Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Self-reducible Copper ion complex ink for air sinter-able conductive electrode

Sanghun Cho[a], Zhenxing Yin[a], Yong-Keon Ahn[a], Yuanzhe Piao[a,b], Jeeyoung Yoo[a*],and Youn Sang Kim[a,b*]

a Program in Nano Science and Technology, Graduate School of Convergence Science and Technology, Seoul National University, Suwon 443-270, Republic of Korea

b Advanced Institutes of Convergence Technology, Suwon 443-270, Republic of Korea

*E-mail: younskim@snu.ac.kr, jyoo78@snu.ac.kr

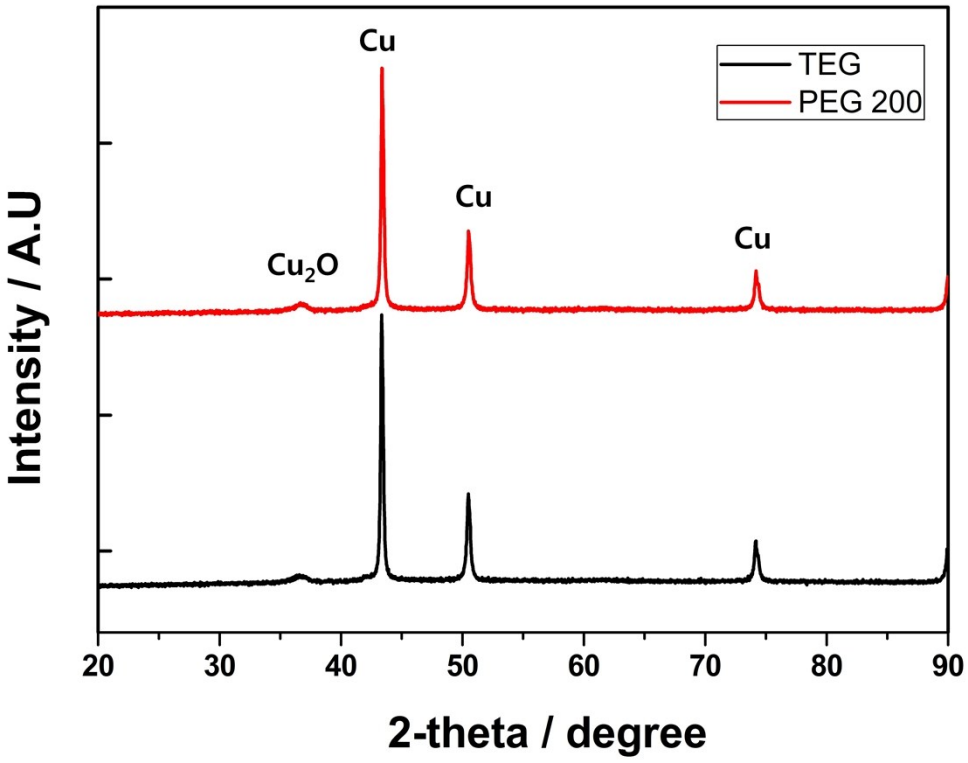

Fig. S1. XRD patterns of the sintered Cu electrode film made using pCu-ink with TEG and PEG 200

