Supplementary Materials

Effective Method for a Graphene Oxide with Impressive Selectivity in Carboxyl Groups

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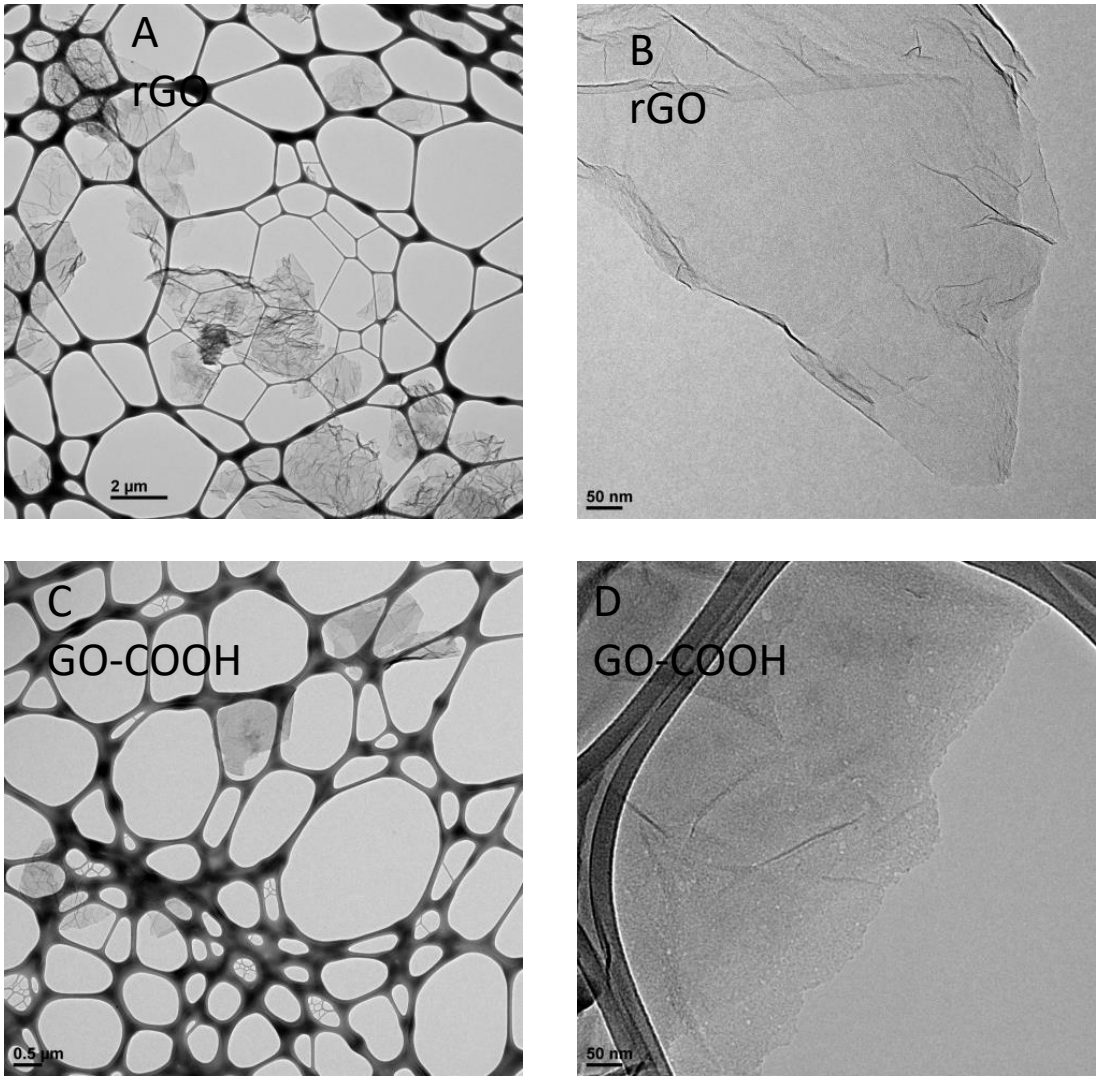

Figure S1. Lower (A, C) and higher magnification (B, D) with respect to TEM of main manuscript, respectively, of rGO and GO-COOH samples. GO-COOH does not present C-dots and present a similar size (comparison A vs. C) and a great number of defects with respect to parent rGO.

