

Supplementary Information

Preparation and application of ZIF-8 thin layers

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1. Apparent contact angles

Apparent (as placed) contact angles were measured with the same setup as the advancing and receding contact angles using the sessile drop method. Drop volumes were between 1 μL and 4 μL and the conic section fitting method was used for drop shape analysis. Table S1 shows the apparent contact angles.

Table S1. Apparent contact angles.

Surface	Oil	Water θ_s / deg	Diiodomethane θ_s / deg
ZIF-8/ PVDF (20%) mono layer	none GPL 100 GPL 105	127.4 \pm 12.2 121.4 \pm 3.8 116.5 \pm 9.0	117.2 \pm 3.7 98.3 \pm 1.0 102.0 \pm 7.0
ZIF-8/ PVDF (20%) double layer	none GPL 100 GPL 105	139.2 \pm 3.4 123.6 \pm 2.3 107.3 \pm 9.6	114.4 \pm 2.2 95.8 \pm 7.3 86.7 \pm 3.6
ZIF-8/ PVDF (10%)	GPL 105	119.3 \pm 2.1	-
ZIF-8/ PVDF (40%)	GPL 105	119.1 \pm 1.4	-
ZIF-8 (pellet)	GPL 105	112.1 \pm 2.8	88.8 \pm 2.1
ZIF-8 (e-coating)	GPL 105	111.7 \pm 3.8	88.9 \pm 2.7
PVDF	none	101.4 \pm 0.9	78.3 \pm 3.4

2. XRD data

Figure S1 shows the XRD pattern of the ZIF-8/PVDF composite monolayer.

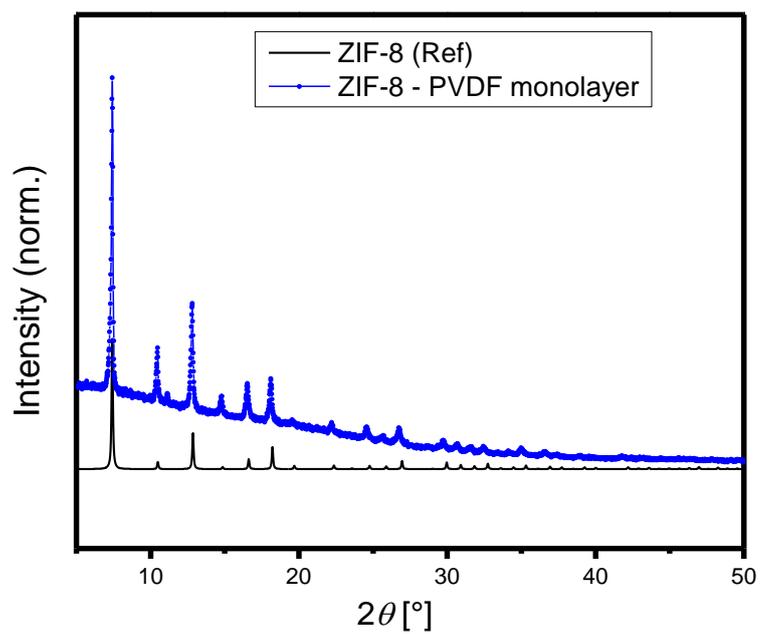


Figure S1. X-ray diffraction pattern of the ZIF-8/PVDF composite monolayer, Cu $K\alpha 1$ -radiation, $\lambda = 1.54056 \text{ \AA}$.

3. TEM/EDS data

Figure S2 shows TEM imaging with an EDS spectrum of the ZIF-8/PVDF composite.

