

## Supplementary Material

### Development of a High-Throughput Low-Cost Approach for Fabricating Fully Drawn Paper-Based Analytical Devices Using Commercial Writing Tools

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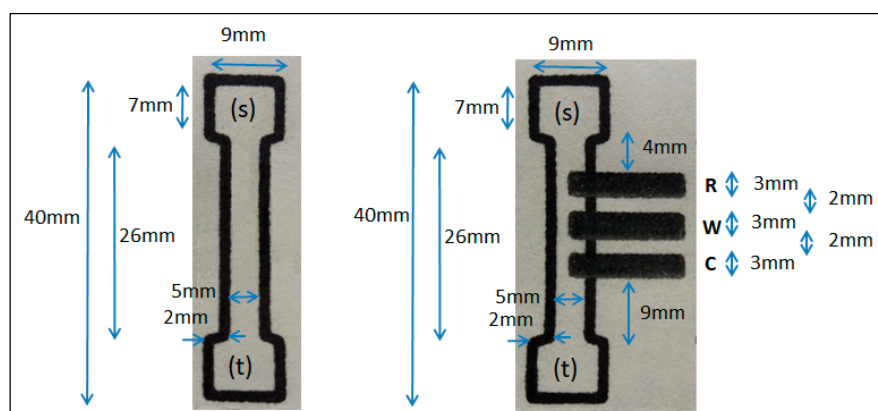
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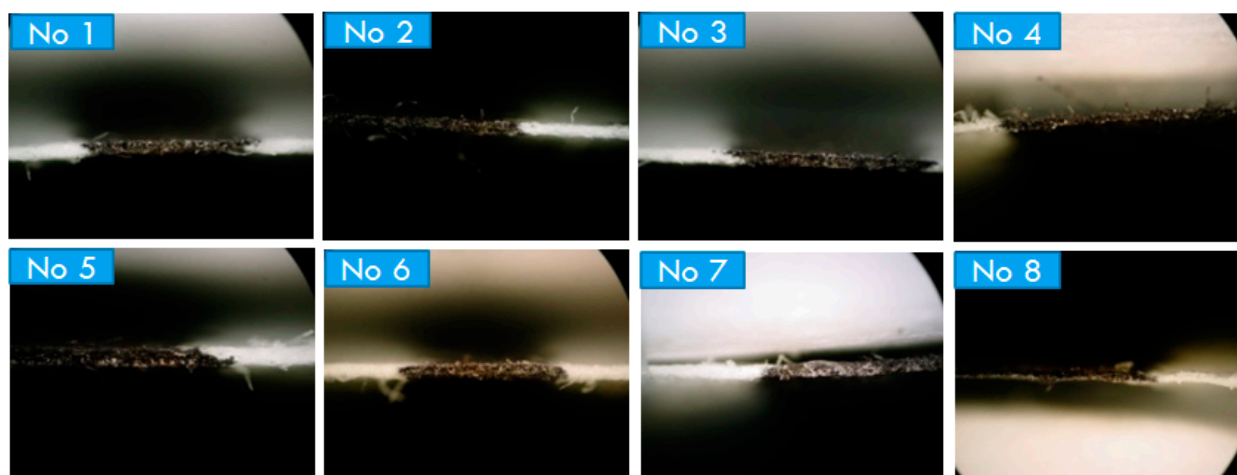
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**Figure S1.** Nominal dimensions of the PADs and the electrochemical PADs fabricated in this work. R, reference electrode; W, working electrode; C counter electrode; (s), sample zone; (t), test zone.



**Figure S2.** Cross-section profiles of the channels drawn with pen No 17 using single-sided plotting at the 8 paper types studied in this work (100  $\mu\text{L}$  of methylene blue; 2 passes; pen plotting speed  $2.7\text{ cm s}^{-1}$ ).

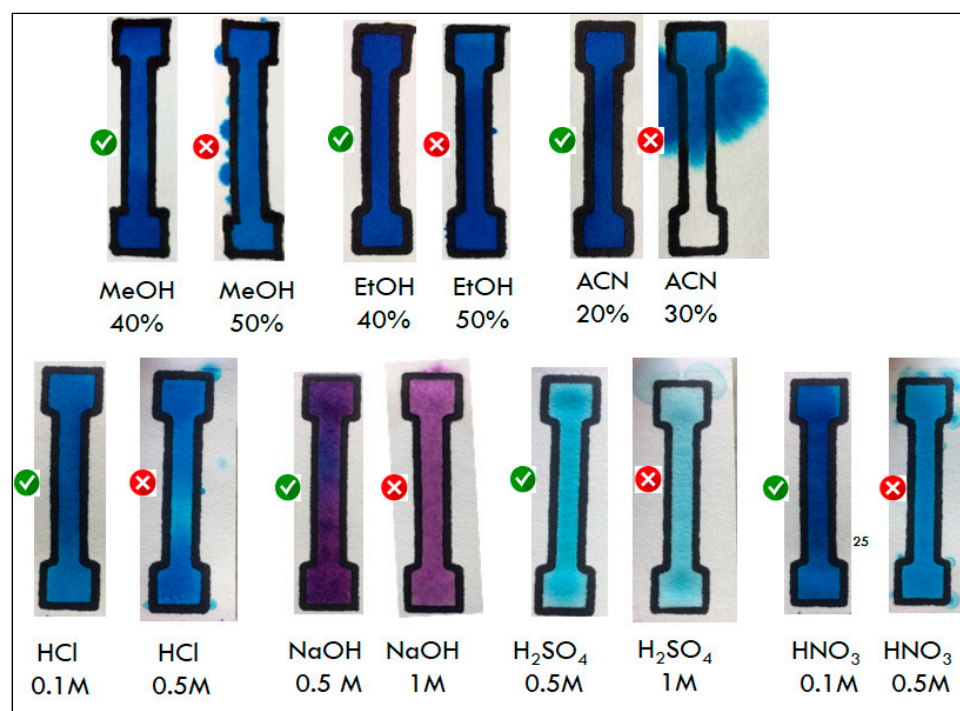


**Figure S3.** Demonstration of hydrophobicity of pen No 17 on paper No 7 (single side plotting; two passes; pen plotting speed  $3.8\text{ cm s}^{-1}$ ).

