



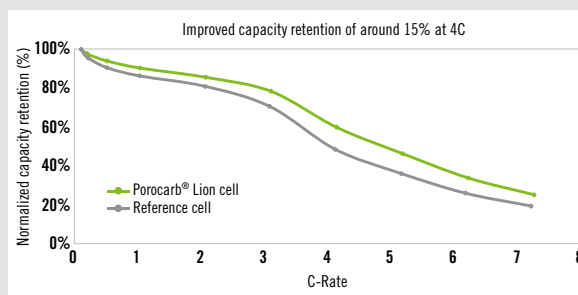
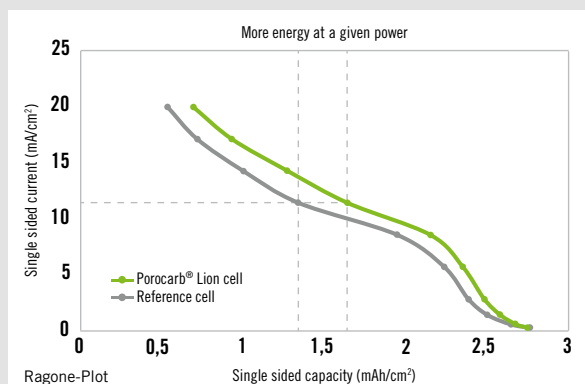
Porocarb® Lion
Ion Conductive Additive for Lithium-Ion Batteries

Porocarb[®] Lion – Material Properties

The addition of Porocarb[®] maintains the ionic pathways and electrolyte supply at high electrode loadings and at high press densities. The interconnected network of pores allows for fast electrolyte penetration into the bulk of the electrode compared to electrodes containing conventional conductive additives.

- **Processing benefits:** non-agglomerated particles for easy and fast slurry preparation, faster drying, higher solid content in slurry, reduced solvent amounts
- **Performance benefits:** improved power and pulse capability for charge and discharge at cathode loadings > 200 g/m², improved low temperature performance
- **Cost benefits:** faster electrolyte uptake provides energy and time savings, increased active material fraction on cell level

Lab full cell	Reference cell	Porocarb [®] Lion cell
Cathode Loading (calc. single side)		204 g/m ²
Cathode Coating Density		~ 3.4 g/cm ³
Cathode Formulation	93% NMC-111 (D ₅₀ =6μm), 3% PVDF	1% Carbon black, 3% Porocarb[®] Lion 403
Anode Active Material		graphite
Separator		glass fibre



Typical Material Properties	Surface Area (BET) [m ² /g]	Electrical Conductivity (0.75kN/cm ²) [S/cm]	Tapped Bulk Density [g/cm ³]	Aerated Density [g/cm ³]	D ₅₀ Particle Size [μm]
Method	ISO 9277:10	Internal Heraeus Method	ASTM D6393 (2008)	ASTM D6393 (2008)	Mastersizer 3000
Porocarb[®] Lion 403*	50–60	3–5	0.20	0.12	1–2
Porocarb[®] Lion 410	40–60	4–6	0.17	0.11	3–4
Porocarb[®] Lion 210	10–20	10–15	0.24	0.14	2–3

* Standard Grade



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