

SIGRATHERM[®] graphitized microballoons

Hollow graphitized microspheres as composite material lightweight functional filler

SGL Carbon's graphitized microballoons are designed as a unique and special filler material e.g. for epoxy, polyurethane or polyester resins to reduce their density and increase their strength and dimensional stability. By adding microballoons, the thermal expansion of a composite can be decreased. Microballoons function as nonhalogenated flame-resistant filler and support to provide greater thermal insulation.

Phenolic resin microspheres are carbonized and graphitized at 2000 °C (3632 °F) to produce graphitized microballoons of very high purity.

Main properties

- Excellent temperature resistance, in air up to 500 °C (932 °F), in inert gas atmosphere and vacuum up to 3000 °C (5432 °F)
- Good strength to weight ratio
- Chemically inert
- Narrow particle size distribution
- Low thermal conductivity
- Smooth surface
- Excellent compatibility e.g. with resins

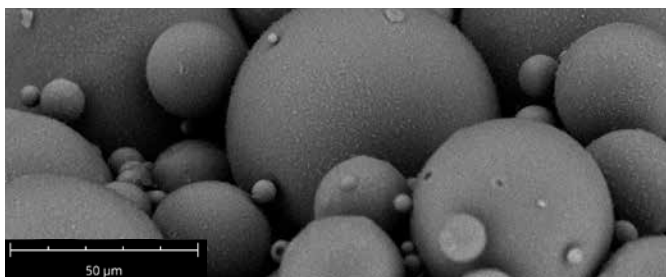
Material data of graphitized SIGRATHERM[®] microballoons

Properties	Test methods	Units	Typical values ¹⁾
Carbon content	ASTM D5373	%	99.8
Ash content	ASTM C561	%	0.2
Moisture content	ASTM C562	%	0.1
Tap density	ASTM D3800	g/cm ³ (lb/ft ³)	0.18 [11.2]
True particle density	DIN 51913	g/cm ³ (lb/ft ³)	0.45 [28]
Compressive strength			
90 % survival	ASTM D3102-78	MPa (psi)	2.0 [290]
Compressive strength			
80 % survival	ASTM D3102-78	MPa (psi)	4.2 [610]
Sodium content		ppm	25
Sinkers		%	15
Particle size			
< 50 mesh/300 µm	ASTM E11	%	98
D50	ISO 13320	µm	51
BET	DIN ISO 9277	m ² /g	1.25

¹⁾ Unless stated otherwise, all values are valid at room temperature, typical, non-binding and subject to change. For any engineering/design purposes please always contact our technical sales team.



↑ Graphitized microballoons appear as a fine powder



↑ SEM image of SIGRATHERM graphitized microballoons

