

Spherical Graphite Anodes: Influence of Particle Size Distribution and Multilayer Structuring in Lithium-Ion Battery Cells

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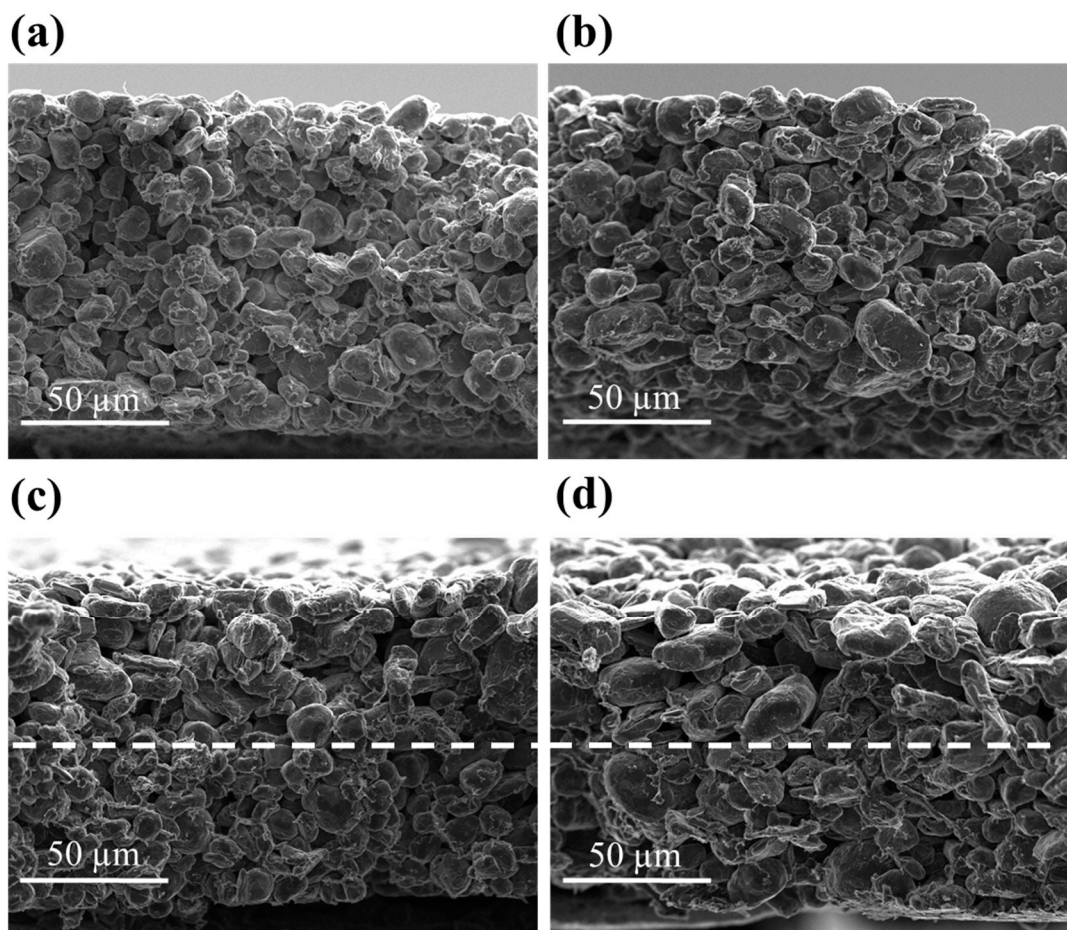


Figure S1. SEM images of the one-layered and two-layered anodes with different ratios of spherical Gr₁₁ and Gr₁₈. One-layered anodes: (a) Gr_{18/25} + Gr_{11/75}, (b) Gr_{18/75} + Gr_{11/25}. Two-layered anodes: (c) Gr_{18/25} + Gr_{11/75} in the lower layer, (d) Gr_{18/75} + Gr_{11/25} in the lower layer. All two-layered anodes consist of Gr_{18/100} in the upper layer. The images show the cross-section of the anodes. All images were taken with a magnification of 1,500 x.