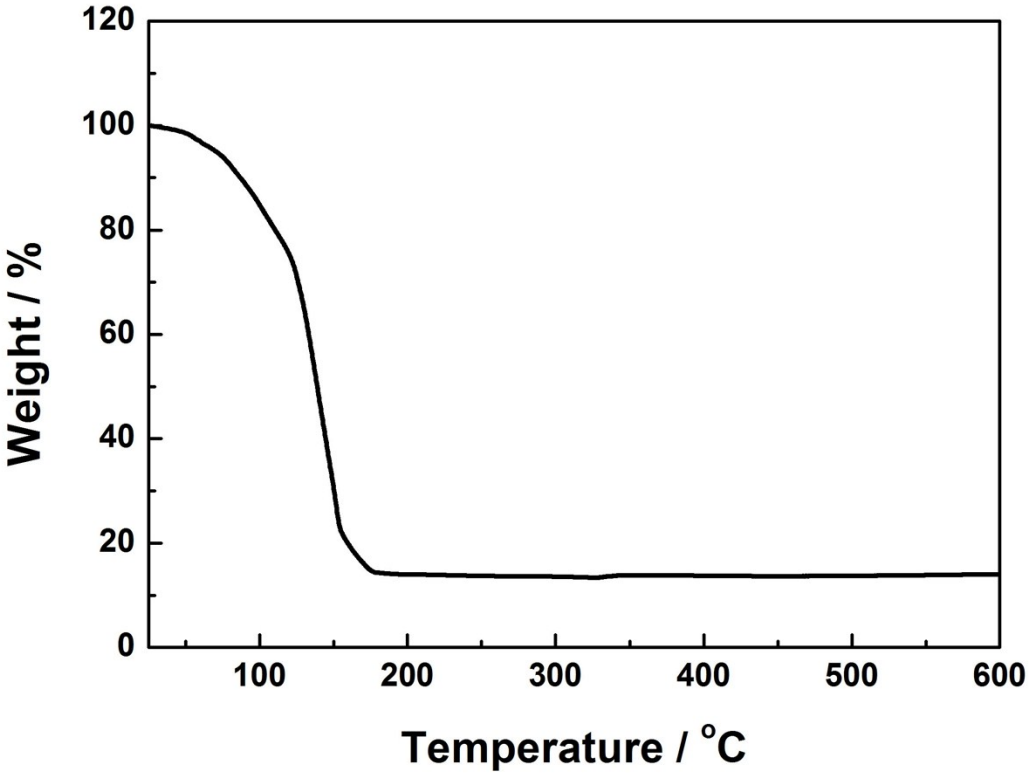

Fig. S2. TGA results of 3wt % gCu-ink under ambient air condition

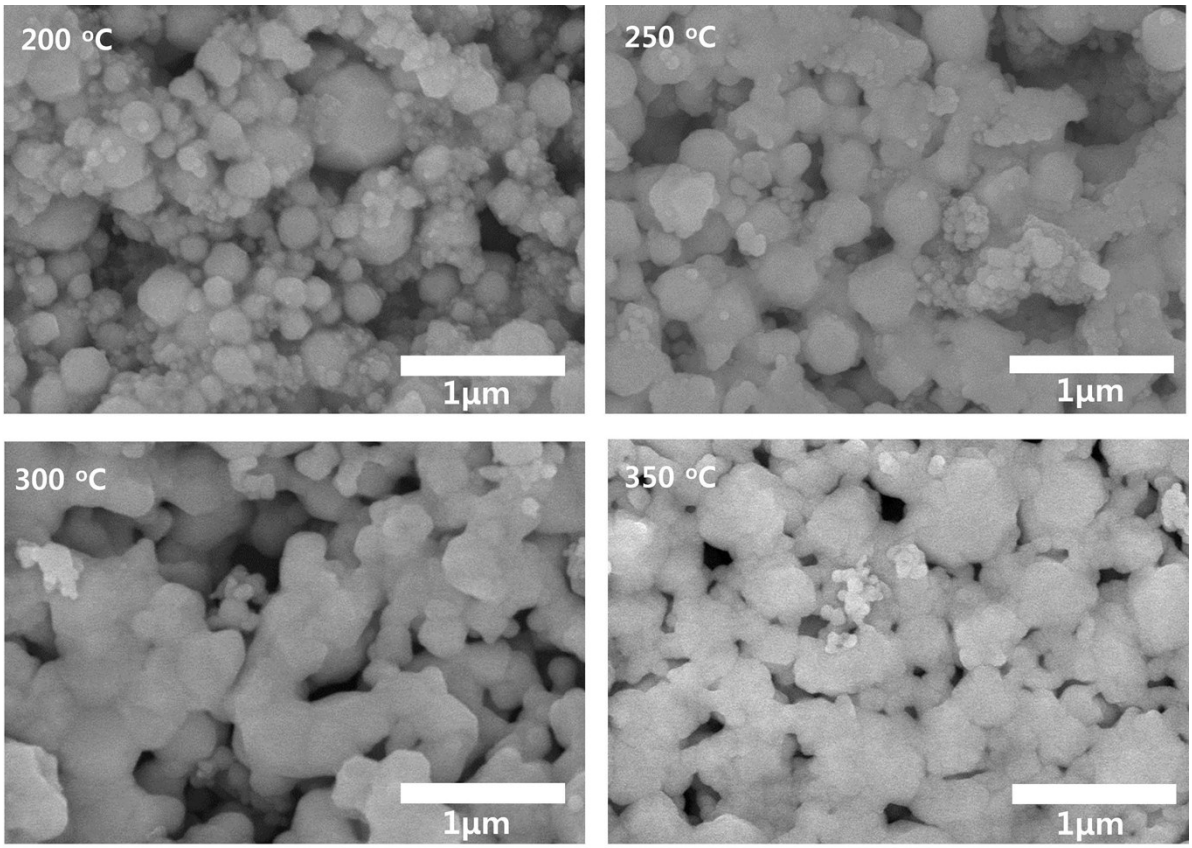

Fig. S3. Surface morphologies of the sintered Cu electrode films made