Supporting Information

Sprayed Ag ORR Gas-Diffusion Electrodes for the Electrocatalytic Reduction of CO2 to CO

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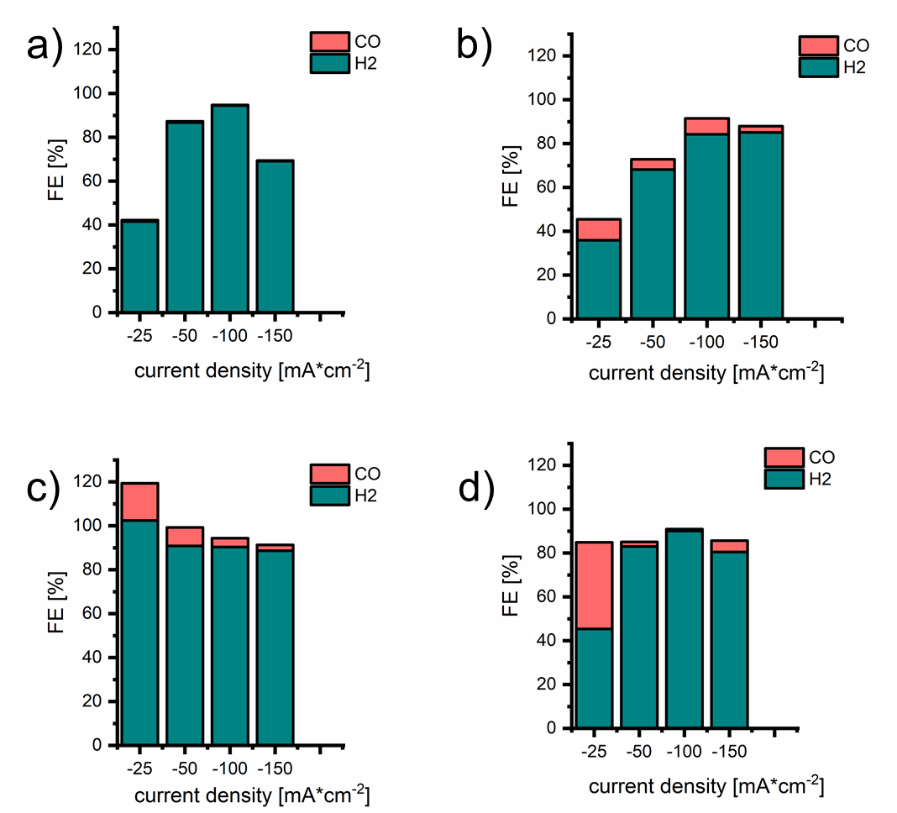
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**Figure S1.** Electrochemical CO2RR performance of different Ag GDEs. FEs are plotted for different current densities in mA∙cm-2 for CO (green) and H2 (blue) in %. Different PTFE modifications were investigated. The original amount of PTFE was increased by a factor of 5 (a), halved (b), 113 µL of a 1 mg∙mL-1 PTFE suspension in ethanol was drop-coated (c) or a no Ag-containing suspension was sprayed (d) on top of the electrode after the fabrication process.

Chart, bar chart

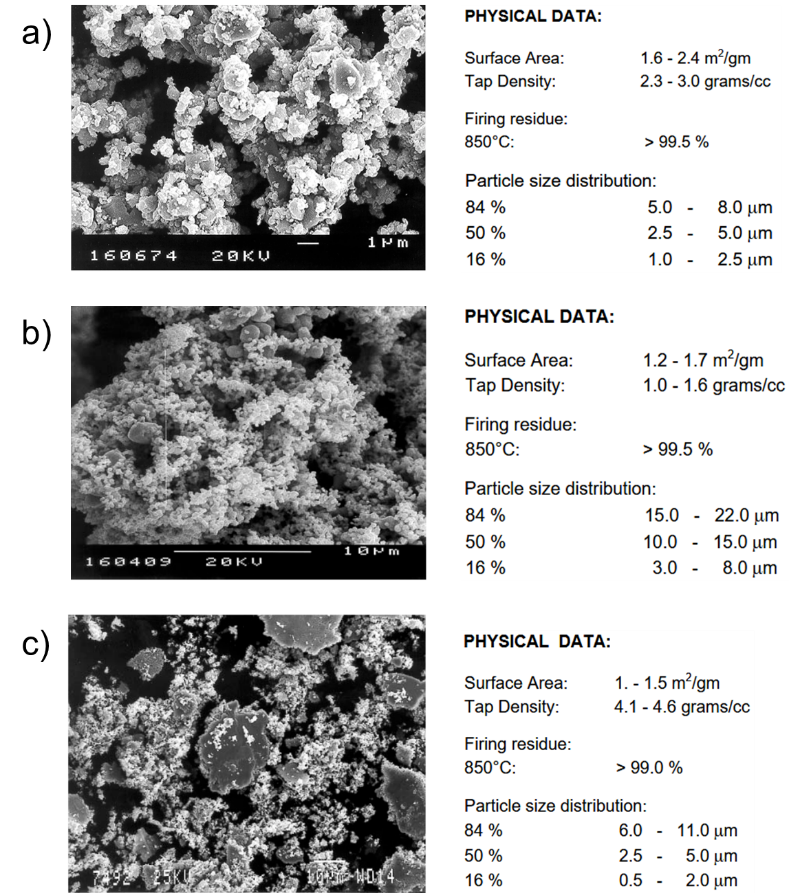
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**Figure S2.** Electrochemical CO2RR performance of a Ag GDE, which was produced with only one layer that was sprayed with a dispense volume of 18 µL. FEs are plotted for different current densities in mA∙cm-2 for CO (green) and H2 (blue) in %.

Chart, bar chart

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**Figure S3.** Electrochemical CO2RR performance of a Ag GDE, which used a PEEK-mesh with a mesh width of 100 µm instead of the Ni-mesh. FEs are plotted for different current densities in mA∙cm-2 for CO (green) and H2 (blue) in %.



**Figure S4.** SEM images of the different Ag base materials Ag 372 powder (a), Ag 328X powder (b) and Ag flakes D29 (c). Physical data including surface area in m2∙g-1, tap density in g∙cm-3 and particle size distribution in µm (SEM images from official Ferro data sheets produced in-house at Ferro and measurement data received through documented Ferro procedures).

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**Figure S5.** Preparation of the AG GDEs, where a circular shape is first cut out of the square electrode (a), placed between two 3D-printed TPU rings (b), pressed with slight pressure at 213 °C (c) and then sealed with a soldering tip (d).

A close-up of a microscope

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**Figure S6.** Photography of the electrochemical cell, with working and counter electrode compartment. Counter electrode (CE), working electrode (WE) and reference electrode (RE). Gas flow paths are also indicated. An automatic or manual valve is connected to the bottom and top compartment and would be situated beyond the right border of the image.