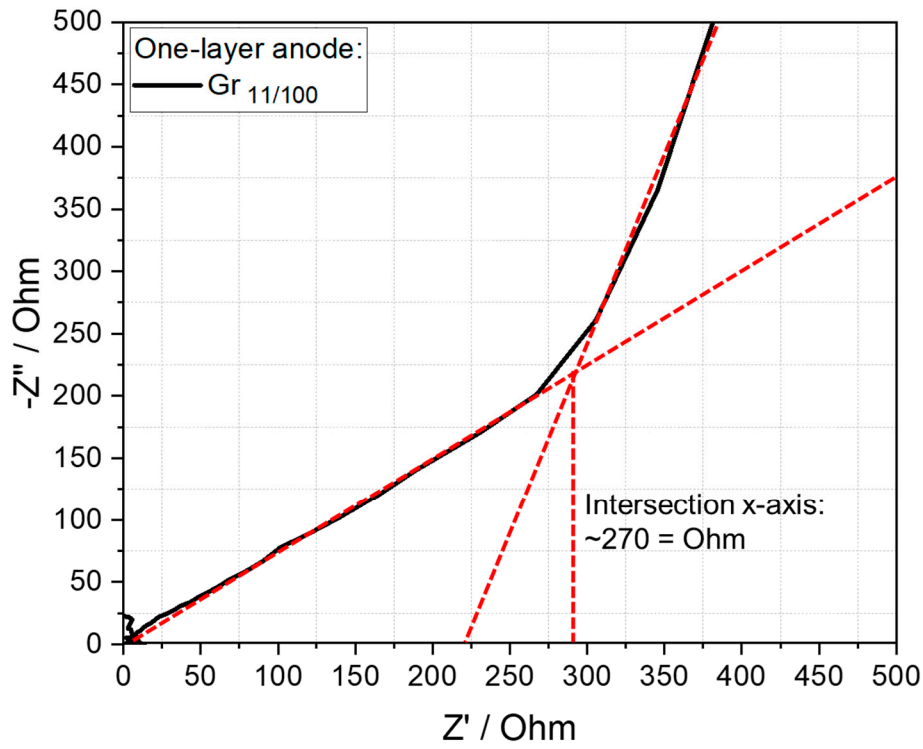


Figure S2. Exemplary impedance spectra of G_{11} . The red dotted lines represent the manual determination of the extension of the low-frequency line to the x axis. If the point of intersection is multiplied by the x axis times 3 and related to the area of the anode, the result is an areal ionic resistance of about $\sim 810 \text{ Ohm cm}^2$. [According to the methodology of Ogiwara et al. [1]].

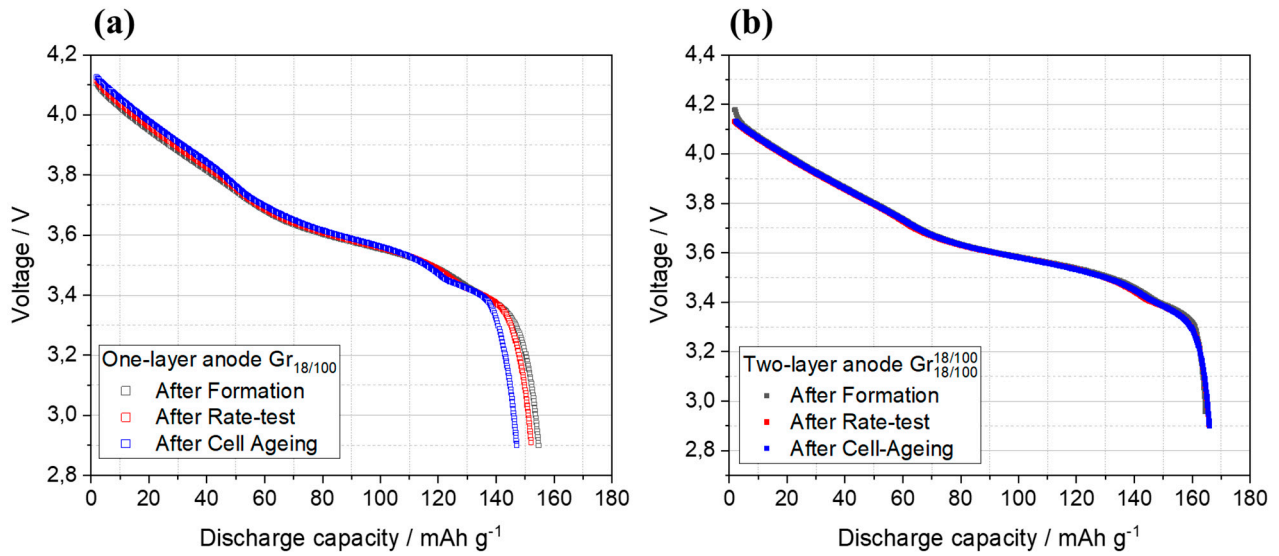


Figure S3. Discharge curves of one-layer electrode $Gr_{18/100}$ (a) as well as the two-layer anode $Gr_{18/100}^{18/100}$ (b) are shown. Thereby, the discharge curves after formation after rate-test and after the cell-ageing is shown.

Reference

- [1] N. Ogihara, S. Kawauchi, C. Okuda, Y. Itou, Y. Takeuchi, Y. Ukyo, J. Electrochem. Soc. 159 (2012) A1034-A1039. <https://doi.org/10.1149/2.057207jes>.