

R&D Materials – preliminary data sheet

# Tubular carbon fiber textiles

## Nonwoven based seamless tubes



↑ Seamless carbon fiber needle felt with different dimensions

Using advanced consolidation technology for carded webs it is possible to manufacture homogenous and seamless carbon fiber based hollow cylinders with radial-symmetric properties in customizable diameters and wall thicknesses.

Properties like chemical resistance, electrical conductivity, high open porosity or thermal insulation behavior make the customized tubes suitable as a filter media, electrode for e.g. electrolysis or [waste] water treatment or high temperature insulation material.

By varying the raw material and the fabrication process the chemical stability, the electrical resistivity and max. application temperature can be further adjusted.

### Material data of carbon fiber based tubes (preliminary)

Typical properties	Units	Example-1	Example-2	Example-3
Outer/inner diameter	mm	30/15	55/45	165/135
Wall thickness	mm	7.5	5	15
Length	mm	100	200	500
Density	g/cm <sup>3</sup>	0.10	0.17	0.15
Open porosity	%	> 90	> 90	> 90
Through plane area specific resistance [0.5 MPa]	mΩ x cm <sup>2</sup>	1000	1000	150
Max. ash content	%	0.1	0.1	0.1
Max. application temperature in air	°C	< 200	< 200	< 250



↑ Cross section view of a carbon fiber needle felt

Customized dimensions, thermal treatment and activation on request.



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