Supporting Information

Amorphous nanostructured Ni-Fe oxide as notably active and low-cost oxygen evolution reaction electrocatalyst for Anion Exchange Membrane Water Electrolysis

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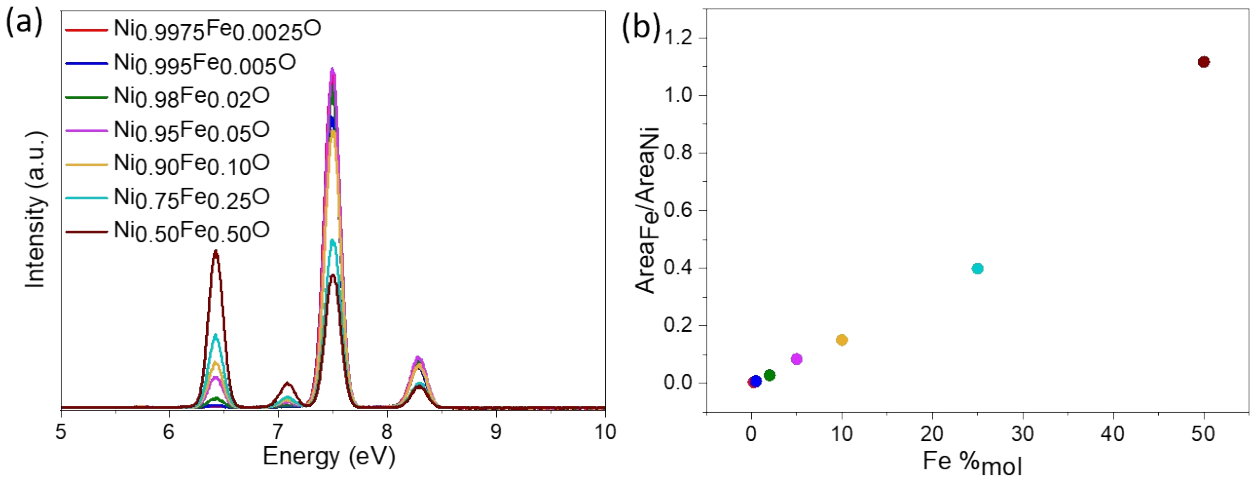

Figure S1 – XRF spectra of the synthetized Ni/Fe materials (a) and – Representation of the ratio between the areas of Fe and Ni peaks as a function of the nominal Fe $\%_{mol}$ (b).

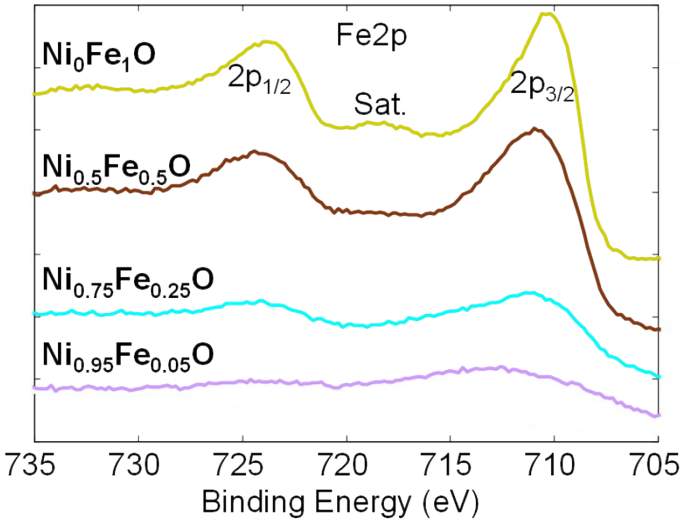

Figure S2 – XPS spectra of Fe 2p for Ni_0Fe_1O (green), $Ni_{0.95}Fe_{0.05}O$ (cyan), $Ni_{0.75}Fe_{0.25}O$ (blue), and $Ni_{0.5}Fe_{0.5}O$ (red) ECs.

