

SIGRATHERM® graphitized microballoons

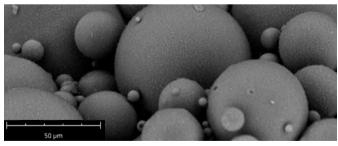
Hollow graphitized microspheres as composite material lightweight functional filler

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.



 \uparrow Graphitized microballoons appear as a fine powder



↑ SEM image of SIGRATHERM graphitized microballoons

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/cm³ (lb/ft³)	0.18 [11.2]
True particle density	DIN 51913	g/cm³ (lb/ft³)	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 ISO 13320	<u>%</u>	98
BET	DIN ISO 9277	μm m²/g	1.25
DE I	DII 100 02//		1.20

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.



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