

Calcium silicate, carbon fibre reinforced

CALCAST® CC 60

CALCAST® CC 60 is a carbon fibre reinforced calcium silicate, containing about 2 % carbon fibres with a maximum length of 6 mm. The material is suitable up to temperatures of 1,000 °C, is not wettable by liquid aluminium and well insulating.

CALCAST® CC 60 is characterized by a high work of fracture. This property is based on the lack of a form fit and a force lock of the carbon fibres with the calcium silicate matrix. As a result, cracks lose their fracture energy and do not lead to complete fracture. This is demonstrated by a significant fibre-pull-out in the fractured areas. The physically brittle ceramic material behaves quasi pseudoplastic when it fails.

Due to the non problematic fracture behaviour of **CALCAST® CC 60** it is an ideal material for applications where high tensile and torsion forces are present. Cracks do not lead to complete failure of the component.

Typical components are hot top rings, transition plates, header plates, spouts, casting boxes and many more parts.

SPECIAL FEATURES

- nonproblematic pseudoplastic fracture behavior
- no wetting with liquid non-ferrous metals
- dimensionally stable
- precisely machinable



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CALCAST® CC 60		Method	Unit			
Upper application limit temperature		EN 1094-6	°C	1,000		
Bulk density (± 10%)		EN 1602	kg/m ³	850		
Open porosity (in acc. with standard)		EN 993-1	%	60		
Compression strength		EN 826	MPa	25		
Flexural strength		EN 12089	MPa	10		
Hardness		DIN 53505	Shore D	70		
Oil absorption		internal testmethod	minute	400		
Shrinkage after 12 h		EN 1094-6	%			
Length and width	750 °C			0.7		
Thickness	750 °C			1.3		
Length and width	1,000 °C			0.9		
Thickness	1,000 °C			1.8		
Thermal conductivity λ at t_m		EN 12667	W/(m K)	200 °C	0.18	
				400 °C	0.20	
				600 °C	0.21	
				800 °C	0.30	
Specific thermal capacity			kJ/kg K	0.8 - 1.2		
Thermal expansion coefficient		DIN 51045-5	K ⁻¹ x 10 ⁻⁶	⊥	//	
⊥ perpendicular to board plane // parallel to board plane				6.4	6.4	
Chemical composition			%			
Calcium silicate hydrate				91 - 92		
Carbon				1 - 2		
R _x O _x (R=Fe, Ti, K, Na)				0.5		
Annealing loss				6.5		
Dimensions						
Standard sizes		Tolerances				
		Length	± 3	mm	1,250	
		Width	± 3	mm	1,000	
		Thickness	0/+0.8	mm	12.7/19.1/25.4/31.8/38.1/50.8/76.2/101.6	
		Surfaces machined.				
Other dimensions are available on request.						

The properties mentioned are typical values obtained according to the listed methods. Product variations have to be taken into account. The data do not represent guaranteed properties and cannot be used for any warranty claim. Data are subject to technical modifications.