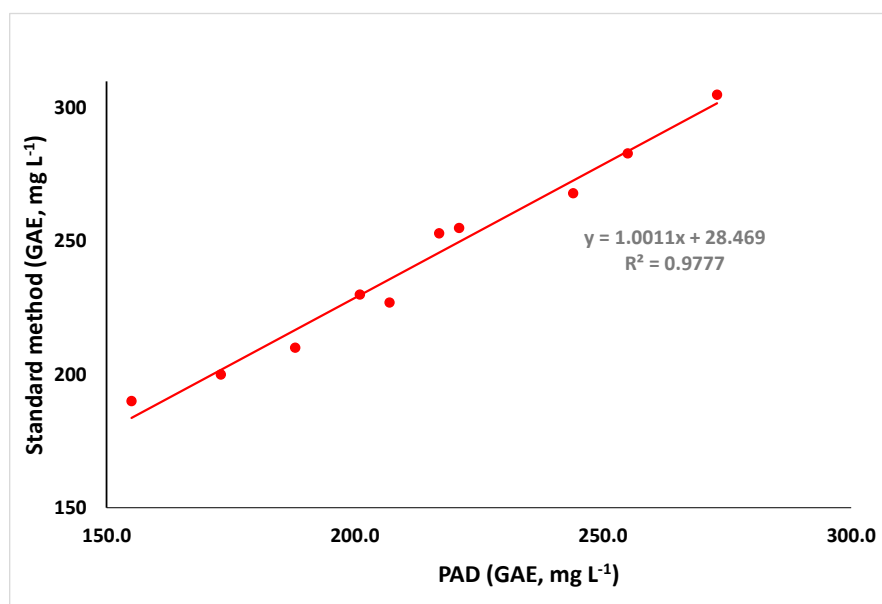
**Table S1.** Effect of the plotting speed on the barrier line width (pen No 17; paper 7; single-sided plotting; 2 passes).

Plotting Speed ( $\text{cm s}^{-1}$ )	Border Thickness (mm) *
1.9	$2.2 \pm 0.2$
2.7	$1.8 \pm 0.2$
3.8	$1.7 \pm 0.1$
5.7	$1.6 \pm 0.1$
7.6	$1.6 \pm 0.1$
9.5	$1.5 \pm 0.1$

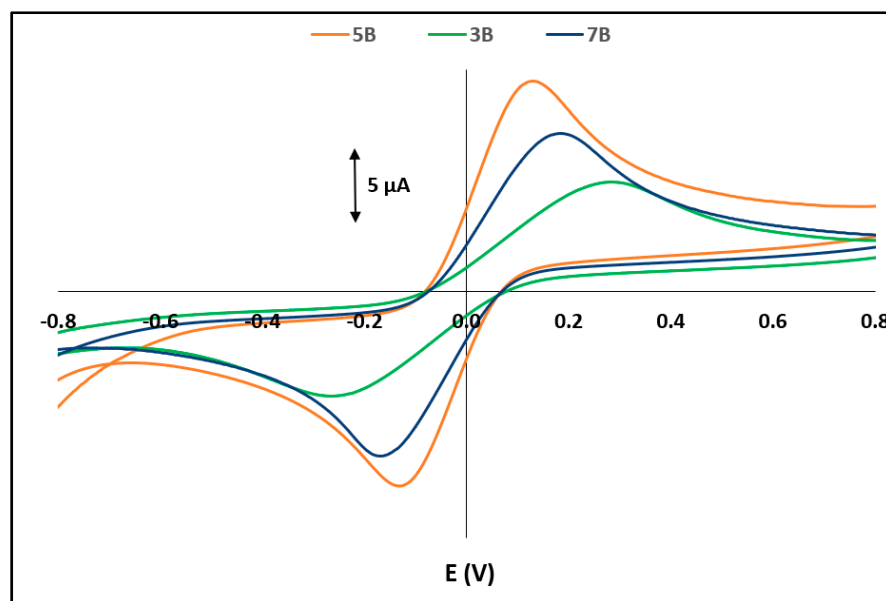
\* $n = 6$



**Figure S4.** Chemical resistance of devices plotted with pen No 17 on paper No 7 (single side plotting; two passes; plotting speed 3.8 cm s<sup>-1</sup>; 100 µL of methylene blue in the respective solvent).



**Figure S5.** Correlation of the phenolic content (in gallic acid equivalents, GAE) measured with the PADs and the standard method [46].



**Figure S6.** CVs of a 2.0 mmol L<sup>-1</sup> potassium ferrocyanide/ 2.0 mmol L<sup>-1</sup> potassium ferrocyanide solution in 0.01 mol L<sup>-1</sup> KCl at PADs with electrodes drawn with pencils grade 3B, 5B and 7B (pen No 17; paper 7; single-sided plotting; 2 passes; pen plotting speed 2.7 cm s<sup>-1</sup>; pencil plotting speed 32 cm s<sup>-1</sup>).