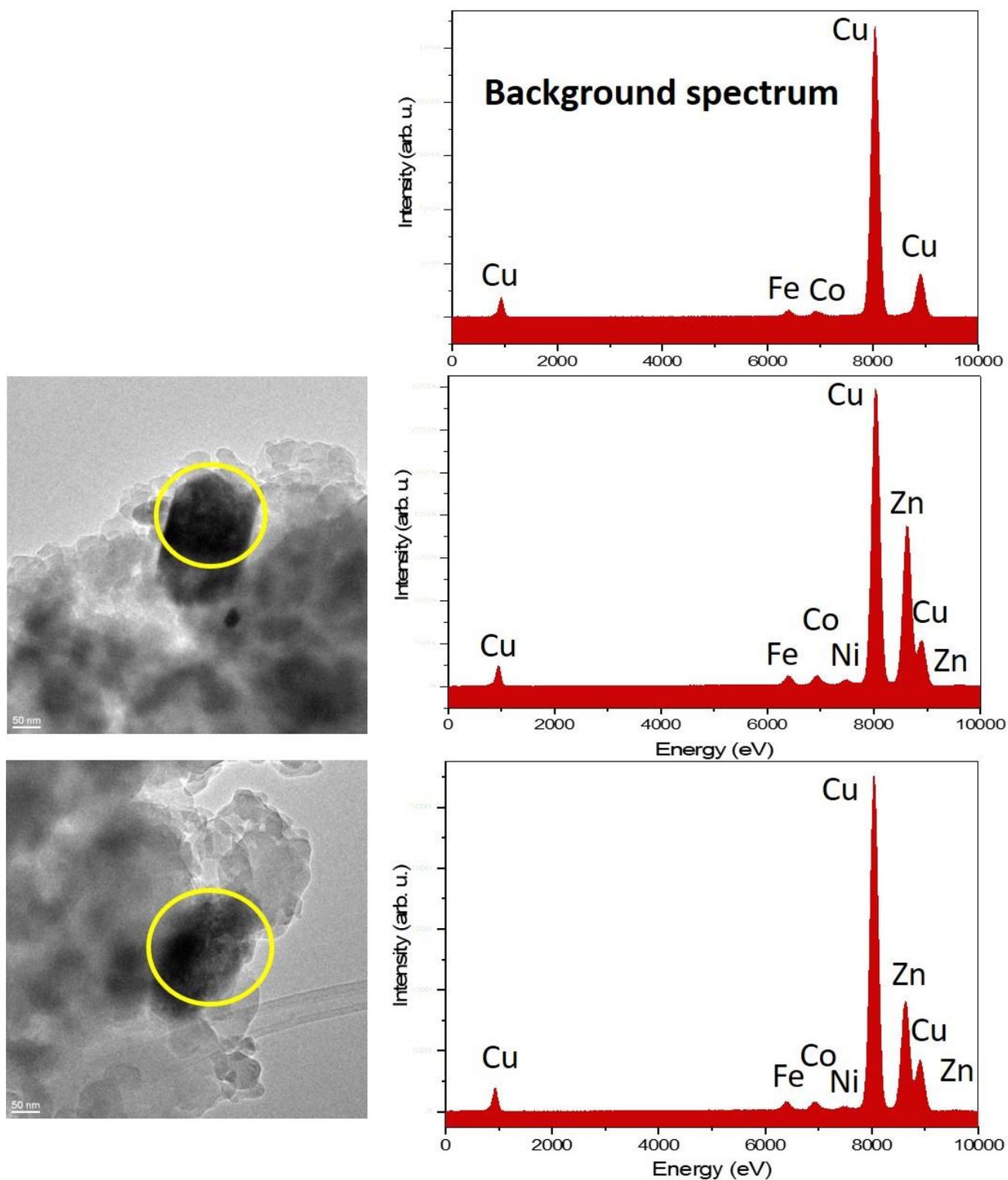


Figure S2. TEM imaging with EDS spectrum; the EDS area is marked (yellow). By comparing the spectra obtained from the particles with the background spectrum (e-beam not aimed at the sample or the grid), one can easily identify the Zn peaks as coming from the particles.

4. Electrochemical setup

Figure S3 shows the electrochemical setup with a Cu plate as a working electrode. Between the Cu plate and synthesis cell a rubber ring was added, to ensure that the whole cell is liquid-tight. The copper plate can be removed after synthesis by turning the whole cell upside down and the bottom plate can be removed by loosening the screws.

