

Supplementary Information

NMR, IR, APCI-MS and elemental analysis data of 2,2-dimethyloctanoic acid and silver 2,2-dimethyloctanoate, and 3D profile and surface roughness of the bezel electrodes screen-printed with self-heatable conductive ink are presented below.

(1) 2,2-dimethyloctanoic acid: $^1\text{H-NMR}$ (DMSO-d_6), δ : 0.85 (3H, t, $J=6.5$ Hz, CH_3), 1.06 (6H, s, 2 CH_3-2), 1.19-1.27 (8H, m, CH_2-4 ... CH_2-7), 1.41 (2H, m, $J=6.5$ Hz, CH_2-3), 12.00 (1H, br. s, COOH). $^{13}\text{C-NMR}$ (TFA-d), δ : 189.67, 44.66, 42.62, 33.56, 31.57, 26.70, 25.84, 24.35, 14.77. IR (film), cm^{-1} : 2500-3200 (OH), 1696, 939 (C=O). MS, m/z : 29, 43, 57, 71, 79, 88 (100), 101, 115, 127, 143, 157, 172 (M^+).

(2) Silver 2,2-dimethyloctanoate: $^1\text{H-NMR}$ (TFA-d), δ : 0.87 (3H, t, CH_3), 1.27 (6H, br. s, 2 CH_3-2), 1.28-1.38 (8H, m, CH_2-4 ... CH_2-7), 1.65 (2H, m, CH_2-3). $^{13}\text{C-NMR}$ (TFA-d), δ : 189.93, 44.70, 42.59, 33.46, 31.46, 26.64, 25.74, 24.26, 14.62. IR (neat), cm^{-1} : 1515, 1390 (COO^-). APCI-MS (negative mode), m/z : 171 [M-Ag] $^-$. Calcd. for $\text{C}_{10}\text{H}_{19}\text{AgO}_2$: C, 43.03; H, 6.83; Ag, 38.64. Found: C, 43.24; H, 7.05; Ag, 39.03

(3) 3D profile and surface roughness of the bezel electrodes screen-printed with self-heatable conductive ink

