



SOFC Anode Materials

fuelcellmaterials.com offers three anode materials for solid oxide fuel cells (SOFCs). These materials are based on composite powder mixtures of nickel oxide and an electrolyte, either GDC or YSZ. The standard anode materials are:

- NiO-YSZ specifically formulated for fabricating supports by tape casting, pressing, or extrusion, with a proprietary blend of particles to enhance strength via YSZ connectivity while maintaining high conductivity.
- NiO-GDC formulated for depositing catalytic anode layers onto substrates using non-aqueous coating techniques.
- NiO-YSZ simplified mixture for depositing anodes using non-aqueous coating techniques.

All three are available in powder form with particle size distributions and additives tailored for the specific applications.

fuelcellmaterials.com will use its wealth of materials processing knowledge to produce materials that meet your specific processing and performance requirements while reducing your overall costs. Contact us to find out more.

Applications

- Coatings on electrolyte-supported and cathode-supported SOFCs
- Fabrication of anode-supported, thin-film electrolyte SOFCs
- Catalytic anode layer coating on anode support/substrate
- SOFCs operating via internal reforming or direct utilization of methane

Benefits

- FCM's combination of ceria-based catalytic layer and high-nickel current collection layer optimizes the material to meet the two important performance needs of SOFC anodes
- Anode coatings prepared using FCM's screen printing inks exhibit excellent adhesion to electrolyte surfaces
- FCM has optimized particle sizes to control of the pore structure of the fired material creating structures that are both strong and high performance
- The use of pre-formulated anode powder mixtures saves processing time and assures batch-to-batch reproducibility

Materials Selection Guide			
Formulation	Materials Ratio	PSD d50	Surface Area
NiYSZ-TC	60%/40%	0.6 – 1.0	1-3 m ² /g
NiYSZ-P	66%/34%	0.9 – 1.3	4-8 m ² /g
NiGDC	60%/40%	0.5 – 0.7	1-3 m ² /g

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