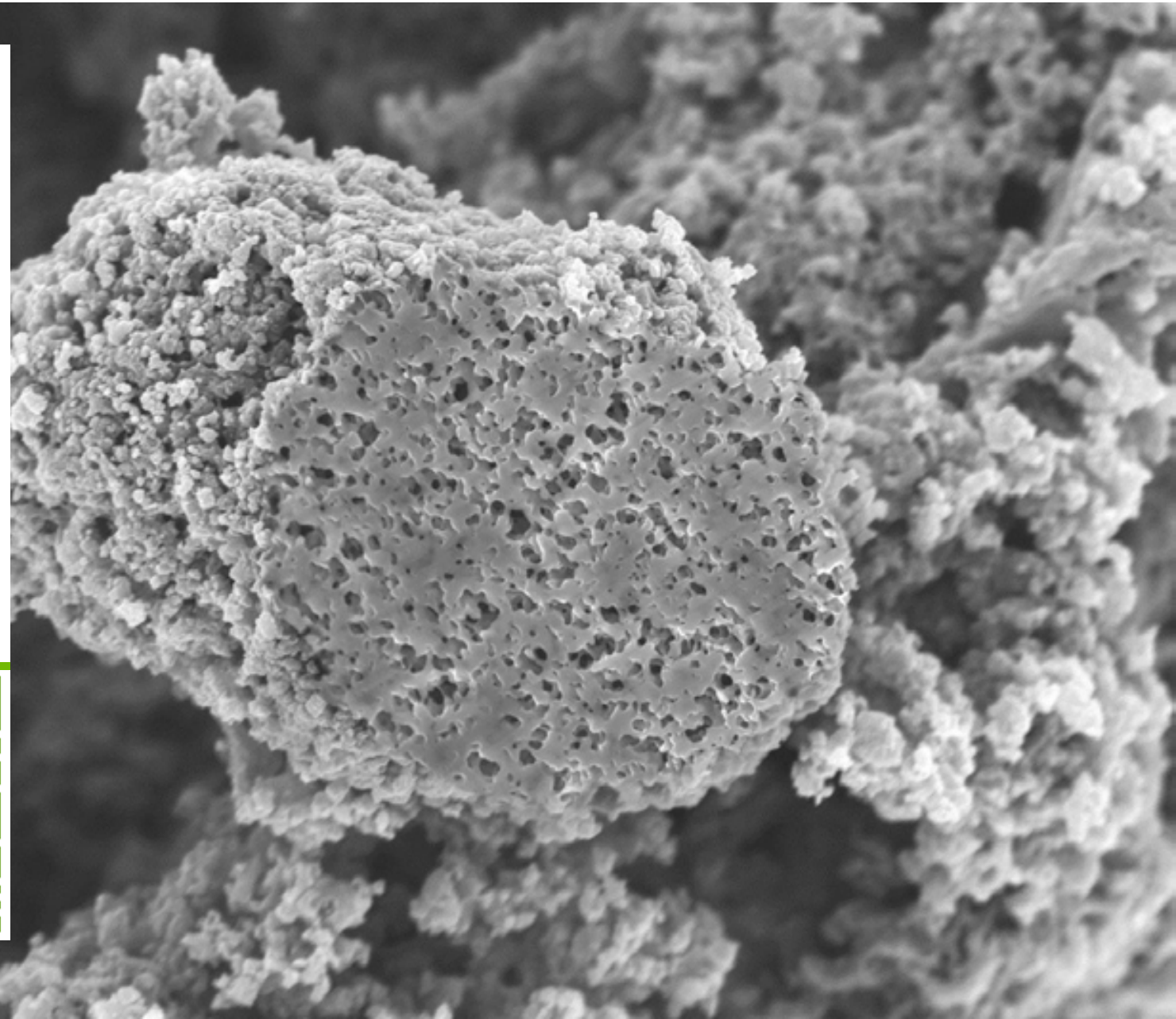


THE SYNTHETIC CARBON PERFORMANCE ADDITIVE POROCARB® – 0.5 WT.% CAN MAKE THE DIFFERENCE

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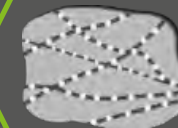


A scanning electron micrograph (SEM) of a porous carbon particle, showing a complex, interconnected network of fibers and voids, giving it a sponge-like appearance. The particle is the central focus of the image, with a textured, granular surface.

