



Cathode Materials

fuelcellmaterials.com offers high-performing perovskite materials for use as electrodes for ceramic and electrochemical devices are particularly well suited for use as solid oxide fuel cell cathodes. Our product focus is on lanthanum strontium manganite (LSM), lanthanum strontium cobalt ferrite (LSCF) and composite cathodes, which are mixtures of electrolyte and electrode materials. Composite cathodes are used to improve catalytic activity of the perovskite materials for better conversion of oxygen to oxide ion.

fuelcellmaterials.com's patented processes for fabricating composite cathodes maximize the dispersion of the electrolyte and cathode phases, enabling greater catalytic activity than can be achieved through simple mixing. Recent improvements to methods for producing both standard and composite cathodes are yielding materials with even better performance. Note the improvement in fuel cell power in the figure on page 2.

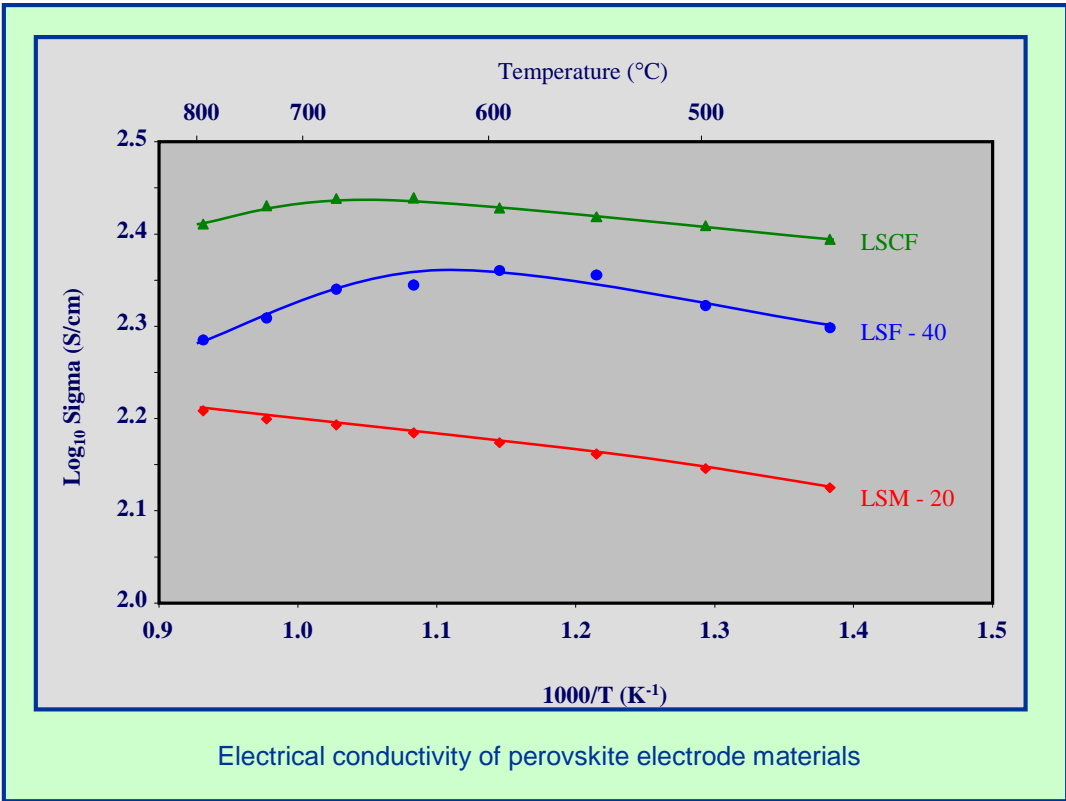
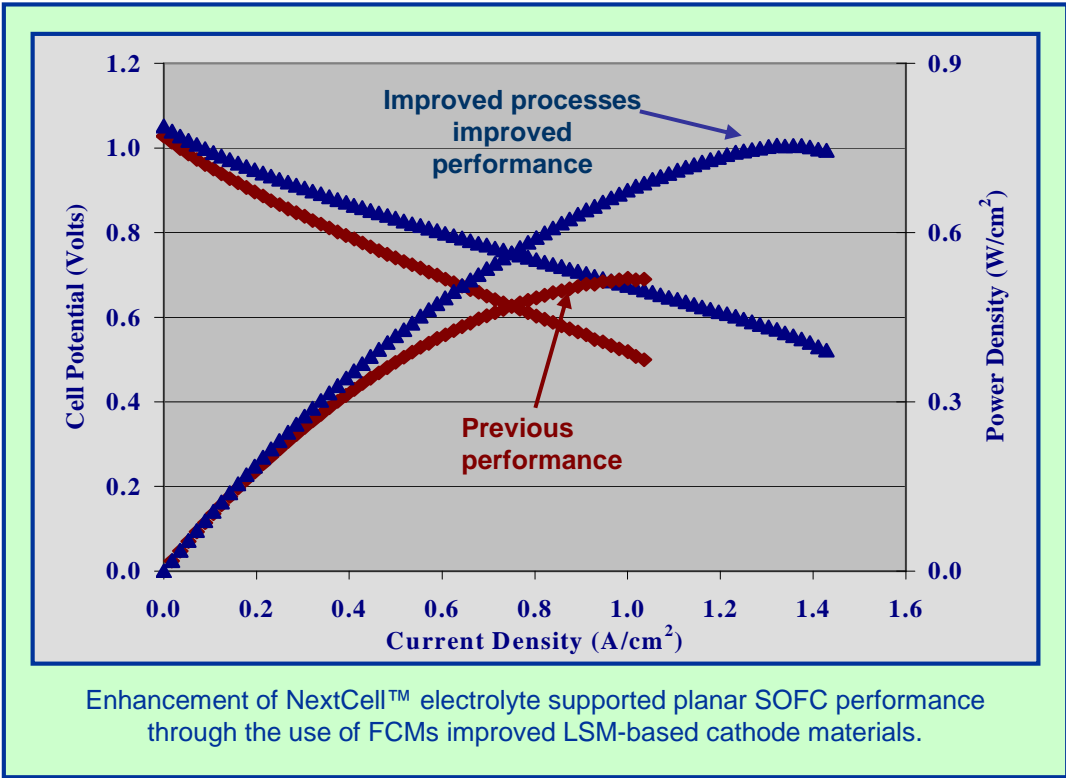
Cathode materials are available in both powder and ink/paste formats. *fuelcellmaterials.com* offers standard products with compositions below and can fabricate custom materials to meet your needs. Standard products are available for online ordering through www.fuelcellmaterials.com. Large orders are welcome.

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.

Materials Selection Guide				
Formulation	Composition (slightly A-site deficient)	CTE _(lit) (ppm/°C)	Electrolyte Materials	Temperature Range (°C)
LSM20	(La _{0.80} Sr _{0.20})MnO ₃	11	YSZ, ScSZ	800 to 1000
LSCF6428	(La _{0.60} Sr _{0.40})(Fe _{0.80} Co _{0.20})O ₃	15	GDC	650 to 800
LSM/YSZ	50% YSZ by weight	10	YSZ	750 to 900
LSM/GDC	50% GDC by weight	12	YSZ, GDC, LSGM	700 to 900
LSCF/GDC	50% GDC by weight	14	GDC, LSGM	600 to 750

The optimum cathode depends on the target operating temperature, thermal expansion, and chemical compatibility with the electrolyte material being used. Suggested selection criteria for cathode formulations are provided above.

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