

## Supplementary Material

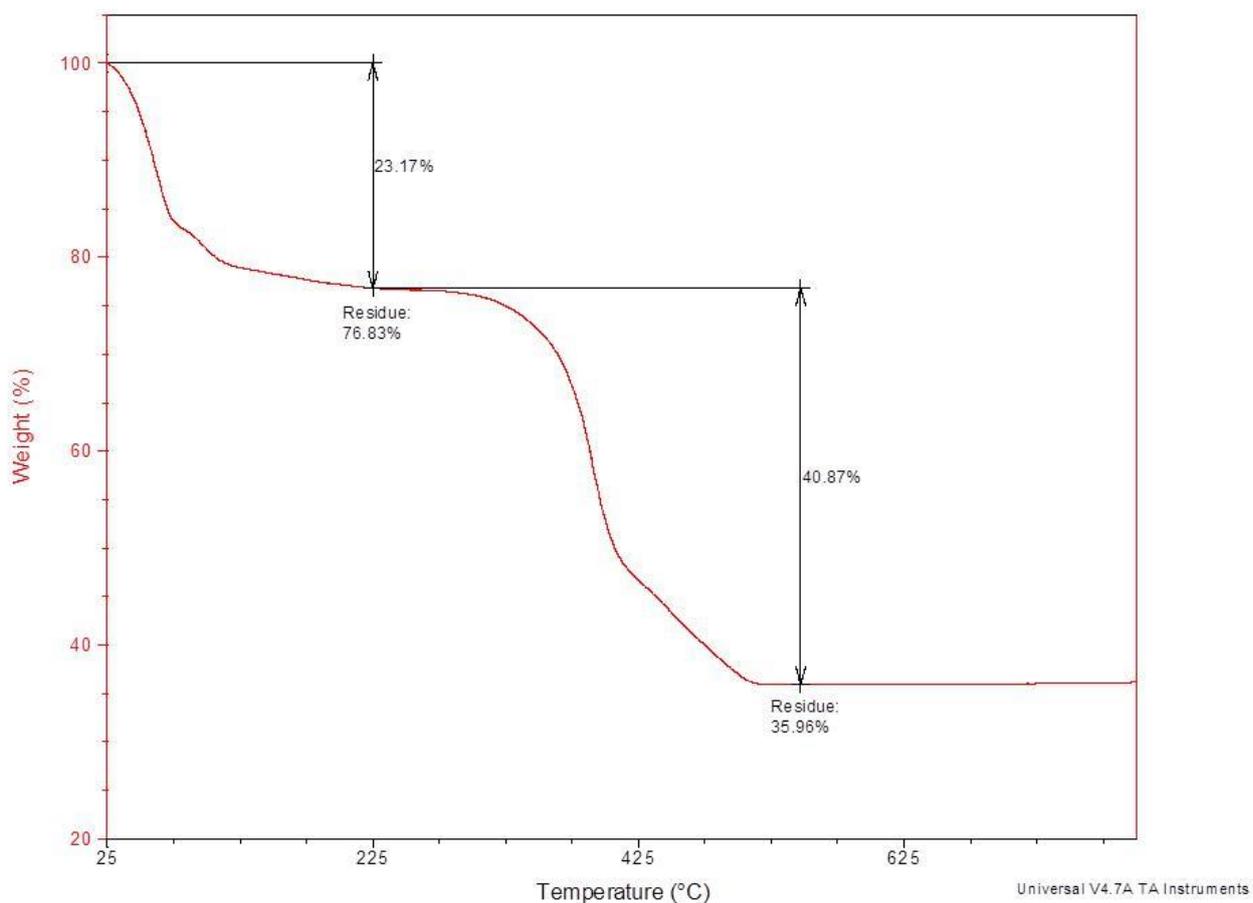
# Voltammetric Determination of Pb(II) by a Ca-MOF-Modified Carbon Paste Electrode Integrated in a 3D-Printed Device

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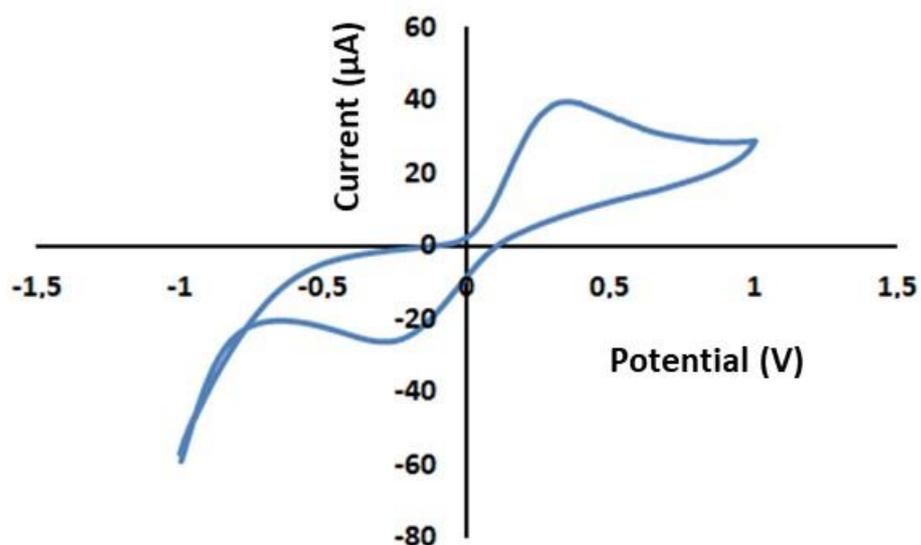
**Figure S1.** TGA curve of Pb-MOF obtained by immersing Ca-MOF in a PbCl<sub>2</sub> aqueous solution for 30 min, followed by filtration and drying over silica gel in a desiccator overnight.