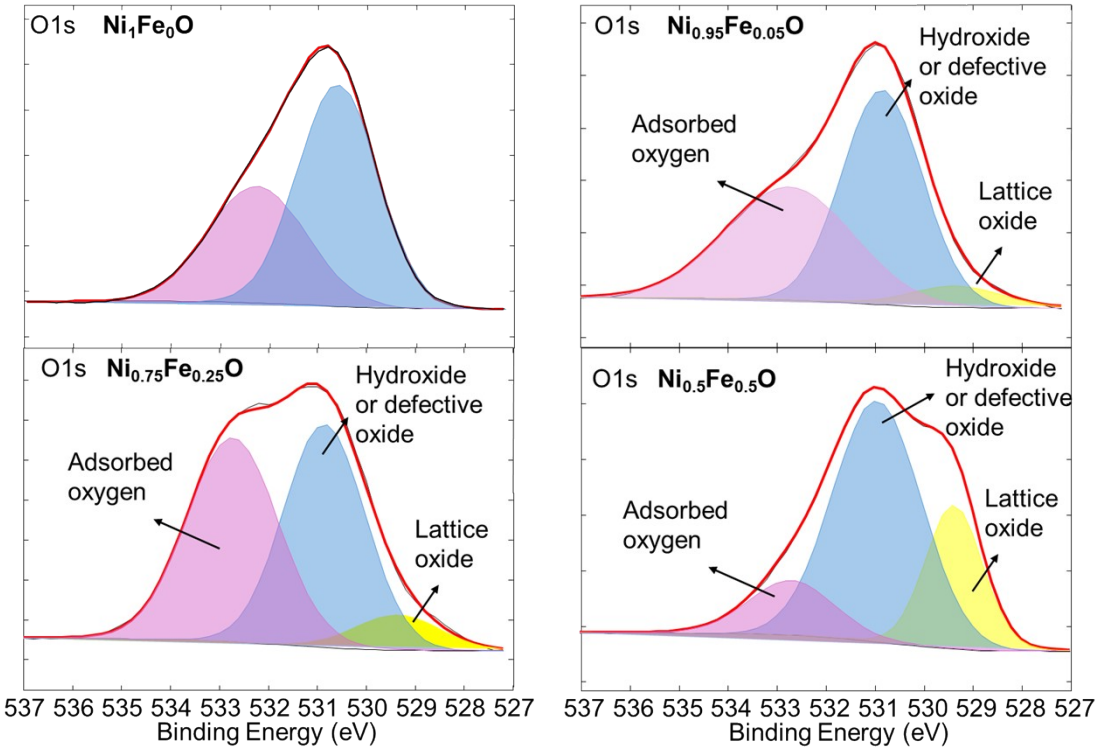

Figure S3 – XPS spectra of O1s for (a) Ni_1Fe_0O, (b) $Ni_{0.95}Fe_{0.05}O$, (c) $Ni_{0.75}Fe_{0.25}O$, and (d) $Ni_{0.5}Fe_{0.5}O$

