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Hollow Nanoshell of Layered Double Hydroxide

Liang Li, Renzhi Ma, Nobuo Iyi, Yasuo Ebina, Kazunori Takada
and Takayoshi Sasaki*

Nanoscale Materials Center, National Institute for Materials Science, 1-1 Namiki, Tsukuba,Ibaraki 305-0044, Japan.

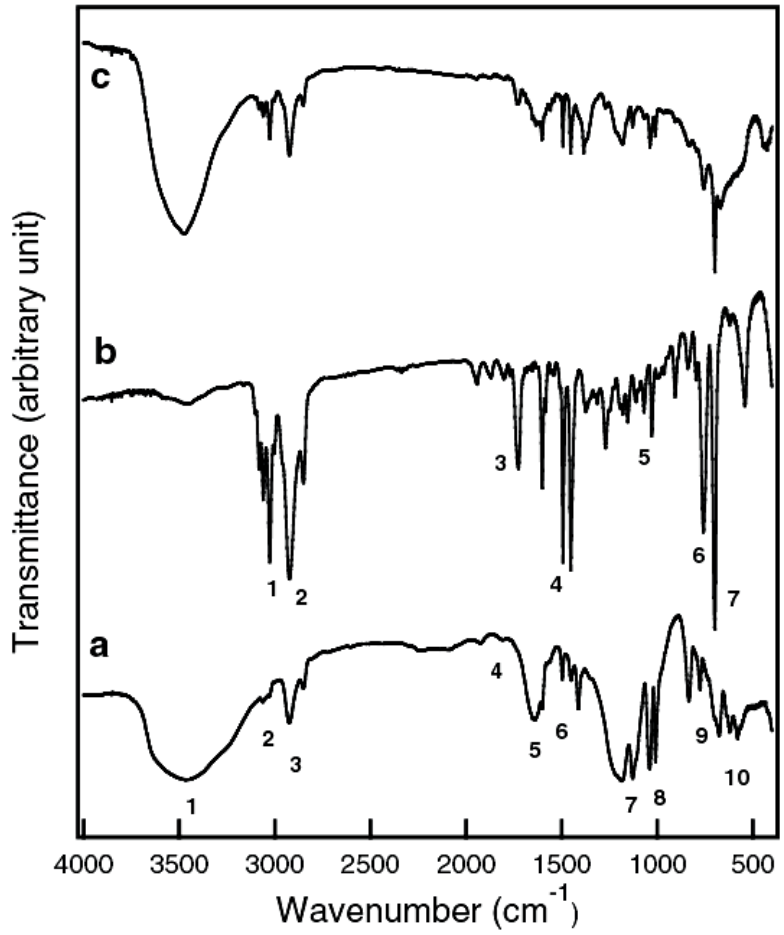

Figure S1 FT-IR spectra of PSS (a), PS (b) and the LDH core-shell composite (c).

For PSS (line a): **1**. 3700 - 3000 cm^{-1}: stretching vibration of H_2O; **2**. 3100 cm^{-1} (three peaks): aromatic =C-H stretching vibrations; **3**. 2920 cm^{-1} (two peaks): alkyl C-H stretching vibrations; **4**. 1810 and 1925 cm^{-1}: aromatic C-H out of plane bending vibrations; **5**. 1640 cm^{-1}: O-H bending vibrations of H_2O; **6**. 1600, 1500, 1450 and 1410 cm^{-1}: aromatic -C=C- stretching vibrations; **7**.

1190 and 1130 cm^{-1}: $-SO_3^-$ asymmetric stretching vibrations; **8**. 1040 and 1005 cm^{-1}: $-SO_3^-$ symmetric stretching vibrations; **9**. 836, 771 and 682 cm^{-1}: =C-H out of plane deformation vibrations; **10**. 620 cm^{-1}: ring in-plane deformation vibrations.

For PS (line b): **1**. 3100 cm^{-1} (three peaks): aromatic =C-H stretching vibrations; **2**. 2920 cm^{-1} (two peaks): alkyl C-H stretching vibrations; **3**. 1730 - 1950 cm^{-1} (four peaks): aromatic C-H out of plane bending vibrations; **4**. 1600, 1500, 1450 and 1410 cm^{-1}: aromatic -C=C- stretching vibrations; **5**. 1272, 1182, 1155, 1112, 1070, 1022 and 996 cm^{-1}: aromatic =C-H in-plane deformation vibrations; **6**. 840 and 760 cm^{-1}: aromatic =C-H out-of-plane deformation vibrations; **7**. 701 and 541 cm^{-1}: out-of- plane ring deformation vibration.