure S2. Raman spectra of pristine HNTs and HNTs functionalized with APTES.

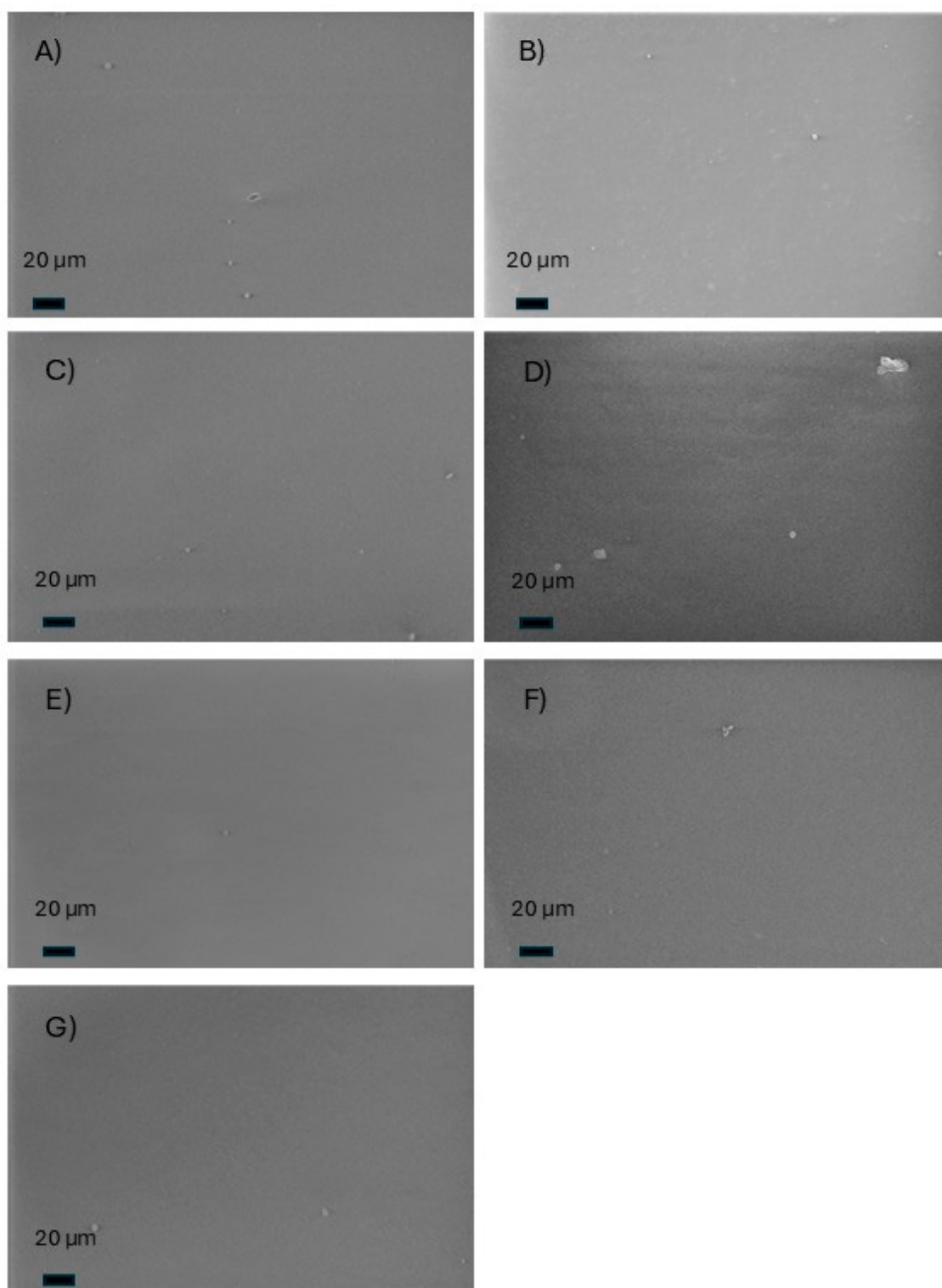


Figure S3. SEM images of the investigated samples: A) C: pristine coating; B) C-H: coating with HNTs; C) C-FH: coating with functionalized HNTs; D) C-H-GBA26: coating with compound GBA26 loaded into HNTs; E) C-FH-DH345: coating with compound DH345 loaded into functionalized HNTs; F) C-FH-CC345G: coating with compound CC345G loaded into functionalized HNTs; G) C-FH-C1P: coating with compound C1P loaded into functionalized HNTs.