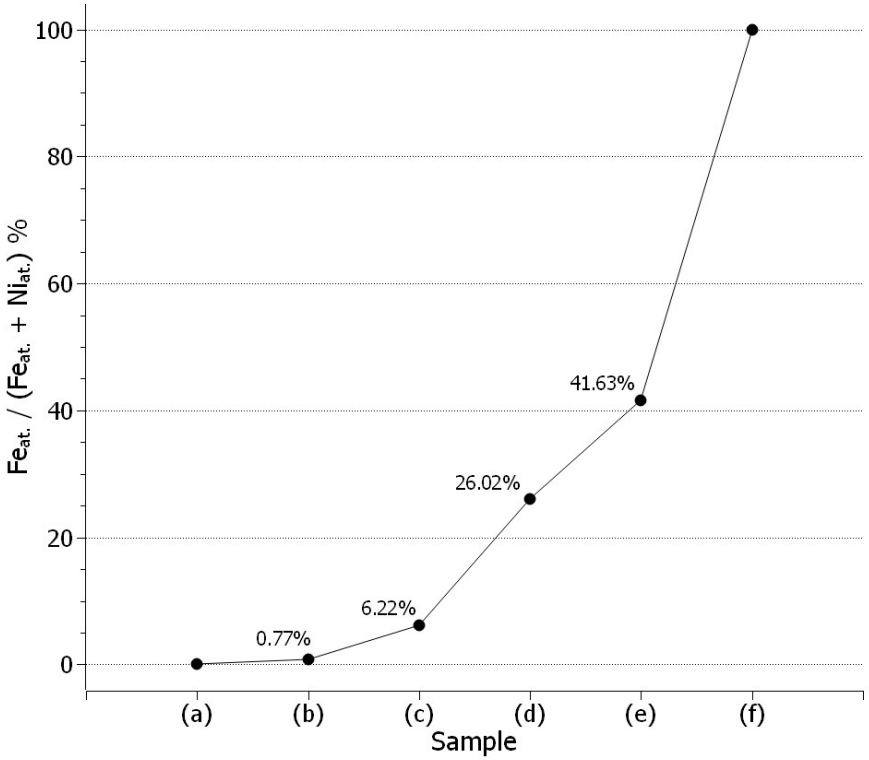

Figure S4– EDX Fe atomic ratio in respect to the summed Fe and Ni atomic ratios for all analysed samples.

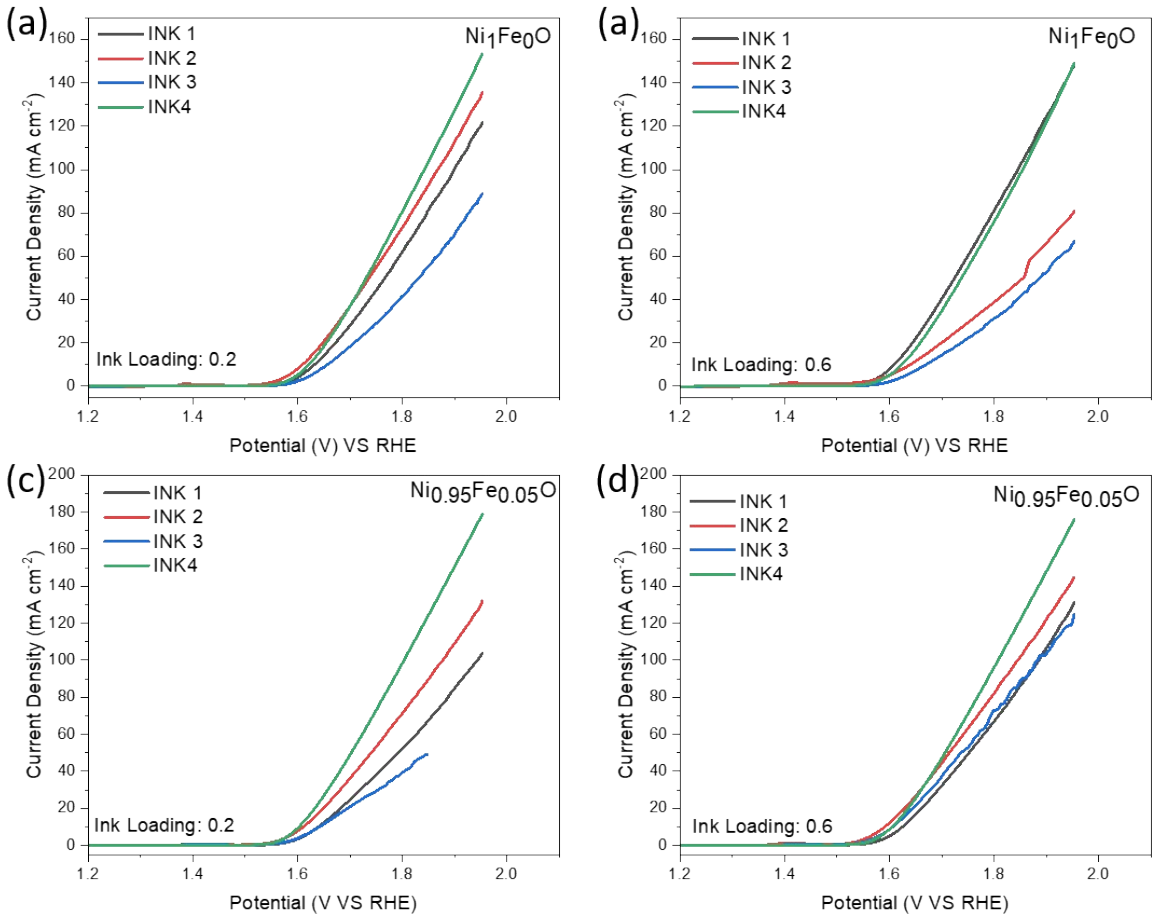

Figure S5 – Linear Sweep voltammograms of (a,b) Ni_1Fe_0O and (c,d) $Ni_{0.95}Fe_{0.05}O$ at the electrocatalyst loading of (a,c) 0.2 mg cm^{-2} and (b,d) 0.6 mg cm^{-2}.