C

Hard carbon backbone
ensuring electrical conductivity
and mechanical strength

**Superior ionic
conductivity** via
open porosity



Tunable particle size, pore
size & volume, surface area,
electric & thermal conductivity

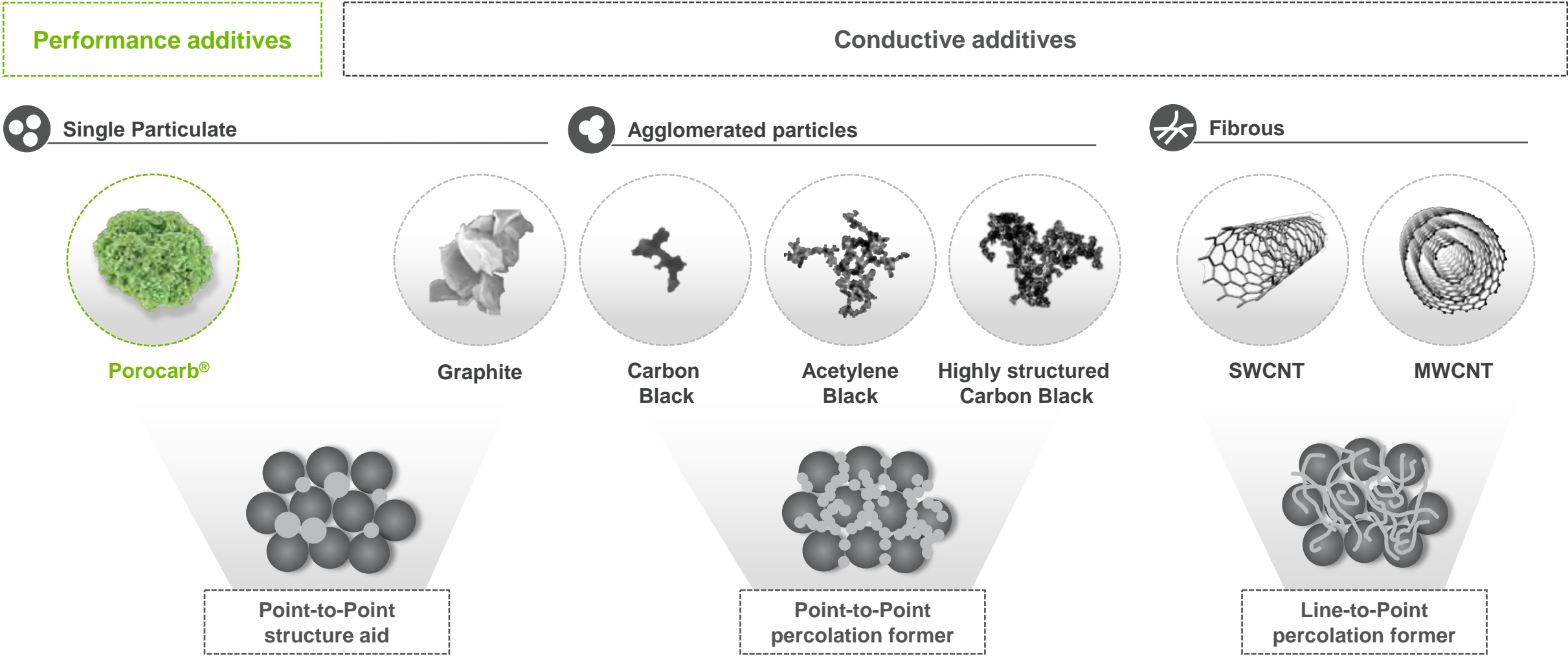
Better thermal conductivity
while acting as heat exchanger
between solid and liquid