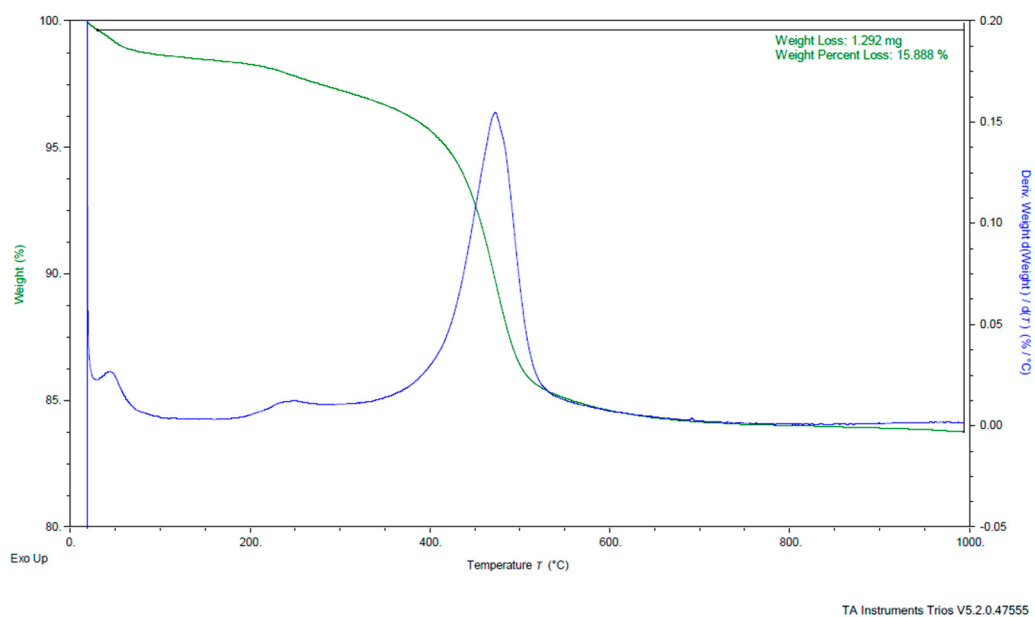


Figure S4. Thermogravimetric (TG) analysis of HNTs Dragonite.