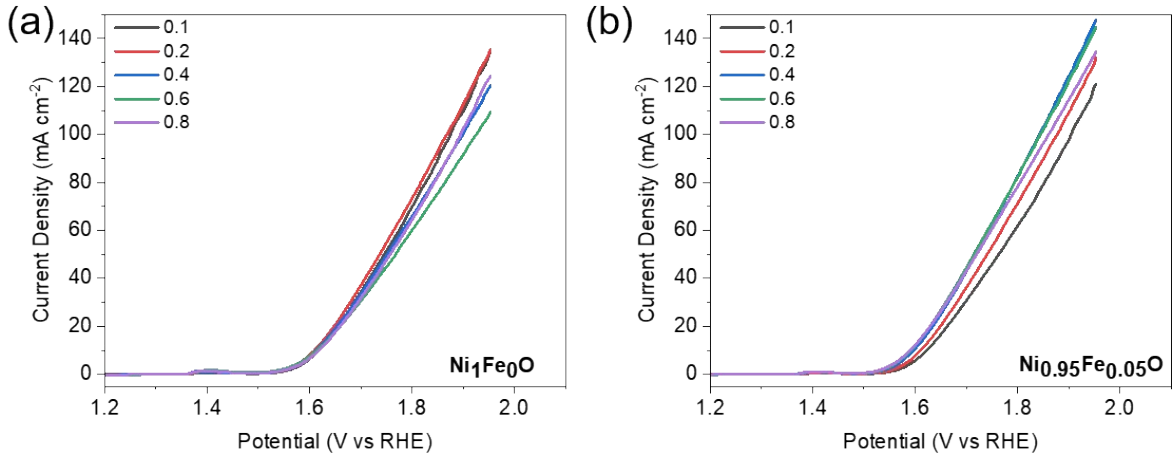

Figure S6– Linear Sweep voltammograms of (a) Ni_1Fe_0O and (b) $Ni_{0.95}Fe_{0.05}O$. The effect of different electrocatalyst loading (mg cm^{-2}) on the OER electrocatalytic activity.

