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利用形態 :技術代行
利用課題名（日本語） :
Program Title (English) :An Investigation on the Adhesion of Printed Traces
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1. 概要（Summary）

The objective of this study is to investigate the adhesion of screen printed metal traces onto different substrates.

2. 実験（Experimental）

The metal traces were printed onto a PTFE-based substrate and borosilicate glass. Due to the nature of the soft PTFE-based substrate, a challenge exists in terms of sample preparation for SEM viewing. As such, the metal trace-substrate interface layer was observed using FIB-SEM, where the cross-sectioning could be done in-situ. For the FIB-SEM characterization, a layer of palladium (~100 nm) was sputtered onto the sample surfaces to minimize any electron charging during the FIB-SEM process. The samples were also adhered to the sample stage using conductive tape.

The adhesion testing is a two stage process. A simple tape test is first conducted, followed by a cross-hatch test. The results are evaluated according to the ISO standard [1].

3. 結果と考察（Results and Discussion）

Figures 1 and 2 show the FIB-SEM results for the printed traces on glass and PTFE-based substrate.

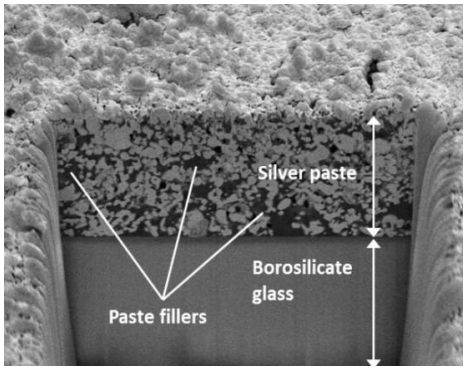

Fig. 1. Cross-section of silver paste on borosilicate glass.

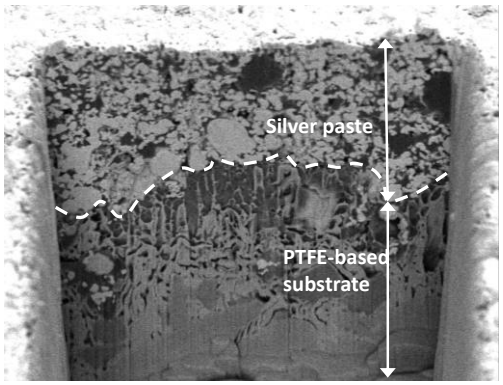

Fig. 2. Cross-section of silver paste onto a PTFE-based substrate.

For both sets of substrates, the cross hatch tests yielded ISO ratings of 0, which indicates good adhesion of the screen printed traces onto the substrates.

4. その他・特記事項（Others）

References

[1]*http://www.hmgpaint.com/knowledge-base/cross-hatch-test-classification*

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5. 論文・学会発表（Publication/Presentation）

なし

6. 関連特許（Patent）

なし