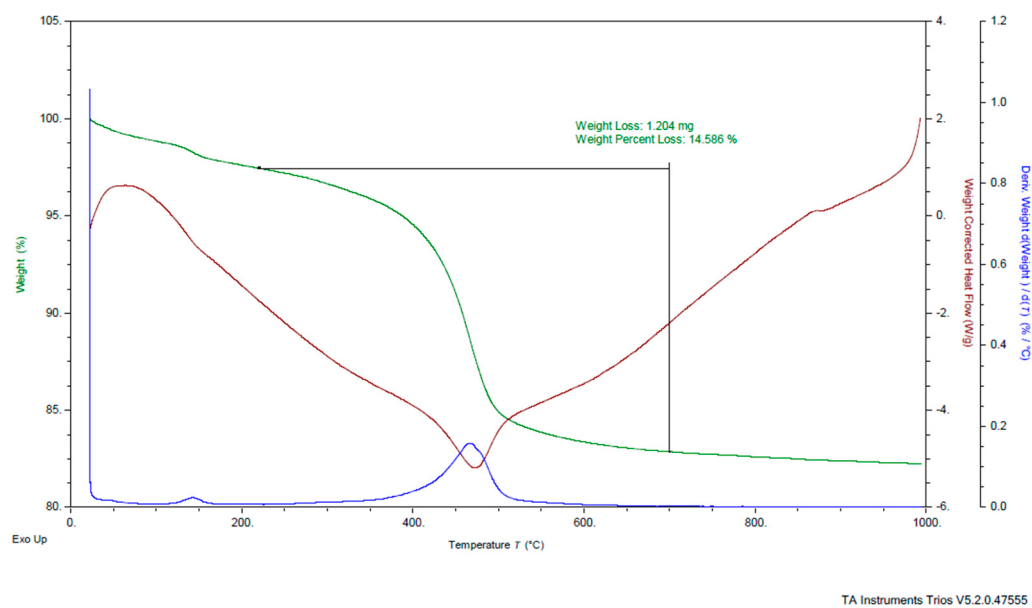


Figure S5. TG analysis of HNTs Dragonite functionalized with APTES.

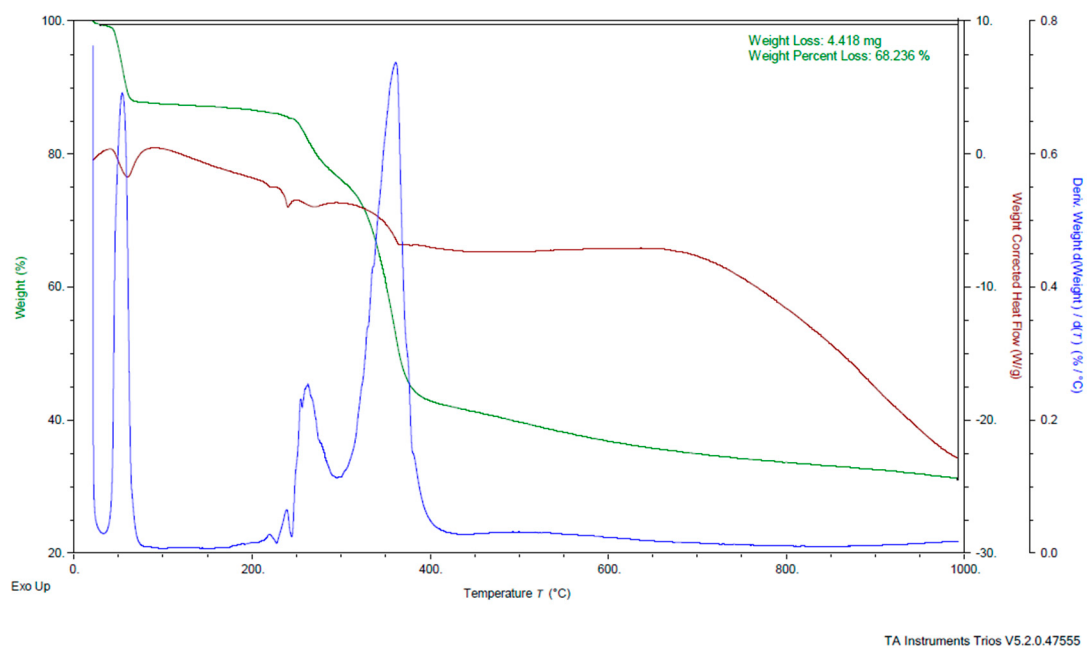


Figure S6. TG analysis of compound **GBA26**.