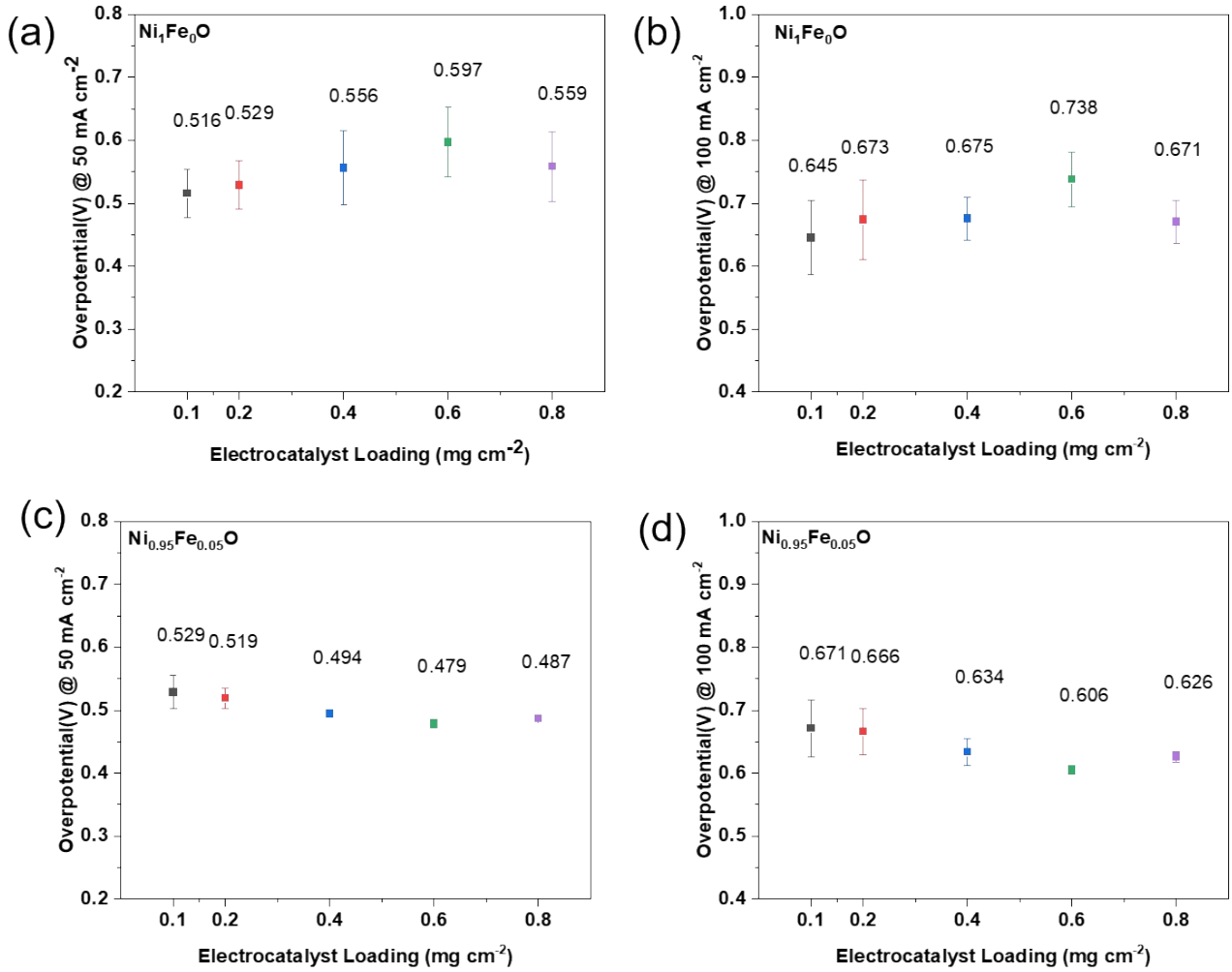

Figure S7 - OER overpotentials of Ni_1Fe_0O measured at 50mA cm^{-2} (a) and 100mA cm^{-2} (b). OER overpotentials of $Ni_{0.95}Fe_{0.05}O$ measured at 50mA cm^{-2} (c) and 100mA cm^{-2} (d). The effect of different ink formulations on the OER electrocatalytic activity is reported.

