Apogee
ceramics inc.

Optiflo SF: Silicon carbide ceramic foam filter

Application:

Silicon carbide based ceramic foam filters are designed for filtering all types of iron including grey and ductile. The maximum application temperature for SiC foam filters is 1500°C/2732°F.

Molten Metal Filtration:

Apogee's filters are designed for use in grey and ductile iron applications to prevent contaminants such as slag, inoculant residues and sand grains from entering the casting mould cavity. The characteristically large surface area of the reticulated foam is well suited to intensive filtration and even finely distributed slag particles are retained both on the filter surface and in the filter structure. Apogee's foam filters exhibit high filtration effectiveness and reduced gating turbulence.

Filtration Efficiency:

Apogee's filters can be positioned vertical, horizontal or diagonally depending on the design of the runner gating system. Filtration efficiency is dependent on the correct application and positioning of the filter. Apogee's Technical Sales teams are able to provide technical support for the design of gating systems. For optimal filter efficiency it is recommended that the filter is positioned correctly and sized according to our guidelines.

Filtration Benefits:

The use of Apogee's SiC filters can achieve significant benefits throughout the foundry process. Some of the notable benefits include:

- Casting quality improvements with improved surface finish, casting cleanliness.
- Improved mechanical properties due to cleaner metal and reduced internal defects.
- Lower scrap costs by reducing scrap levels.
- Reduced casting machining costs.
- Higher Production yield per tonnage of metal melted due to simplified gating systems.
- Reduced machining costs due to reduced tool wear.
- Reduced inspection costs - destructive and non-destructive.

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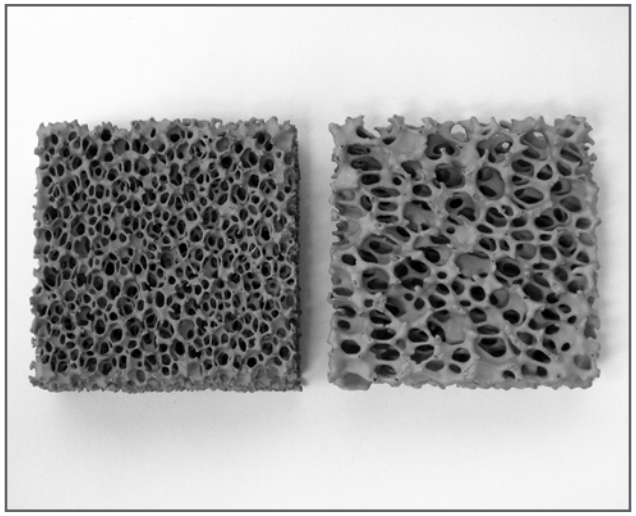
Physical Properties:

Material Composition	SiC/Al2O3/SiO2
Maximum Operating Temperature (°C/F)	≤1500°C / ≤2732°F
Color	Dark Gray
Hole density (ppi)	10/20/30ppi (+/- 2 ppi)
Open Volume (%)	80 - 90
Compressive Strength (MPa @ 25°C)	≥1.0
Bulk Density (g/cm^3)	0.36 - 0.5



Dimensions:

Apogee's SiC foam filters are available in all standard dimensions. Non standard sizes can also be supplied on request. Filters can be provided within the below dimensional limits.

- **Length/Diameter:** 35mm to 200mm
- **Width:** 35mm to 200mm
- **Thickness:** 11mm to 40mm
- **Dimensional Tolerances:** ±1.0mm for filters under 100mm
  ±2.0mm for filters above 100mm
- **Pore size:** 10/20/25/30 ppi (pores per inch)
- **Pore Tolerance:** ± 2 ppi

Flow Capacity:

General filter capacity calculations.

- **Gray Iron:** Maximum Capacity (kg)
  = Filter area (cm^2) x 4
  Example: 50 x 50 x 22mm
  Filtering capacity is: 5 x 5 x 4 = 100kg
- **Ductile Iron:** Maximum Filtration Capacity
  = Filter area (cm^2) x 2
  Example: 50 x 50 x 22mm
  Filtering capacity is: 5 x 5 x 2 = 50kg

Typical Filter Dimension (mm)	Maximum Pour Weight (kg)		Suggested Flow Rate Range (kg/s)	
	Ductile	Grey	Ductile	Grey
50 x 50 x 22	50	100	4	6
75 x 75 x 22	110	220	9	14
100 x 100 x 22	200	400	16	24
150 x 150 x 22	450	900	36	54
50 x 22	35	70	3	4.5
70 x 22	75	150	5.5	8.8
100 x 22	140	280	11	17

NOTE: Above capacity and flow rate figures are for reference only. Metal type and gating system will dictate the final values for each size of filter.

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