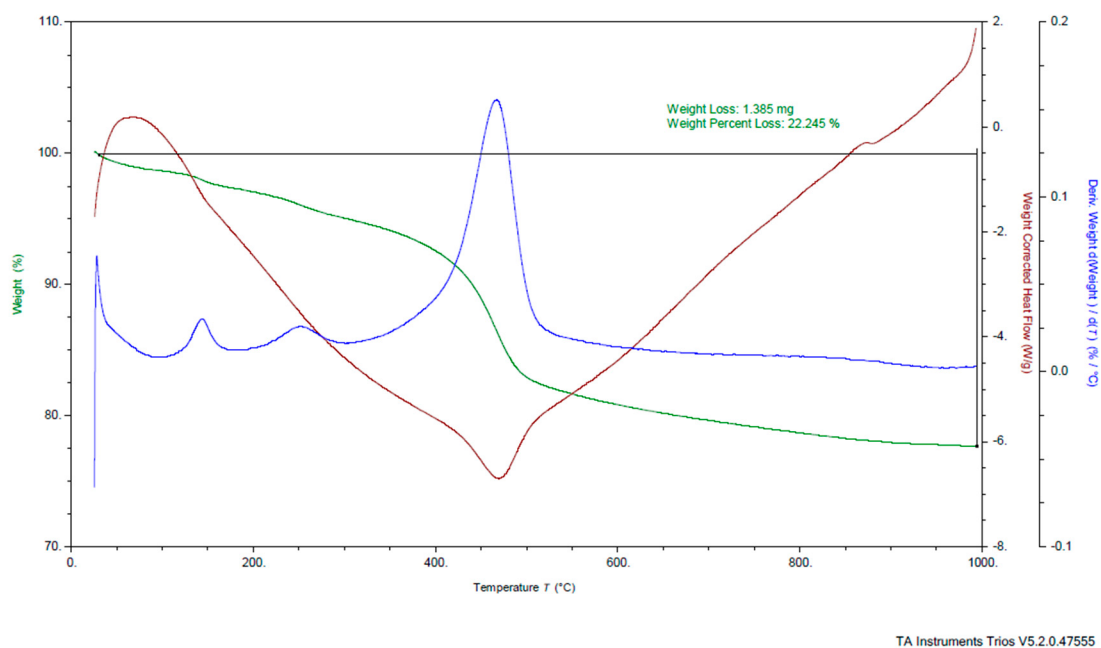
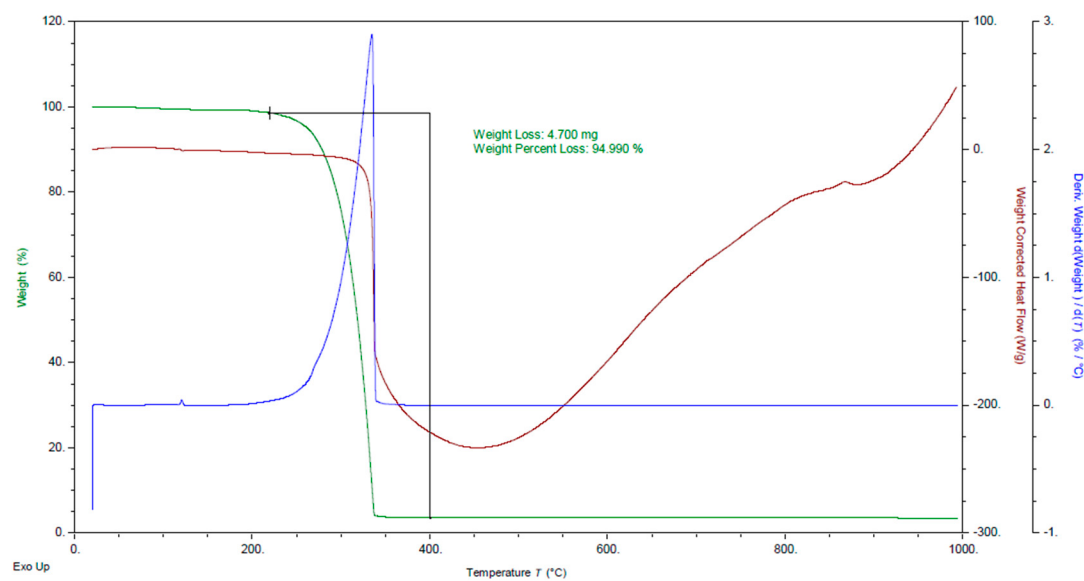
