

Effect of pore formers on properties of tape cast porous sheets for electrochemical flue gas purification - DTU Orbit (08/11/2017)

Effect of pore formers on properties of tape cast porous sheets for electrochemical flue gas purification

Ce_{0.9}Gd_{0.1}O_{1.95} (CGO) electrolytes for electrochemical flue gas purification multilayers were fabricated by tape casting and sintering using different types, shapes and sizes of pore formers. The resulting tapes (with thickness of about 400µm) were characterized by scanning electron microscopy, gas permeability measurements, mercury porosimetry and pore orientation measurements, to investigate the role of the different pore formers on the properties after sintering at a temperature of 1250°C. Those tapes prepared from different non-spherical pore formers with comparable porosity of about 43%, showed significant differences in gas permeability which could be correlated to an increase in mean pore size and pore connectivity. The degree of pore orientation in the tape casting direction was determined by best-fit ellipse method and a modified linear intercept method and the obtained data were correlated with the corresponding gas permeability.

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