using 3 wt% gCu-ink at (a) 200 °C, (b) 250 °C, (c) 300 °C and (d) 350 °C

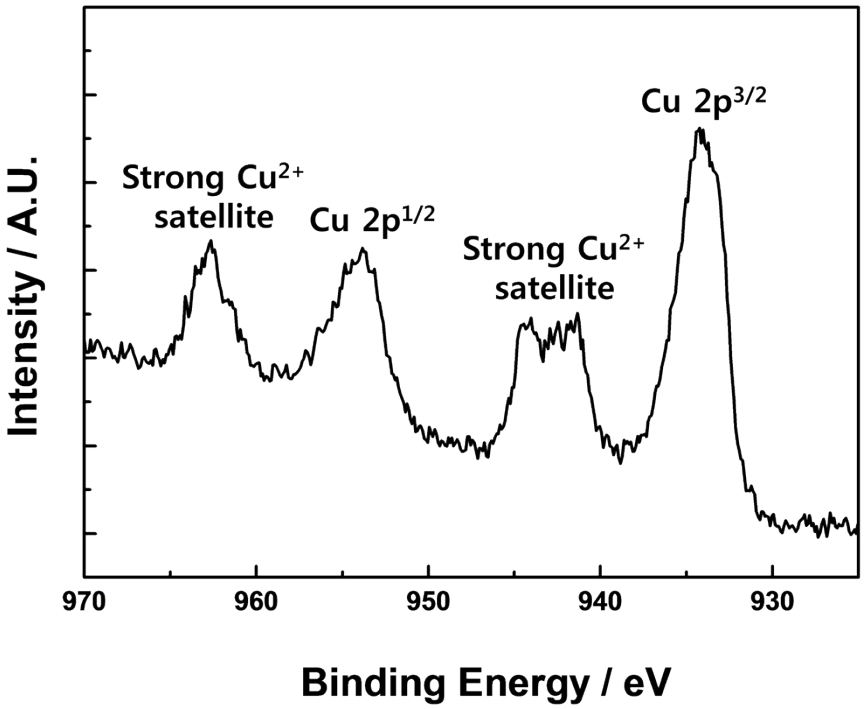

Fig. S4. XPS Cu 2p spectra of the sintered Cu electrode film at 350 ^{o}C with the intrinsic Cu-ink