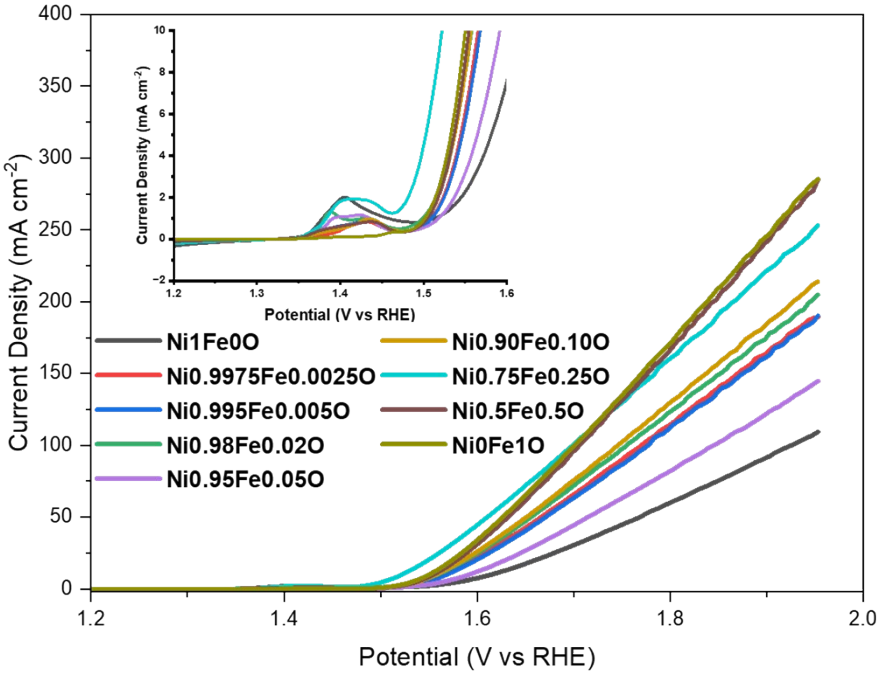

Figure S8 – Most indicative LSVs of the ECs produced in this work

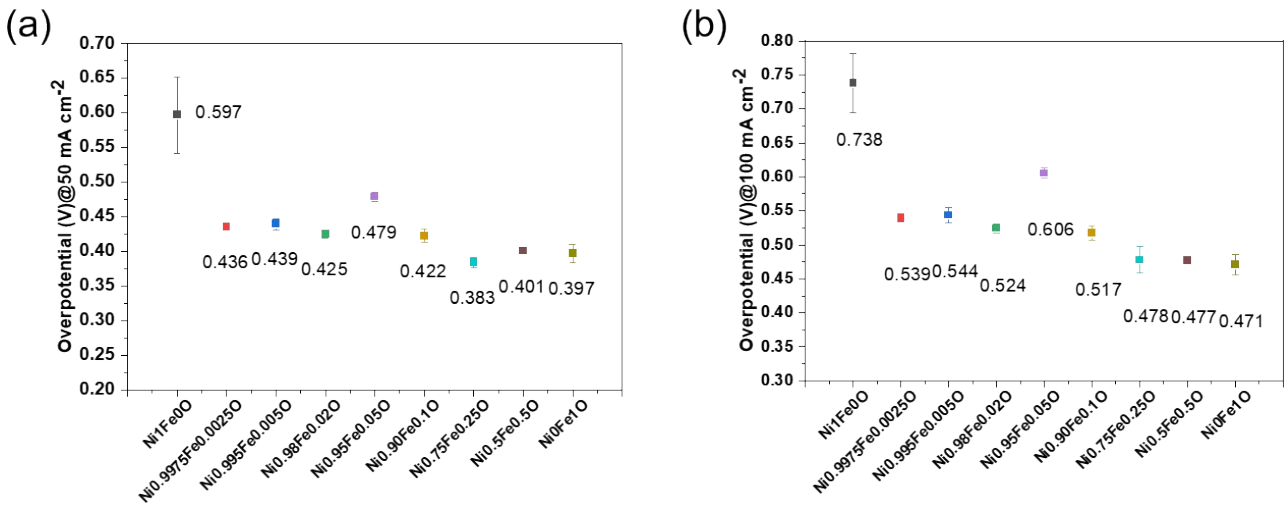

Figure S9 - OER overpotentials of $Ni_{0.95}Fe_{0.05}O$ measured at 50mA cm^{-2} (a) and 100mA cm^{-2} (b). The effect of different ink formulations on the OER electrocatalytic activity is reported.

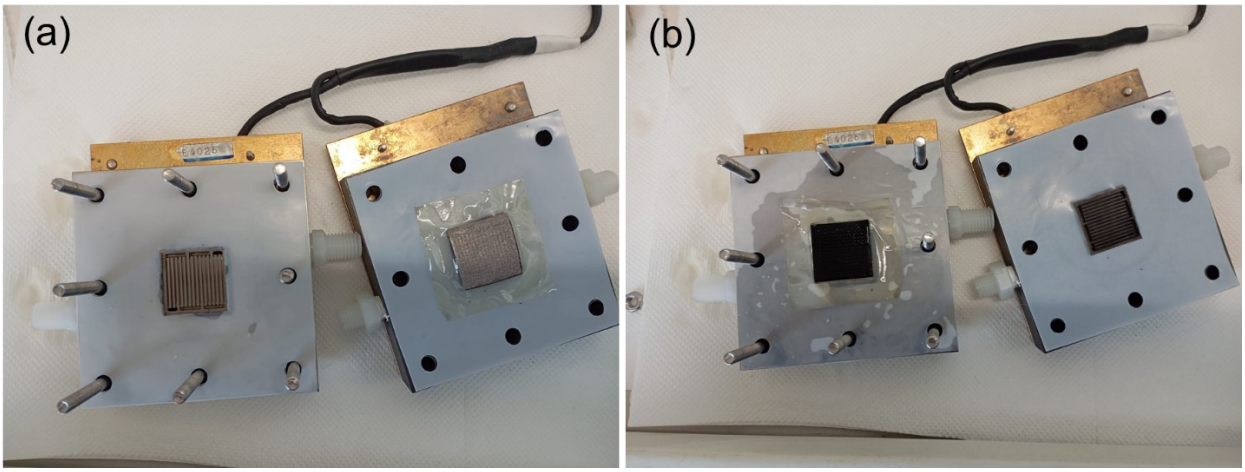

Figure S10 – Hardware setup for AEMWE tests with the cold-assembled MEA. a) anode side and b) cathode side view.