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Type of manuscript: Review

Title: Surface and Interface Designs in Copper-Based Conductive Inks for Printed/Flexible Electronics.

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In the present work the authors give an exhaustive review on Cu-based inks for printed/flexible electronics application. In particular, they focus on disadvantages of Cu-based inks/pastes, mainly related to Cu instability against oxidation under ambient conditions and its tendency to form insulating layers of Cu oxide. The review is structured in seven sections where the authors summarize the surface and interface designs for Cu-based conductive inks/pastes, in which the strategies for the oxidation resistance of Cu and the low-temperature sintering are applied to produce highly conductive Cu patterns/electrodes on flexible substrates. Recently developed Cu-based mixed inks/pastes are also described together with a brief discussion on the adhesion enhancement of sintered Cu films on flexible substrates. Finally the authors offer their perspectives of Cu-based inks/pastes for future efforts.

The present review is well organized and all the sections are well balanced. The treated arguments are well described and supported by adequate references. I suggest it for publication on Nanomaterials only after some minor revisions.

Suggested remarks:

- All tables presented in the whole review should be described in the main text.
- The acronyms present in the text should be firstly explained to be understandable to Non-specialists, i.e. lines 282 (HTHH), 351 (FOM), 439 (OAM), 494 (AA), 621 (PAA), 645 (CTAB), 724 (OAM), 951 (folic acid (Met(OH))), 1078 (PCC), 1238 (CNTs)
- Line 217 Design
- Line 268 17 and $5.7 \mu\Omega \text{ cm}$
- Line 1097 were