

R&D Materials – preliminary data sheet

# Porous electrode materials and catalyst supports

## Carbon fiber nonwovens



↑ Carbon fiber nonwoven rolls

In addition to our standard carbonized and graphitized felts, we also offer customized textile structures with tailored characteristics for various applications, e.g. in the field of energy storage, fuel cells, electrolysis, decalcification or as catalyst support or filter material. Among other factors, the thickness, porosity, compressibility and conductivity of the textile can be adjusted. Additionally, the surface can be functionalized or functional additives can be integrated in the textile. Examples of customized nonwovens in development are given below.

### Material properties [preliminary]

Properties		Units	High strength carbon fiber felt	High surface area carbon fiber felt	Graphitized high surface area carbon fiber felt
Thickness	[5 PSI]	mm	1.8	4.5	4.5
Thickness	[0.5 MPa]	mm	1.0	2.1	1.8
Area weight		g/m <sup>2</sup>	450	550	500
Porosity		%	85	95	95
Compressibility	[0.5 MPa]	%	45	55	60
Through-plane area-specific resistance	[5 PSI]	mΩ x cm <sup>2</sup>	200	1800	500
Through-plane area-specific resistance	[0.5 MPa]	mΩ x cm <sup>2</sup>	40	700	120
Tensile strength		MPa	> 2.5	< 0.2	< 0.1
Specific surface area	[BET]	m <sup>2</sup> /g	< 1	> 300	> 40



↑ Cross-section view of a carbon fiber needle felt