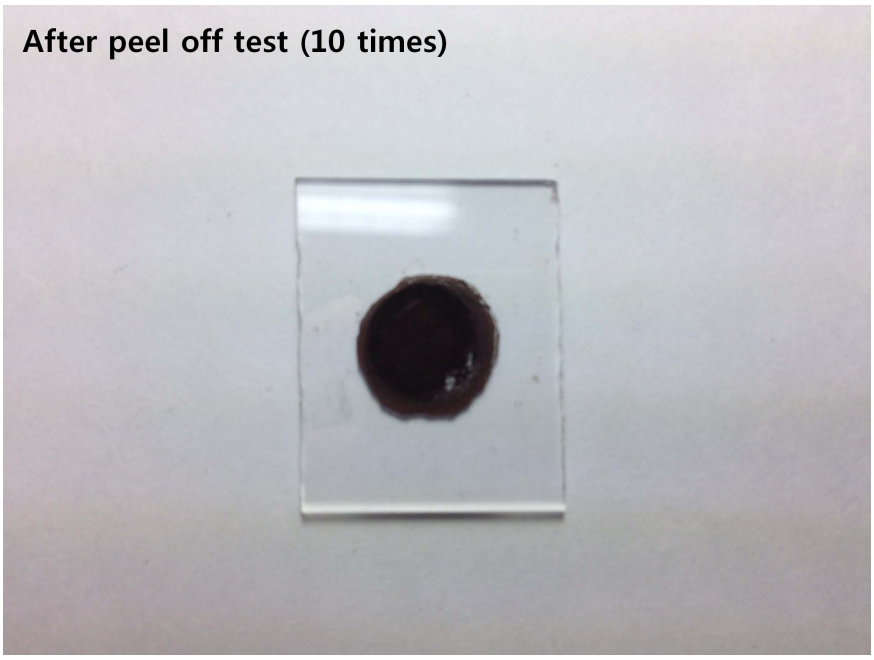

Fig. S5. After 10 times peel-off test, optical photograph image of adhesion enhanced Cu electrode film made using gCu-ink with 1 wt% APTES

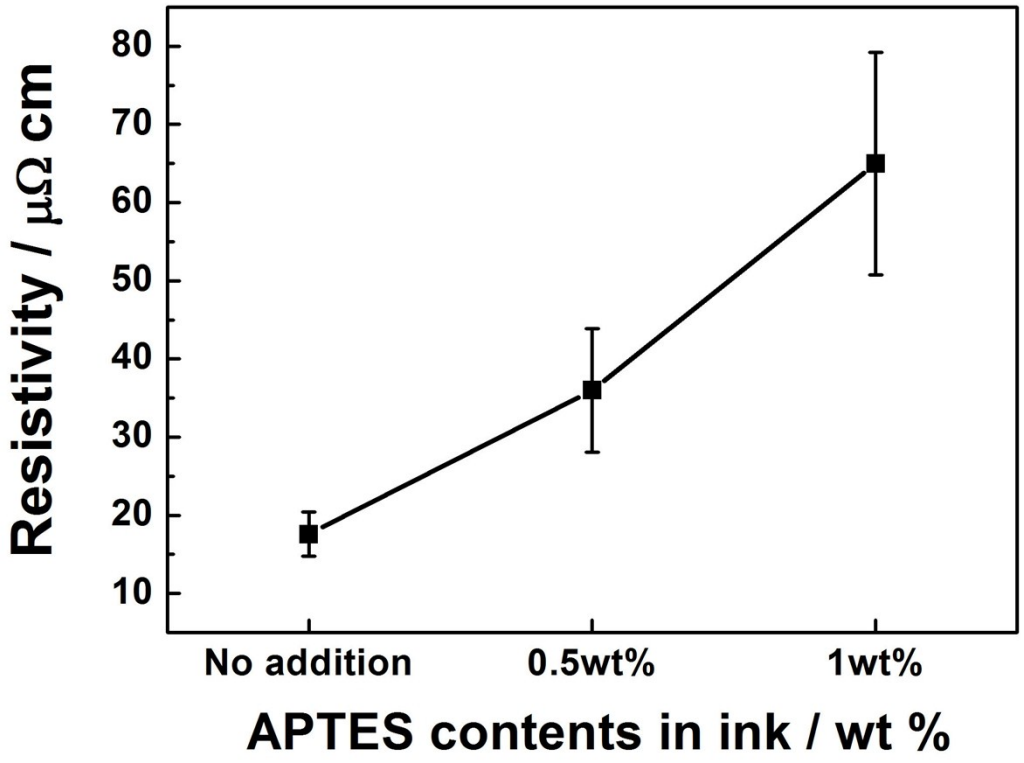

Fig. S6. Electrical resistivity of gCu-ink with no addition, 0.5, and 1 wt% APTES