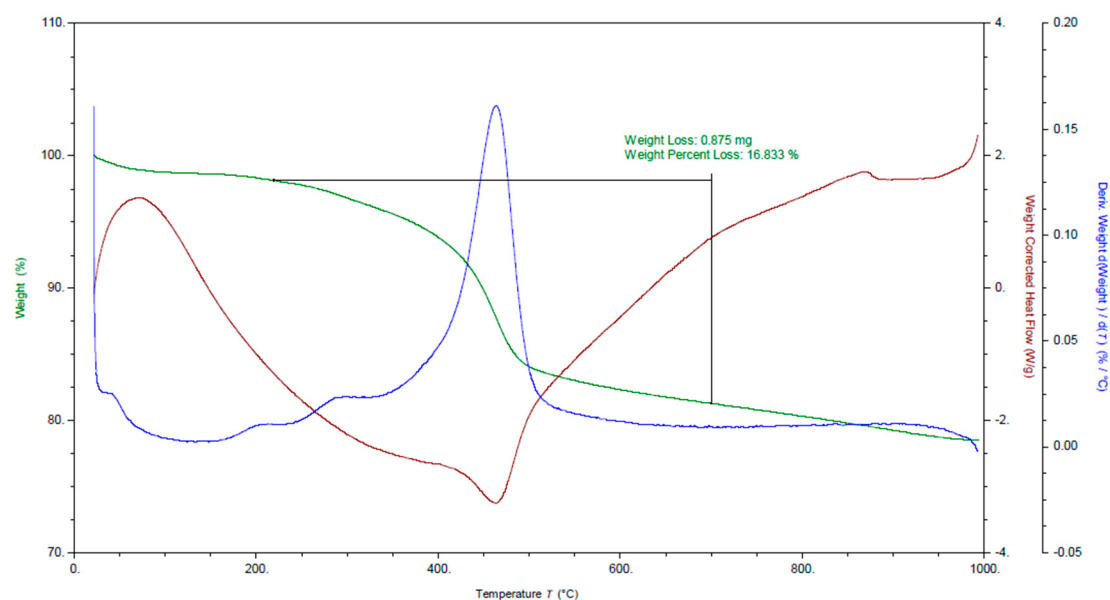


