

FILLITE® CENOSPHERES

The all-round solution

Introduction

Fillite cenospheres are a glass hard, inert, hollow silicate sphere. They are primarily used to reduce the weight of plastics, rubbers, resins, cement, etc., but also impart further benefits in many situations. Many of the advantages from the use of Fillite, including increased filler loading and improved rheology, are directly attributed to the spherical nature of the material.

Characteristics

- Lightweight.
- Free-flowing.
- Gray in colour.
- Spherical.
- Inert.

Typical Applications Standard Grades & SG (500) Grades

- Refractories.
- PVC flooring.
- Oilwell cements.
- Brake linings.
- Phenolics.
- Epoxies.
- Cast Polyesters.
- Synthetic marbles.
- Syntactic foams.
- BMC, SMC and FRP.
- Low density cements.
- Shotcrete.
- Gypsum board joint compounds.
- Automotive sound-dampening sheets.

Typical Applications Speciality Grades (High Alumina)

SGHA has a higher alumina content than the normal Fillite grades and has been specifically developed for higher temperature applications such as:

- Refractories
- Foundry applications
- High temperature resistant coatings.

Other higher alumina grades are whiter in colour and particularly suitable for:

- Gypsum board jointing compounds.
- Veneering plasters.
- Stuccos.
- Sealants.
- Coatings.
- Cast resins.

Advantages

- Reduced weight.
- Increased filler loadings.
- Better flow characteristics.
- Less shrinkage and warping.
- Improved physical properties in mouldings, castings and laminates.
- Reduced water absorption.
- Improved flame retardance.
- Improved chemical resistance.

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Chemical Properties

		Standard & SG (500) Grades	Specialty Grades (High Alumina)
Shell	Al ₂ O ₃	27%-33%	34%-39%
	SiO ₂	55%-65%	55%-65%
	Fe ₂ O ₃	6% maximum	2% maximum
Gas	Carbon Dioxide	70%	70%
	Nitrogen	30%	30%

Physical Properties

	Standard & SG (500) Grades	Specialty Grades (High Alumina)
Average Particle Density	0.6-0.85 g/cc (44lbs/ft ³)	0.7-0.9 g/cc (44lbs/ft ³)
Average Bulk Density	0.35-0.45 g/cc (25lbs/ft ³)	0.4-0.48 g/cc (25lbs/ft ³)
Packing Factor	60%-65%	60%-65%
Hardness	Mohs Scale 5	Mohs Scale 5
Average Wall Thickness	5%-10% Sphere Diameter	5%-10% Sphere Diameter
Melting Temperature	1200°C-1350°C (2190°F-2460°F)	1400°C (2250°F)
Thermal Conductivity	0.11 Wm – 1K – 1	0.11 Wm – 1K – 1
Loss on Ignition	2% maximum	2% maximum
Surface Moisture	0.3% maximum	0.3% maximum
Crush Strength	105-210 kg/cm ² (1500 – 3000 psi)	140-280 kg/cm ² (2000 – 4000 psi)

Grades

	Standard Grades & SG (500) Grades						High Alumina		
	SG (500)	52/7S (355)	FG (300)	PG (300LF)	160	106	SGHA(500HA)	300W	160W
Particle Size Range (microns)	5 to 500	5 to 355	5 to 300	5 to 355	5 to 180	5 to 106	5 to 500	5 to 355	5 to 180
Particle Size Distribution									
% Passing 500 microns	100	100	100	100	100	100	100	100	100
% Passing 300 microns	85-100	95-100	99.5-100	97-100	100	100	85-100	97-100	100
% Passing 180 microns					99.5-100				99.5-100
% Passing 150 microns	30-80	30-80	40-80	30-60		100	30-70	40-70	
% Passing 100 microns	25-55	25-55	25-55	15-30	40-80	99.7-100	10-30	10-30	30-60
% passing 50 microns	2-10	5-10	5-10	2-10	10-20	15-30	2-10	2-10	10-20



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