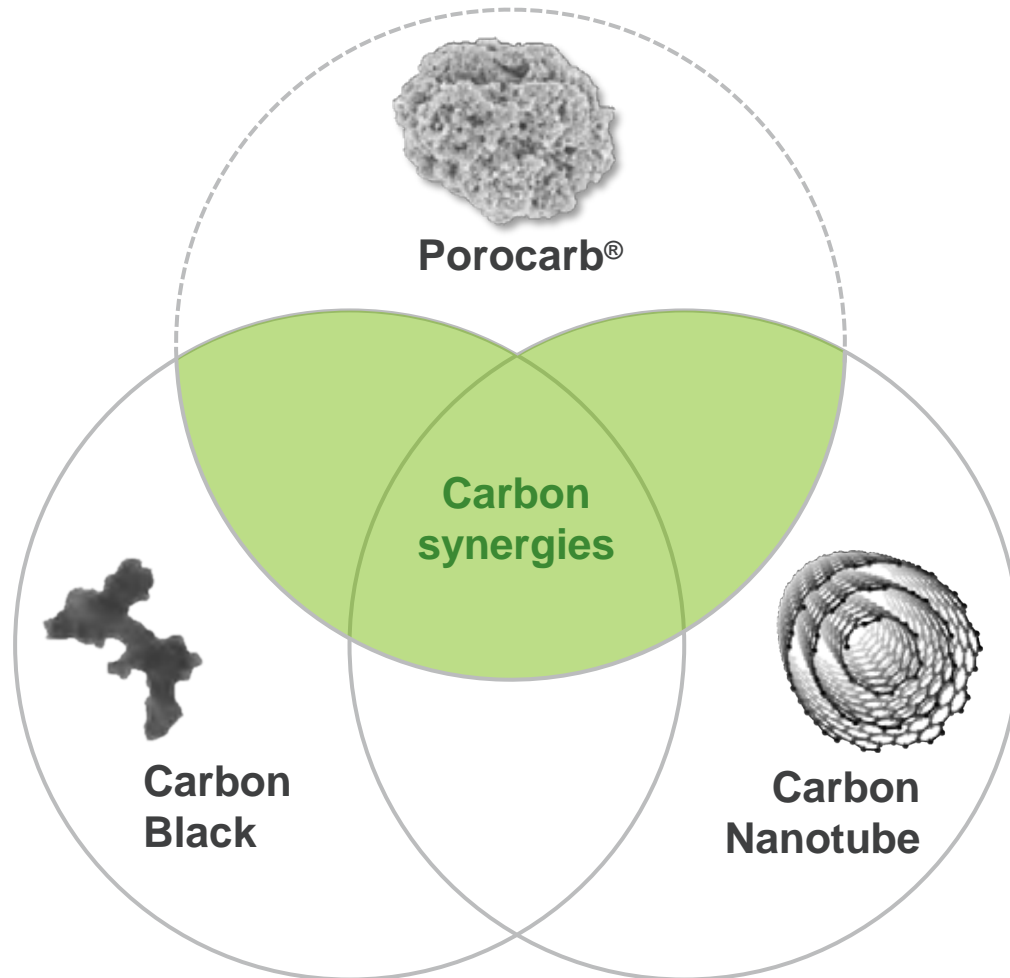

Ready-to-use product in form of dry carbon
single particle powder, allowing easy and
stable wet & dry electrode processing