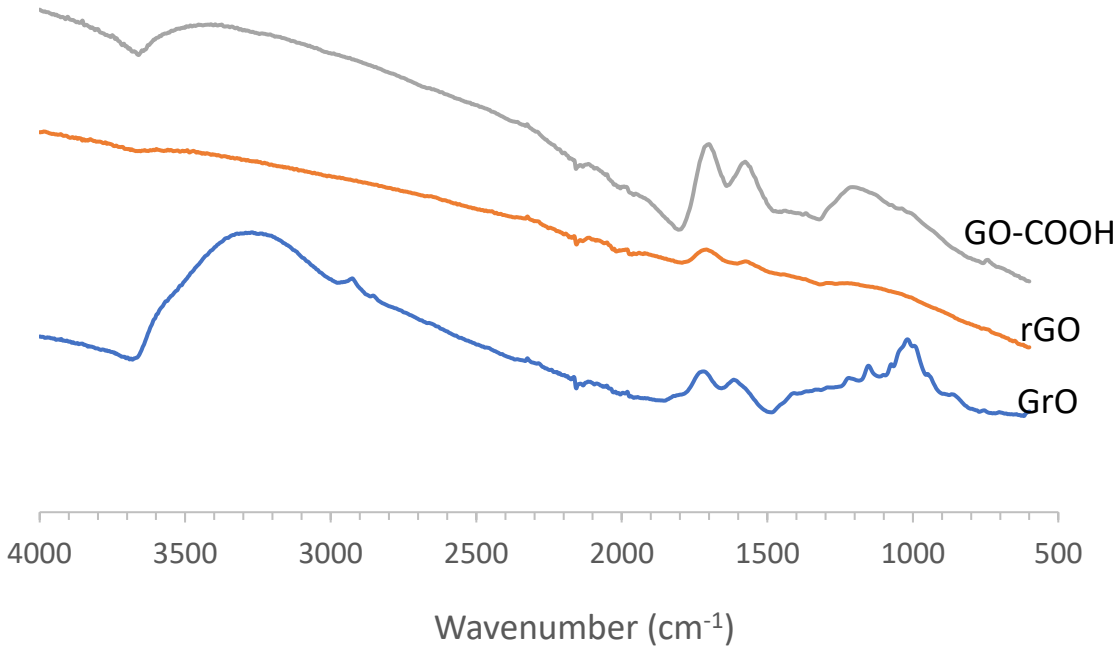

Figure S2. FTIR-ATR of powder samples of graphite oxide GrO, its derived microwave treated reduced Graphene oxide rGO, and carboxyl Graphene oxide GO-COOH derived from rGO. Hydroxyl band (3300 and 1200-1000 cm^{-1}) have more intensity than carbonyl/carboxyl (1700 cm^{-1}) for parent GrO. Upon reduction, most os functionalities are lost, as shown in the flat pattern of rGO, leaving just a tiny reminder of GrO bands. However, potassium permanganate treatment of rGO (GO-COOH) yields higher intensity in carbonyl/carboxyl groups than starting GrO, and lower intensity for hydroxyl groups.

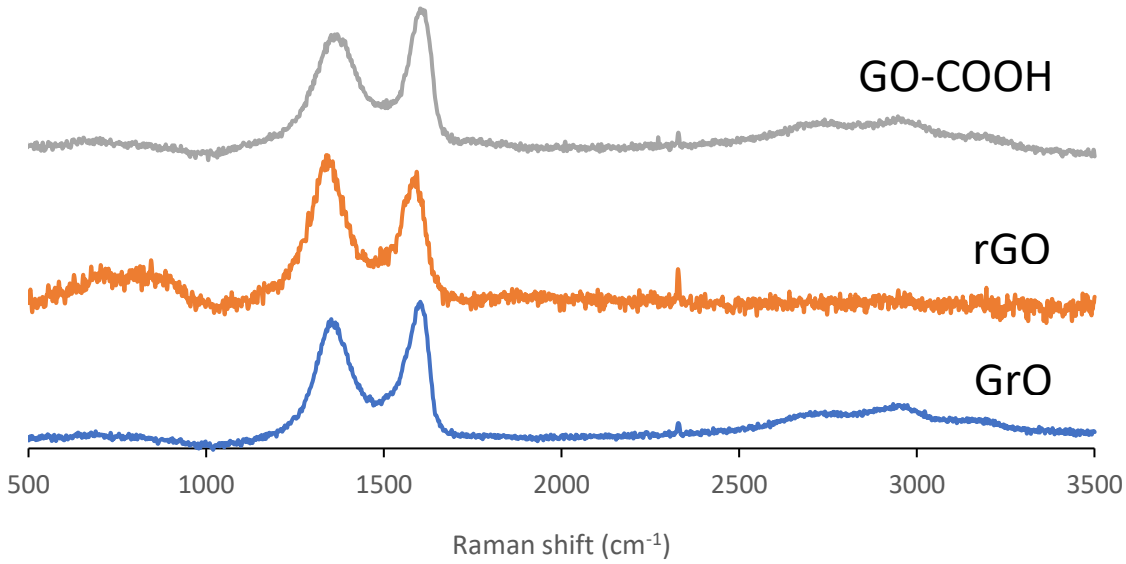

Figure S3. Raman spectra corresponding to powdered samples GrO and its derived rGO and GO-COOH.

