



# MATERIALS FUEL CELLS

- Cathode Powders..... G 06

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# Cathode Powders

## CATHODE POWDERS

We offer Sr-doped Lanthanum Manganite (LSM) in both standard and custom formulations. We also offer a line of Perovskite electrode materials based on Strontium and Cobalt doped Lanthanum Ferrite (LSCF), which offer improved low-temperature performance for SOFCs. Composite cathodes are used to extend the three-phase boundary region of the electrode/electrolyte interface and enhance oxygen reduction on the cathode. This improved activity reduces overall electrode and cell resistance.

- We have the ability to make material in larger quantities upon request.
- Tailored formulations and/or physical specification changes are available.



P/N	PRODUCT NAME	FORMULATION	SURFACE AREA	PSD (d50)	QUANTITIES
121101	LSM20-P	$(La_{0.80}Sr_{0.20})_{0.95}MnO_{3-x}$	4 - 8 m <sup>2</sup> /g	0.3 - 0.6 μm	150 g 500 g 1 kg 5 kg
121205	LSCF-P	$(La_{0.60}Sr_{0.40})_{0.95}Co_{0.20}Fe_{0.80}O_{3-x}$	4 - 8 m <sup>2</sup> /g	0.7 - 1.1 μm	
121601	LSC-P	$(La_{0.80}Sr_{0.20})_{0.95}CoO_{3-x}$	13 - 18 m <sup>2</sup> /g	0.4 - 1.0 μm	
121701	LNC-P	$La_{0.95}Ni_{0.60}Co_{0.40}O_{3-x}$	4 - 8 m <sup>2</sup> /g	0.7 - 1.1 μm	
122101	LSMGDC-P	50 wt% $(La_{0.80}Sr_{0.20})_{0.95}MnO_{3-x}$ 50 wt% $(Ce_{0.9}Gd_{0.1})O_{1.95}$	3 - 7 m <sup>2</sup> /g	-	
122102	LSMYSZ-P	50 wt% $(La_{0.8}Sr_{0.2})_{0.95}MnO_{3-x}$ 50 wt% $(Y_{2}O_{3})_{3/0.08}(ZrO_{2})_{2/0.92}$	5 - 9 m <sup>2</sup> /g	-	
122201	LSCFGDC-P	50 wt% $(La_{0.60}Sr_{0.40})_{0.95}(Co_{0.20}Fe_{0.80})O_{3-x}$ 50 wt% $(Ce_{0.9}Gd_{0.1})O_{1.95}$	3 - 7 m <sup>2</sup> /g	-	

## PREMIUM CATHODE POWDERS

Premium grade cathode powders are designed to provide high performance materials with wide processing flexibility. Premium Powders provide lab researchers with the confidence that their research has a foundation in proven, industrially scaled and traceable powders, while providing developers and manufacturers with scalable high quality powders to aid in commercialization.

- Industry-standard material formulations to provide high end performance and a baseline for materials development and optimization studies.
- Tailored for enhanced sinterability, and lower processing temperatures to provide you with the widest possible processing options.
- Batch-to-batch reproducibility and traceability.
- Industry leading characterization and reporting to speed your research and development cycles.



P/N	PRODUCT NAME	FORMULATION	SURFACE AREA	PSD (d50)	QUANTITIES
121103	LSM20 Premium	$(\text{La}_{0.80}\text{Sr}_{0.20})_{0.95}\text{MnO}_{3-x}$	10.0 - 14.0 m <sup>2</sup> /g	0.10 - 0.50 μm	500 g
121203	LSCF Premium	$(\text{La}_{0.60}\text{Sr}_{0.40})_{0.95}\text{Co}_{0.20}\text{Fe}_{0.80}\text{O}_{3-x}$	10.0 - 14.0 m <sup>2</sup> /g	0.10 - 0.50 μm	1 kg 5 kg



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