Carbonized rayon fabric

Extremely temperature resistant, high-quality carbon fabric

SGL Carbon produces carbon fabric since 1976 and played a major role in the US Space Shuttle Program with NASA. At our Valencia/CA, USA site 100 % rayon based, continuous filament satin weave cloth is processed into carbonized fabric via a strongly monitored carbonization process at T < 1200 °C.

Properties
- Resilient to extreme temperatures
- Outstanding ablative behavior
- Insulative and lightweight
- Excellent mechanical properties
- High quality and purity

Carbon fabric is used to produce carbon cloth composite materials like phenolic resin materials. The composites are key for protecting structural components from heat by functioning as ablative materials and are therefore critical to their safe operation.

Applications
SGL Carbon carbonized rayon fabric is suitable for the most demanding and extreme high-temperature applications like
- Rocket nozzles
- Combustion chambers
- Solid rocket booster
- Very high temperature heat shielding

Material data of carbonized fabric

Properties		Test methods (ASTM)	Units	Typical values of fabric grade CSA-5	CSA-8
Satin weave				5-harness weave	8-harness weave
Carbon content		D5373	%	98.0	97.0
Ash content		C561	%	0.2	0.2
Weight		D3776	g/m²	275	270
			oz/yd²	8.1	8.0
Thread count	Warp direction	D3775	tpi	47	50
	Fill direction			46	49
Specific gravity		D3800		1.84	1.85
Break strength	Warp direction	D5034	kg (lb)	25 (55)	9 (20)
	Fill direction			22 (48)	7 (15)
Modulus of elasticity [1]	Warp direction	D5034	MPa (psi)	480 (70,000)	480 (70,000)
	Fill direction			380 (55,000)	380 (55,000)
Moisture		C562	%	< 1.0	< 1.0
pH		D2165		6.9	6.9
Electrical resistivity		Multimeter	ohm-in²	0.83	0.63

[1] Data based on single test and assumptions only.
Other grades are available on request. Please contact us.
Unless stated otherwise, all values are measured in accordance with referenced test methods, non-binding and nominal. They may be subject to change and do not constitute an actual specification value.

↑ Carbonized fabric

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