Figure S7. TG analysis of compound **GBA26** loaded in HNTs Dragonite.



TA Instruments Trios V5.2.0.47555

Figure S8. TG analysis of compound DH345.



TA Instruments Trios V5.2.0.47555

Figure S9. TG analysis of compound DH345 loaded in HNTs functionalized with APTES.

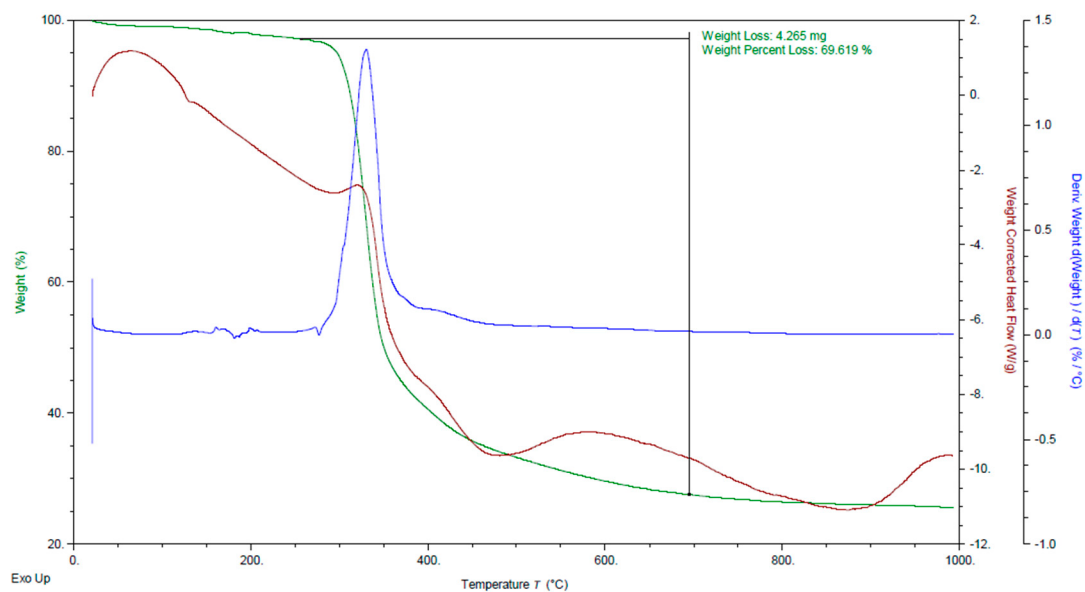


Figure S10. TG analysis of compound **CC345G**.

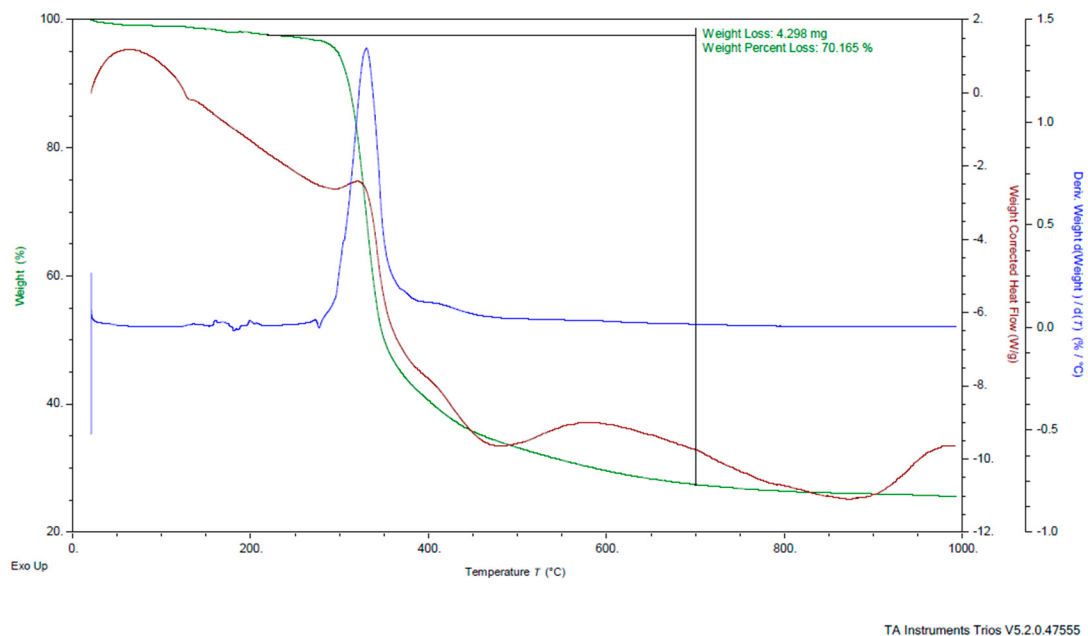


Figure S11. TG analysis of compound **CC345G** loaded in HNTs functionalized with APTES.