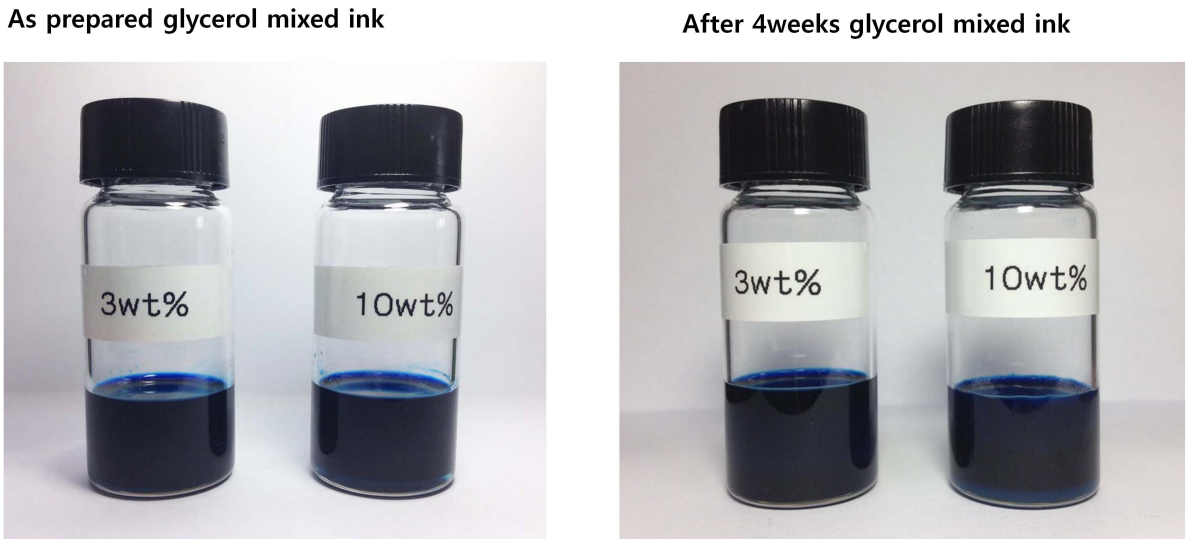

Fig. S7. Photograph of 3wt % and 10 wt% gCu-ink dissolved in IPA. For 4 weeks, phase separation was not found in gCu-ink mixture.

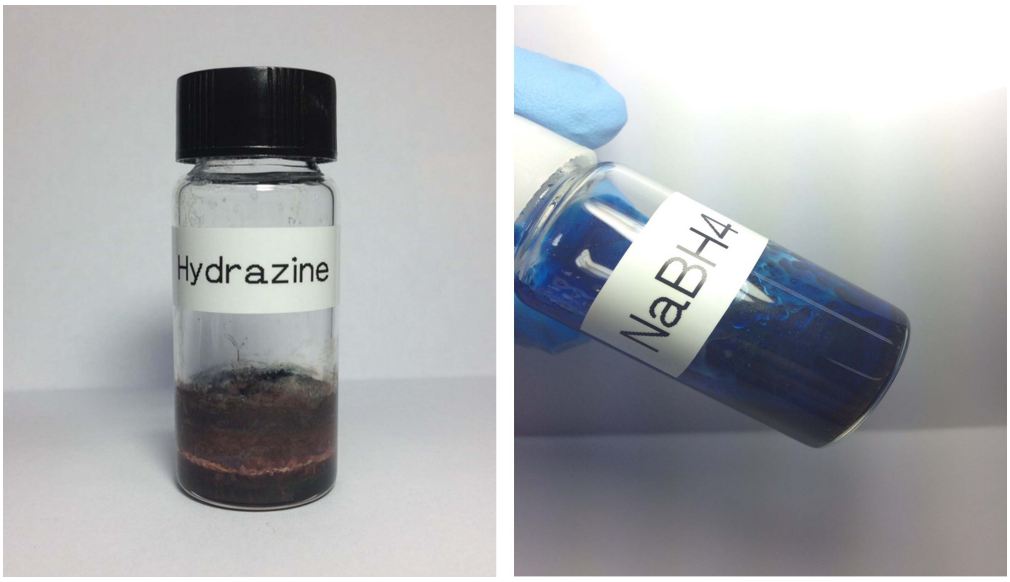

Fig. S8. Image of the Cu-ink by addition of 3wt % hydrazine (N_2H_2) and sodium borohydride ($NaBH_4$), respectively