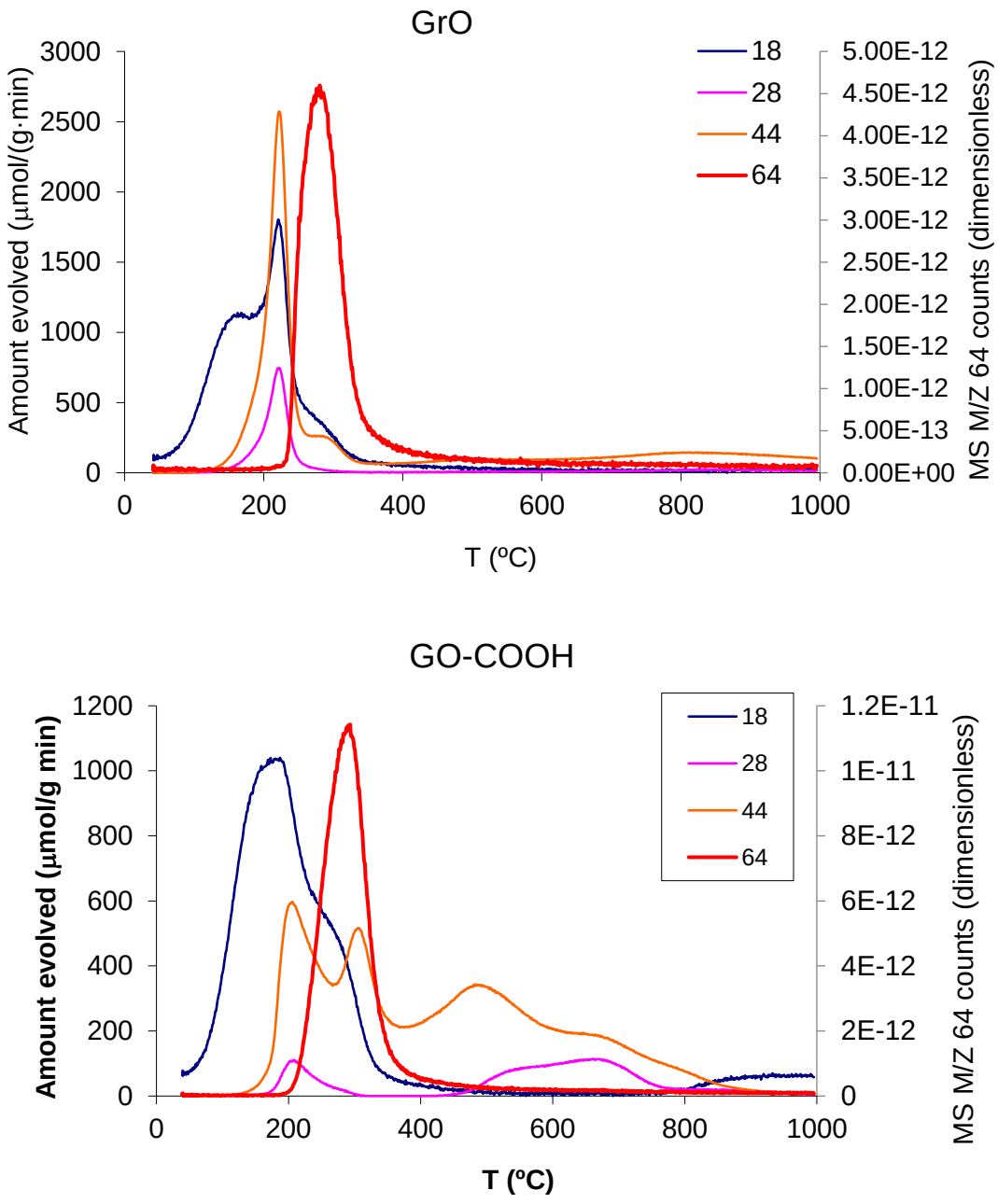

Figure S4. Quantified MS signals of 18 (H_2O), 28 (CO) and 44 (CO_2) plus the non-quantified signal of 64 (SO_2) for GrO and GO-COOH.