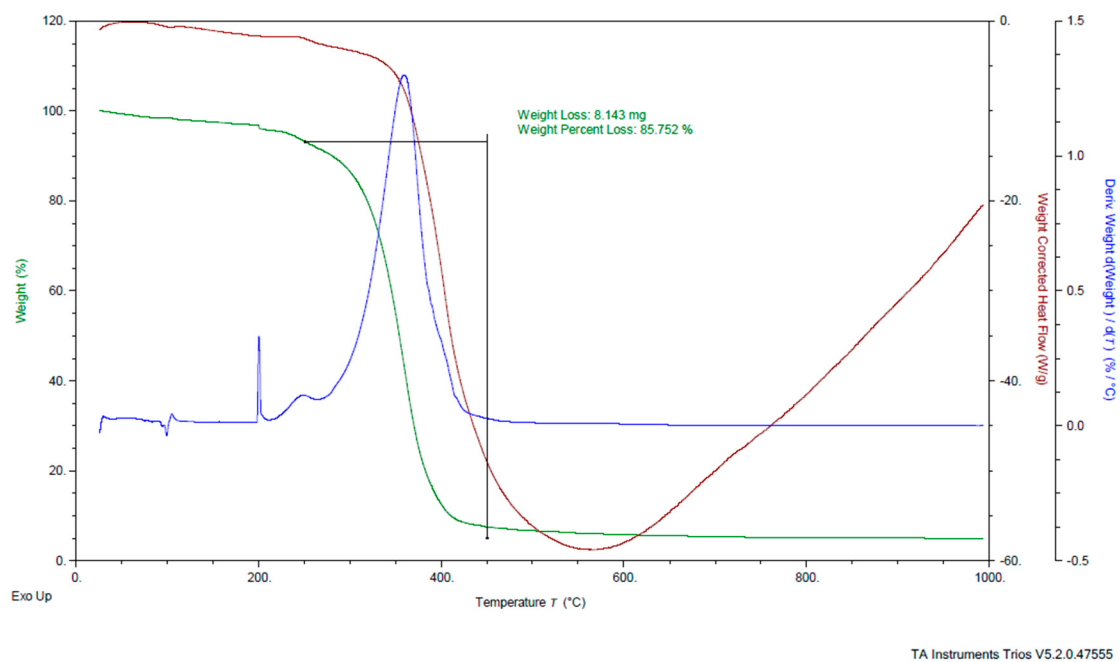


Figure S12. TG analysis of compound **C1P**.

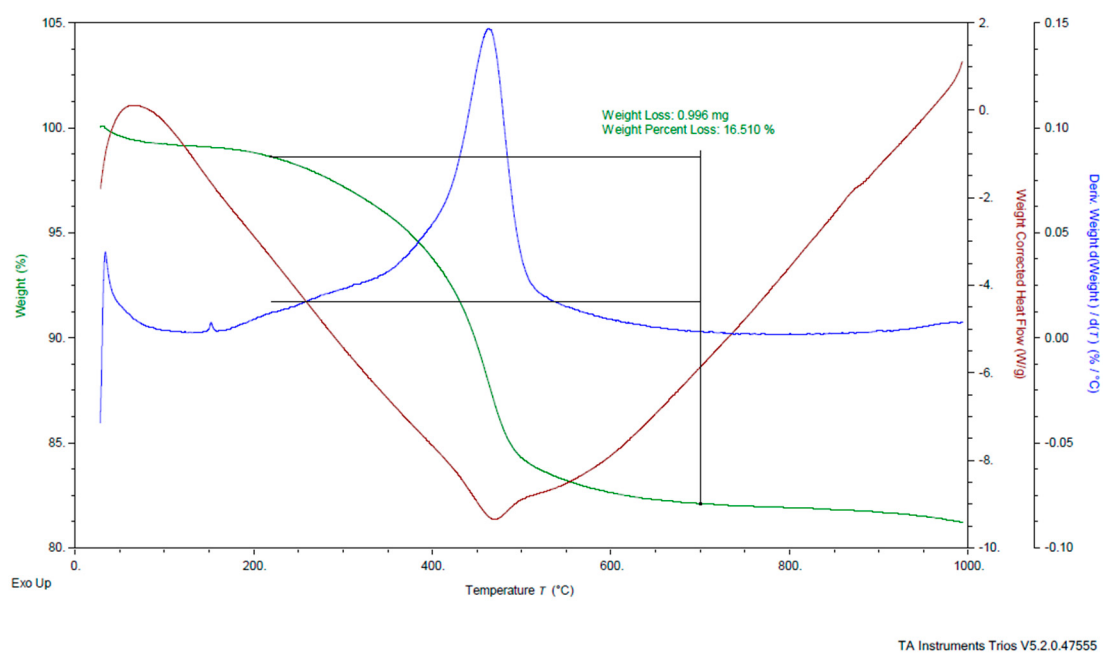


Figure S13. TG analysis of compound **C1P** loaded in HNTs functionalized with APTES.