#### Determination of the Active Area of the Electrode

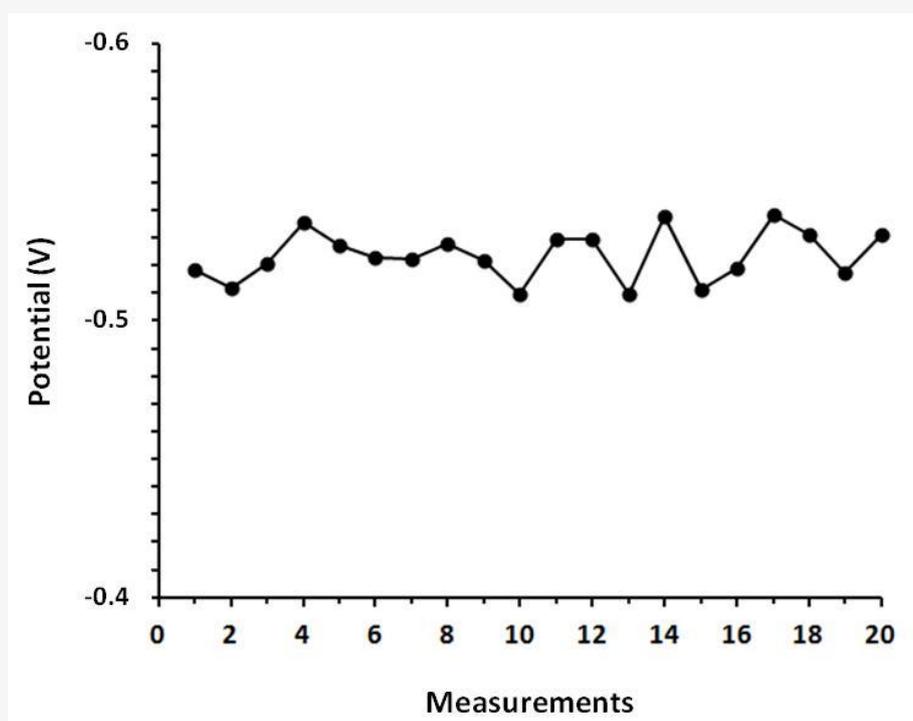
The effective working area of the electrode was determined using cyclic voltammetric conditions (scan rate 0.05 V s<sup>-1</sup>) for the one-electron reduction of K<sub>3</sub>[Fe(CN)<sub>6</sub>] [1.0 mmol L<sup>-1</sup> in 0.5 mol L<sup>-1</sup> KCl (Figure S2)] using the Randles-Sevcik equation.

$$i_p = 0.446nFAC(nFDv/RT)^{1/2}$$

where  $i_p$  is the peak current (A),  $n$  ( $\neq 1$ ) is the number of electrons transferred,  $A$  is the effective area of the electrode (cm<sup>2</sup>),  $D$  is the diffusion coefficient of [Fe(CN)<sub>6</sub>]<sup>3-</sup> (taken to be  $7.60 \times 10^{-6}$  cm<sup>2</sup>s<sup>-1</sup>),  $C$  is the concentration (mol cm<sup>-3</sup>),  $v$  is the scan rate (Vs<sup>-1</sup>),  $F$  is the Faraday constant (C mol<sup>-1</sup>)  $R$  is the universal gas constant,  $T$  is the temperature in Kelvin.



**Figure S2.** Cyclic voltammogram of  $K_3[Fe(CN)_6]$  ( $1.0 \text{ mmol L}^{-1}$  in  $0.5 \text{ mol L}^{-1}$   $KCl$ ) at Ca-MOF/GP. Scan rate:  $0.05 \text{ V s}^{-1}$



**Figure S3.** Potential stability of the 3D-printed carbon pseudo-reference electrode. The measurements were conducted in a solution containing  $50 \text{ } \mu\text{g L}^{-1}$   $Pb(II)$  in  $0.1 \text{ mol L}^{-1}$  acetate buffer (pH 4.5)