Supporting Information

Structural Changes in Reduced Graphene Oxide upon MnO_2 Deposition by the Redox Reaction between Carbon and Permanganate Ions

Suk-Woo Lee,[a, ‡] Seong-Min Bak,[a,b, ‡] Chang-Wook Lee,[a] Cherno Jaye,[c] Daniel A. Fischer,[c]

Bae-Kyun Kim,[d] Xiao-Qing Yang,[b] Kyung-Wan Nam,[,b] and Kwang-Bum Kim[*,a]*

[a] Department of Material Science and Engineering, Yonsei University, Seoul 120-749, Korea

[b] Chemistry Department, Brookhaven National Laboratory, Upton, NY 11973, United States

[c] National Institute of Standards and Technology, Gaithersburg, MD 20899, United States

[d] Central R&D Institute, Samsung Electro-Mechanics Co., LTD, Suwon, Gyunggi-do 443-743, Korea

* kbkim@yonsei.ac.kr (K.K.), knam@bnl.gov (K.N.)

[‡] *S.-W. Lee and S.-M. Bak have contributed equally to this paper.*

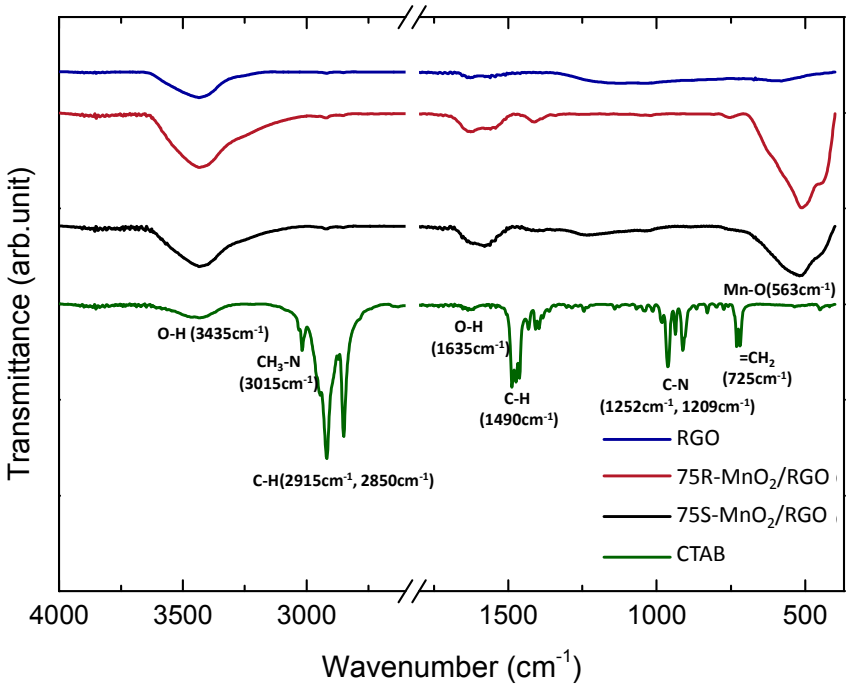

Figure S1. FT-IR spectra of RGO, 75 R-MnO_2/RGO, 75 S-MnO_2/RGO, and CTAB.

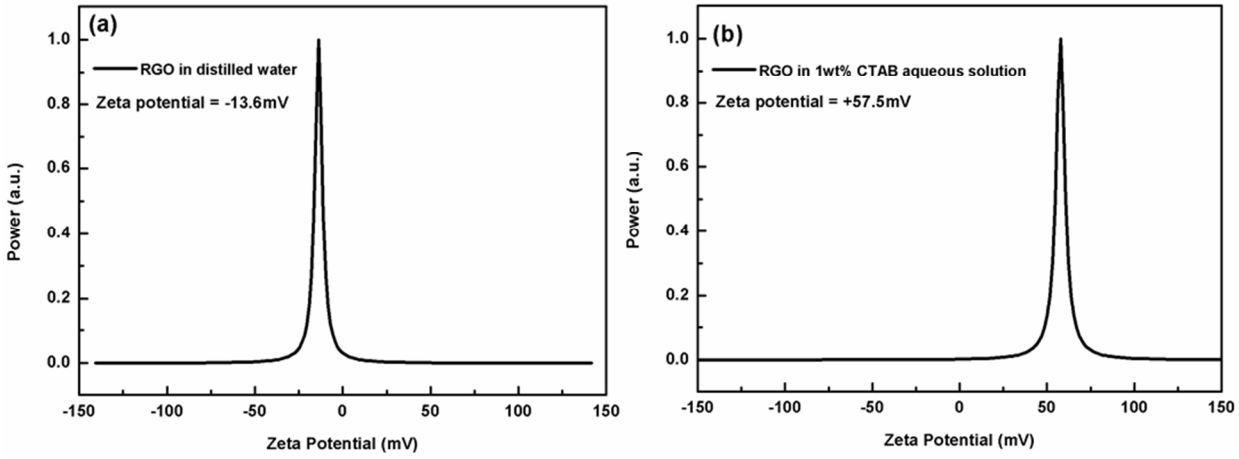

Figure S2. Zeta potential of (a) RGO in distilled water and (b) RGO in 1wt.% CTAB aqueous solution.

Figure S2(a) and (b) shows the zeta potentials of RGO in distilled water and RGO in 1wt.% CTAB aqueous solution, respectively. The zeta potential of RGO is negative, at -13.6 mV, in distilled water because of the functionality of the RGO surface.[1] However, RGO in 1 wt.% CTAB aqueous solution has a highly positive zeta potential of +57.5 mV because of the positively charged head group of the absorbed surfactant ions (i.e., CTA^+ ions) on the RGO surface.

References

(1) Li, D.; Muller, M. B.; Gilje, S.; Kaner, R. B.; Wallace, G. G. Processable Aqueous Dispersions of Graphene Nanosheets. *Nat. Nanotechnol.* **2008**, *3*, 101-105.