

Supplementary Materials

Surface Properties of CVD-grown Graphene Transferred by Wet and Dry Transfer Processes

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1. Roll-based dry transfer of graphene

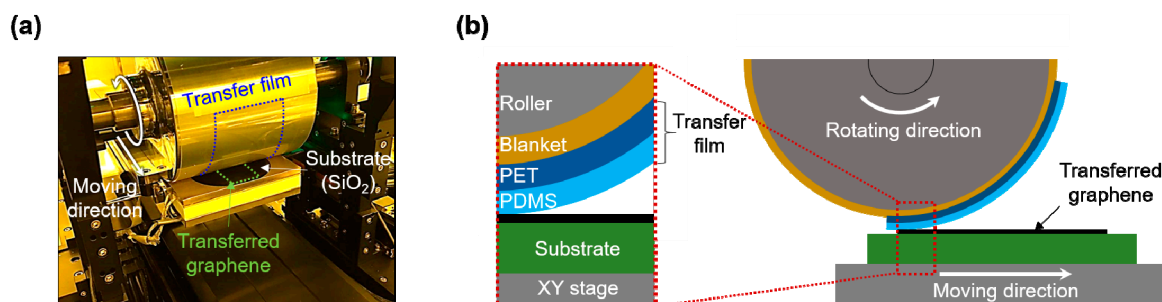


Figure S1. (a) A home built roll-to-plate (R2P) transfer machine for the roll-based dry transfer process of graphene. (b) Schematic diagram of the side of the TF in contact with graphene in the roll-based dry transfer process.

2. Raman results of wet- and dry-transferred graphene

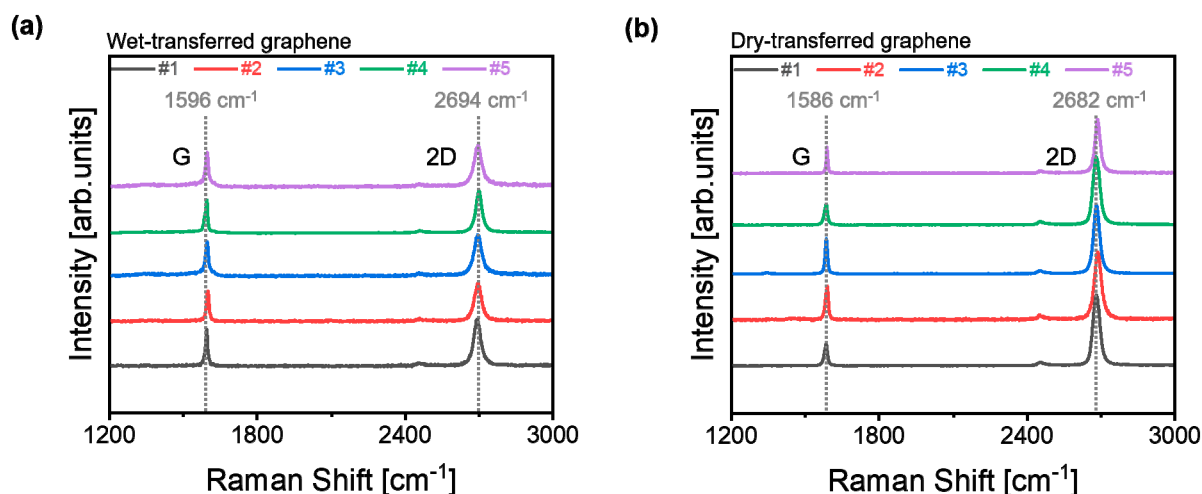


Figure S2. Raman spectra of 5 samples of (a) wet- and (b) dry-transferred graphene on SiO₂. The dotted line with gray color represents averaged G and 2D peaks of the samples, respectively. The G and 2D peaks of wet-transferred graphene shifted slightly to $\omega_G \sim 1596 \text{ cm}^{-1}$ and $\omega_{2D} \sim 2694 \text{ cm}^{-1}$ from its intrinsic G- and 2D-bands ($\omega_G \sim 1580 \text{ cm}^{-1}$ and $\omega_{2D} \sim 2680 \text{ cm}^{-1}$). Dry-transferred graphene had exhibited similar G and 2D peaks with that of the intrinsic G- and 2D-bands.

Figure S2 shows the Raman spectra of the wet- and dry-transferred graphene on SiO₂. I_{2D}/I_G of the wet-transferred graphene were varied from 1.17 to 1.29 and averaged to 1.22 ± 0.04 , which was not significantly changed depending on sample (Fig. S2a). In the dry-transferred graphene (Fig. S2b), I_{2D}/I_G were changed from 1.8 to 3.2 depending on sample and averaged to 2.38 ± 0.6 . I_{2D}/I_G of sample #1 and #4 in Fig. S2b were 3 and 3.2, respectively, and it indicates that the samples were slightly doped [1]. However, the difference between I_{2D}/I_G of the wet- and dry-transferred graphene is very clear which means that the transfer methods modified the surface properties of graphene.

References

1. Casiraghi, C.; Pisana, S.; Novoselov, K. S.; Geim, A. K.; Ferrari, A. C. Raman fingerprint of charged impurities in graphene. *Appl. Phys. Lett.* **2007**, *91*, 233108.