

VESTORAN® 1900GF20

Polyphenylene Ether
Evonik Industries AG

Message:

Modified polyphenylene ether (PPE), heat resistant, glass fiber-reinforced, suitable for plastic/rubber composites manufactured by the K&K process VESTORAN is the registered trademark of Evonik Degussa GmbH for molding compounds containing poly-2,6-dimethyl-1,4-phenylene ether as polymeric constituent (polyphenylene ether, PPE, also referred to as PPO).

As a material of amorphous structure VESTORAN 1900GF20 shows very small mold, shrinkage. Therefore molded parts have a very low tendency to warp. Moldings of VESTORAN 1900GF20 are dimensionally stable and hydrolysis resistant even in hot water, but are more sensitive to organic solvents than semi-crystalline plastics. VESTORAN 1900GF20 is resistant to aqueous alkalines and acides, certain alcohols, and glycol solutions.

Glass fiber reinforcement of this molding material combines outstanding heat deflection temperature under load with high strength and rigidity. The even smaller shrinkage compared to non-reinforced VESTORAN depends on the orientation of the glass fibers in the molded parts. VESTORAN 1900GF20 is particularly suitable for the adhesion promoter-free manufacturing of plastic/rubber composites by the Evonik Degussa GmbH-patented K&K process.

Compared to VESTORAN 1900, VESTORAN 1900GF20 offers higher rigidity and strength.

Colored material contains only cadmiumfree pigments.

General Information			
UL YellowCard	E100203-217731		
Filler / Reinforcement	Glass fiber reinforced material, 20% filler by weight		
Features	Good dimensional stability		
	Low warpage		
	Rigidity, high		
	High strength		
	Good adhesion		
	alkali resistance		
	Alcohol resistance		
	Heat resistance, high		
	Hydrolysis resistance		
	acid resistance		
Forms	Low shrinkage		
	amorphous		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.19	g/cm³	ISO 1183
Melt Volume-Flow Rate (MVR) (300°C/21.6 kg)	15.0	cm³/10min	ISO 1133
Molding Shrinkage ¹			ISO 294-4
Vertical flow direction	0.60	%	ISO 294-4
Flow direction: 80°C, 2.00mm	0.50	%	ISO 294-4
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	5600	MPa	ISO 527-2

Tensile Stress (Break)	110	MPa	ISO 527-2
Tensile Strain (Break)	3.0	%	ISO 527-2
Flexural Modulus	5700	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-30°C, complete fracture	12	kJ/m ²	ISO 179/1eA
0°C, complete fracture	12	kJ/m ²	ISO 179/1eA
23°C, complete fracture	12	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength			ISO 179/1eU
-30°C, complete fracture	50	kJ/m ²	ISO 179/1eU
0°C, complete fracture	50	kJ/m ²	ISO 179/1eU
23°C, complete fracture	50	kJ/m ²	ISO 179/1eU
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, not annealed	190	°C	ISO 75-2/B
1.8 MPa, not annealed	185	°C	ISO 75-2/A
Vicat Softening Temperature			
--	200	°C	ISO 306/A
--	190	°C	ISO 306/B
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity ²	1.0E+13	ohms	IEC 60093
Volume Resistivity	1.0E+13	ohms·cm	IEC 60093
Dielectric Strength	33	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
100 Hz	2.90		IEC 60250
1 MHz	2.70		IEC 60250
Dissipation Factor			IEC 60250
100 Hz	8.0E-4		IEC 60250
1 MHz	1.8E-3		IEC 60250
Comparative Tracking Index			IEC 60112
Solution a ³	175	V	IEC 60112
Solution a	200	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.800 mm	HB		UL 94
1.60 mm	HB		UL 94
Oxygen Index	29	%	ISO 4589-2
Additional Information	Nominal Value	Unit	Test Method
Electrolytical Corrosion - Step	A1		IEC 60426
Relative Weld Line Strength	60	%	ISO 527
Injection	Nominal Value	Unit	
Drying Temperature	80.0 - 110	°C	

Drying Time	< 2.0	hr
Rear Temperature	280	°C
Middle Temperature	300	°C
Front Temperature	320	°C
Nozzle Temperature	320	°C
Processing (Melt) Temp	310 - 340	°C
Mold Temperature	125	°C
Injection Pressure	80.0 - 160	MPa
Back Pressure	0.500 - 1.00	MPa
Screw L/D Ratio	20.0:1.0	
Screw Compression Ratio	2.0 : 1.0 - 3.0 : 1.0	
Vent Depth	0.050	mm

Injection instructions

Nozzle: Diameter min. 3 mmHolding pressure: 50 to 80% of injection pressureHydraulic back pressure: 5 to 10 bar, no decompression (specific back pressure 50 to 100 bar)

NOTE

1. determined on 2 mm sheets with film gate at rim mold temperature 80°C
2. Roa
3. 100 drop value

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