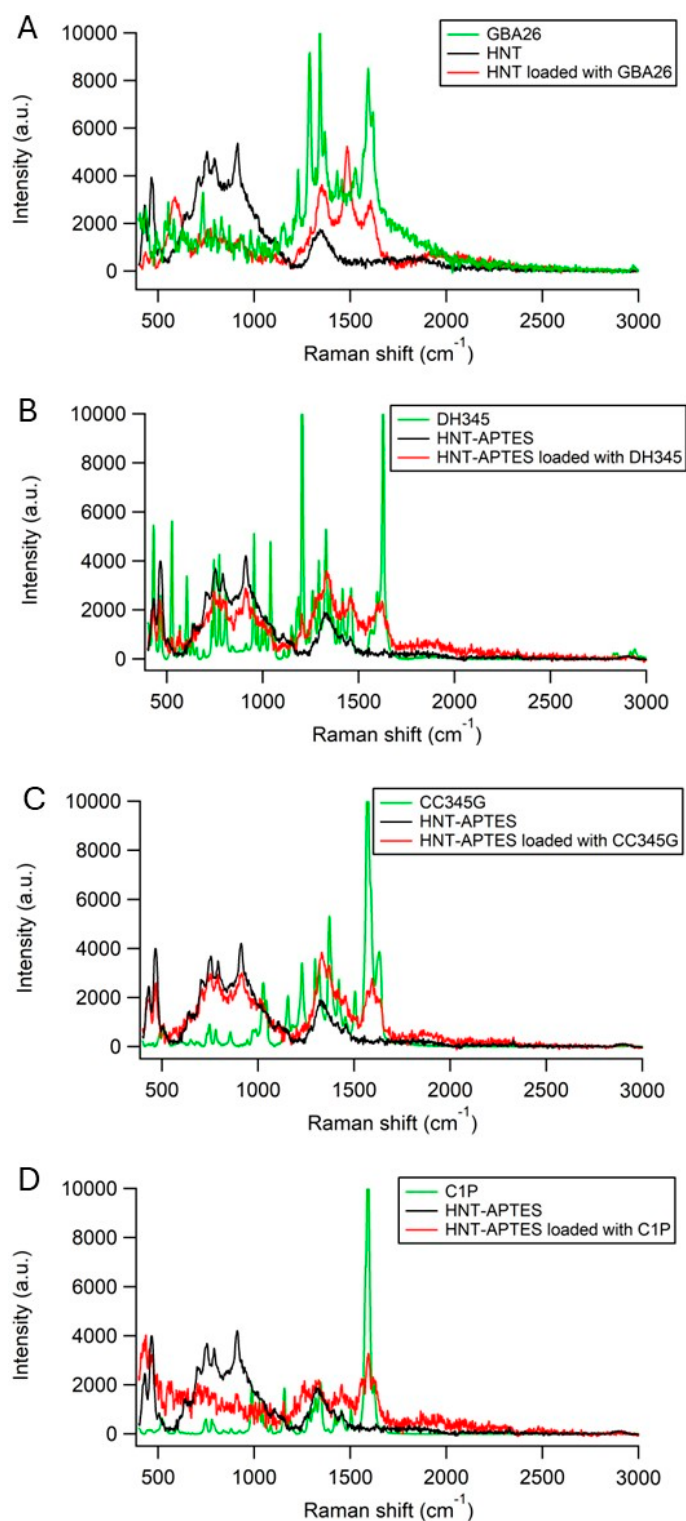


Figure S14. Raman spectra of the synthesized active molecules together with HNTs and HNTs loaded with the AF compounds: A) compound GBA26, HNT and HNT loaded with GBA26, B) compound DH345, HNT-APTES and HNT-APTES loaded with DH345, C) compound CC345G, HNT-APTES and HNT-APTES loaded with CC345G, D) compound C1P, HNT-APTES and HNT-APTES loaded with C1P.