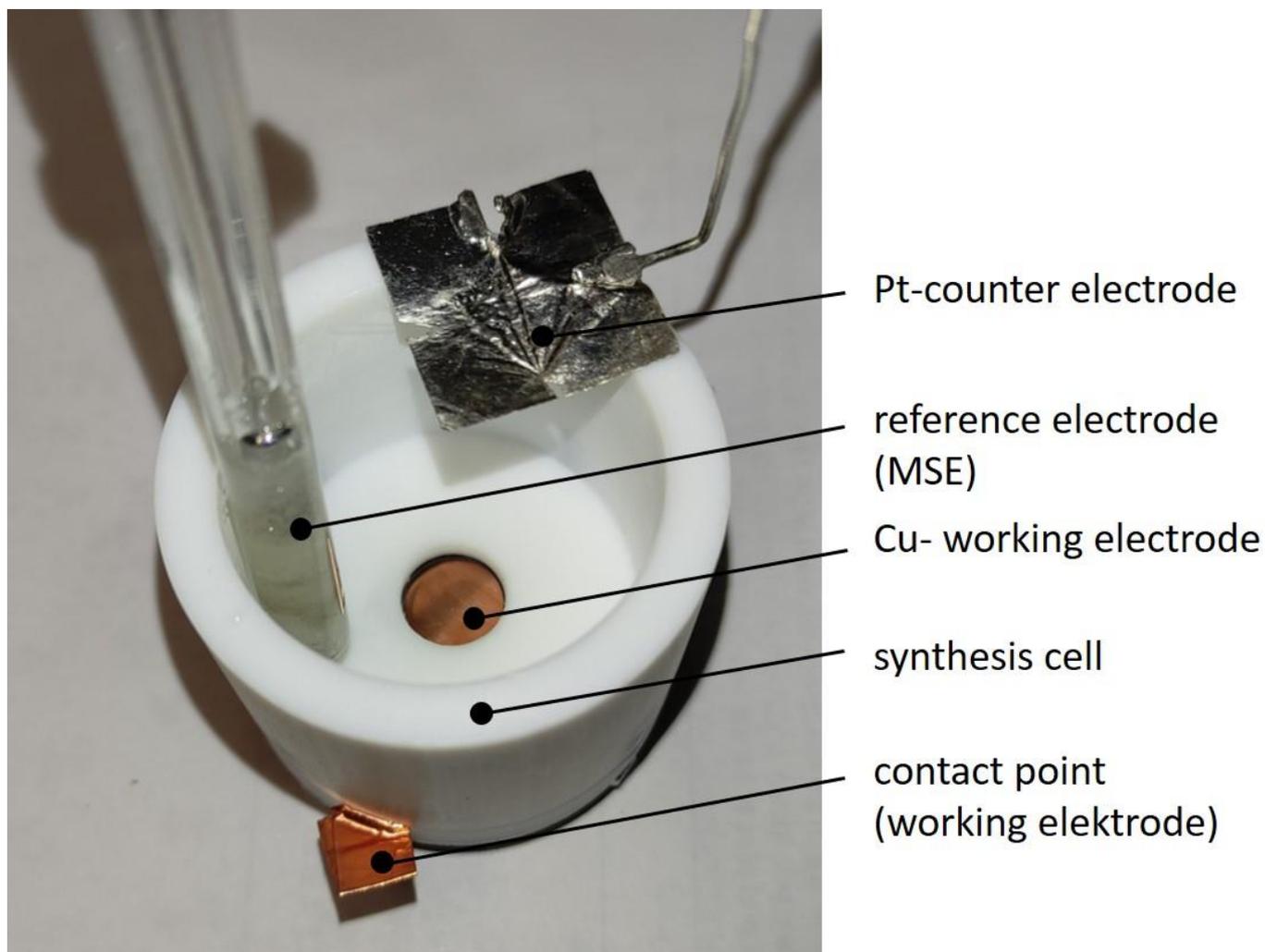


Figure S3. Electrochemical setup with the working and counter electrode as well as the MSE (reference electrode) and electrochemical contact point.