

Fortron® 6165A4

Polyphenylene Sulfide

Celanese Corporation

Message:

Fortron 6165A4 offers a unique balance of properties based on a high mineral and glass reinforced composition. The heat resistance under load bearing conditions is excellent for this product. As with all Fortron grades this product is inherently flame-retardant. Applications include electronic components (i.e. lamp houses, connection parts and sockets) and components in industry (i.e. pumps and pistons).

General Information		
UL YellowCard	E107854-237748	E107854-237749
Filler / Reinforcement	Glass \mineral, 65% filler by weight	
Features	Flame retardancy	
Uses	Pump parts	
	Electrical/Electronic Applications	
	Connector	
	Shell	
RoHS Compliance	Contact manufacturer	
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)	
	Shear Modulus vs. Temperature (ISO 11403-1)	

Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	2.00	g/cm ³	ASTM D792
--	1.95	g/cm ³	ISO 1183
Specific Volume	0.502	cm ³ /g	ASTM D792
Spiral Flow	15.5		Internal method
Specific Heat Capacity of Melt	1600	J/kg/°C	Internal method
Specimen Thickness - Shrinkage	3.18	mm	Internal method
Melt Mass-Flow Rate (MFR)	7.5	g/10 min	ASTM D1238
Molding Shrinkage			
Flow	0.10 - 0.20	%	ASTM D955
Transverse flow	0.30 - 0.50	%	ASTM D955
Vertical flow direction	0.30 - 0.70	%	ISO 294-4
Flow direction	0.20 - 0.60	%	ISO 294-4
Water Absorption (Saturation, 23°C)	0.020	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			
Class m	100		ASTM D785
M scale	100		ISO 2039-2
Mechanical	Nominal Value	Unit	Test Method

Tensile Modulus	19000	MPa	ISO 527-2/1A/1
Tensile Strength			
Fracture, 23°C	131	MPa	ASTM D638
Fracture	130	MPa	ISO 527-2/1A/5
Tensile Elongation			
Fracture, 23°C	1.3	%	ASTM D638
Fracture	1.2	%	ISO 527-2/1A/5
Flexural Modulus (23°C)	18800	MPa	ISO 178
Flexural Stress ¹	210	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-30°C	7.0	kJ/m ²	ISO 179/1eA
23°C	7.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength			ISO 179/1eU
-30°C	20	kJ/m ²	ISO 179/1eU
23°C	20	kJ/m ²	ISO 179/1eU
Notched Izod Impact			ISO 180/1A
-30°C	6.0	kJ/m ²	ISO 180/1A
23°C	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength (23°C)	20	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, annealed	280	°C	ASTM D648
1.8 MPa, not annealed	266	°C	ASTM D648
1.8 MPa, not annealed	270	°C	ISO 75-2/A
8.0 MPa, not annealed	215	°C	ISO 75-2/C
Glass Transition Temperature ²	90.0	°C	ISO 11357-2
Melting Temperature ³	280	°C	ISO 11357-3
Linear thermal expansion coefficient			ISO 11359-2
Flow	1.9E-5	cm/cm/°C	ISO 11359-2
Lateral	2.4E-5	cm/cm/°C	ISO 11359-2
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity			
--	1.0E+16	ohms · cm	ASTM D257
--	> 1.0E+17	ohms · cm	IEC 60093
Dielectric Strength	25	kV/mm	IEC 60243-1
Dielectric Constant			
1 kHz	5.40		ASTM D150
1 MHz	5.60		ASTM D150, IEC 60250
Dissipation Factor			
1 kHz	1.0E-3		ASTM D150

1 MHz	9.0E-4		ASTM D150
1 MHz	2.0E-3		IEC 60250
Arc Resistance	182	sec	ASTM D495
Comparative Tracking Index	175	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.750 mm	V-0		UL 94
1.50 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Oxygen Index	53	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	130 - 140	°C	
Drying Time	3.0 - 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	20.0 - 30.0	°C	
Rear Temperature	290 - 300	°C	
Middle Temperature	310 - 320	°C	
Front Temperature	330 - 340	°C	
Nozzle Temperature	310 - 330	°C	
Processing (Melt) Temp	330 - 340	°C	
Mold Temperature	140 - 160	°C	
Injection Pressure	50.0 - 100	MPa	
Injection Rate	Fast		
Holding Pressure	30.0 - 70.0	MPa	
Back Pressure	0.00 - 3.00	MPa	
Injection instructions			
Manifold Temperature: 330 to 340°CZone 4 Temperature: 330 to 340°CFeed Temperature: 60 to 80°C			
NOTE			
1.	Break		
2.	10°C/min		
3.	10°C/min		

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