THE CARBON ADDITIVE LANDSCAPE

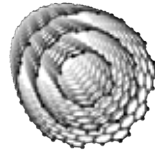


ADDING A NEW DEGREE OF FREEDOM FOR CARBON PERCOLATION

Carbon Black

- Electrical conductivity
- Small particles
- Percolation network



Carbon Nanotube

- Electrical conductivity
- Long fibrous
- Flexible structure



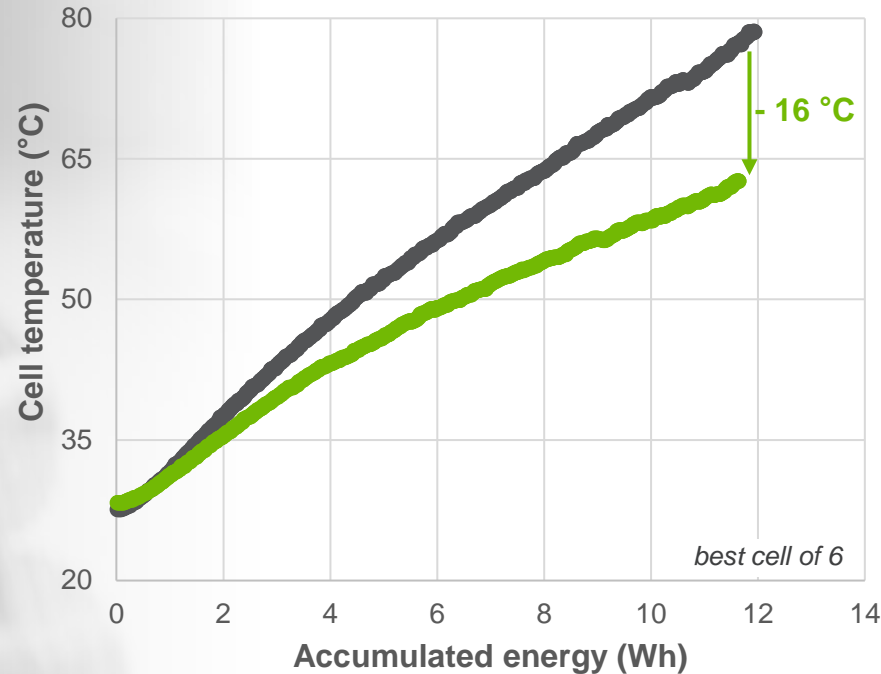
Porocarb®

- Electrolyte transport
- Thermal conductivity
- Large porous particles



How can
Porocarb®
improve your
battery?

REDUCED CELL HEATING BEHAVIOR

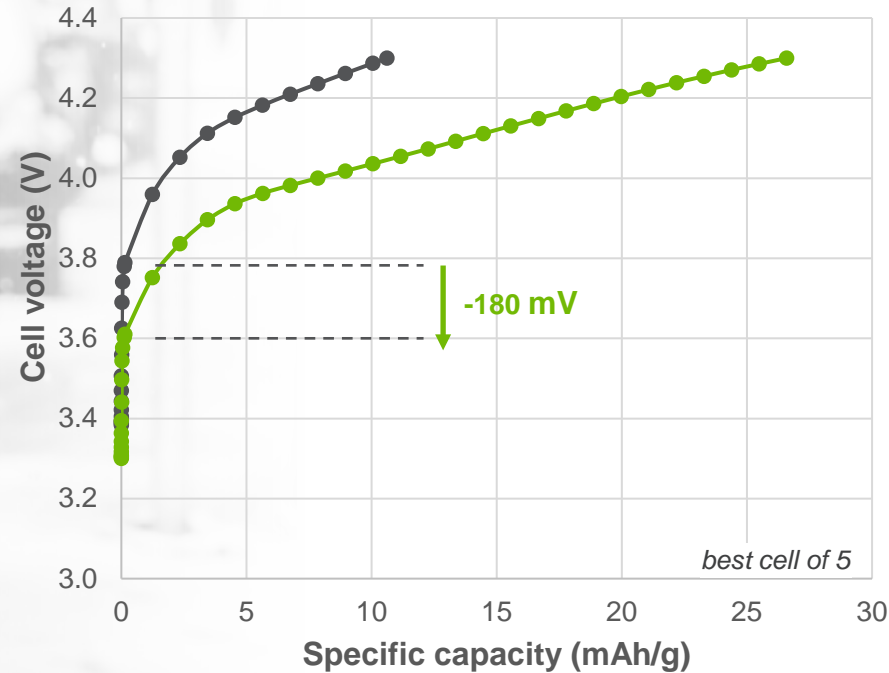


★	Heraeus Case study	
🔋	Design:	Power cell
📏	Form factor:	21700
⬡	Electrode:	Cathode
⬢	Active Mat.:	NMC
🌍	Region:	Asia
🚩	KPI:	Safety
⬢	Carbon:	Ref. / Porocarb

Key results

- Use of **Porocarb®** grade is improving cell heating behavior of constant high current discharge
- 1kHz Impedance, discharge power and usable energy is comparable with **reference** system
- Reduction of cell heating during discharge by up to 20% preventing the temperature cut-off

IMPROVED LOW TEMPERATURE CHARGING



★	Heraeus Case study	
🔋	Design:	Energy cell
📱	Form factor:	Coin cell
⬡	Electrode:	Anode
🔬	Active Mat.:	SiOx / Graphite
🌍	Region:	Europe
🚩	KPI:	Low temp. charging
⬢	Carbon:	Ref. / Porocarb



Key results

- Observing similar first cycle efficiency for the cell with **Porocarb®** compared with **reference** cell
- **Porocarb®** is improving the low temperature (0 °C) charging capacity
- Addition of **Porocarb®** is reducing the initial overpotential of the charging reaction by up to 180 mV