LNP™ THERMOTUF™ COMPOUND WF004N

DESCRIPTION

LNP™ THERMOTUF™ WF004N (experimental grade name as ER007485) is a PBT based compound containing 20% glass for Nano-Molding Technology (NMT) application. Added features of this material include: low dielectric constant (Dk), good metal bonding strength, and good chemical resistance.

TYPICAL PROPERTY VALUES

Revision 20191217

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, brk, Type I, 5 mm/min	87	MPa	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	3.2	%	ASTM D 638
Tensile Modulus, 5 mm/min	5740	MPa	ASTM D 638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	138	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	5300	MPa	ASTM D 790
Tensile Stress, break, 5 mm/min	88	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3.3	%	ISO 527
Tensile Modulus, 1 mm/min	5650	MPa	ISO 527
Flexural Stress, break, 2 mm/min	139	MPa	ISO 178
Flexural Modulus, 2 mm/min	5090	MPa	ISO 178
Bonding Strength ("T" treatment, shear type)	31	MPa	ISO 19095
IMPACT			
Izod Impact, notched, 23°C	120	J/m	ASTM D 256
Izod Impact, notched, -20°C	93	J/m	ASTM D 256
Izod Impact, unnotched, 23°C	795	J/m	ASTM D 4812
Izod Impact, notched 80*10*4 +23°C	12	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -20°C	9.5	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	47	kJ/m²	ISO 180/1U
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	203	°C	ASTM D 648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	194	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	219	°C	ISO 75/Bf
CTE, 23°C to 80°C, flow	2.9E-05	1/°C	ASTM E 831
CTE, 23°C to 80°C, xflow	1.4E-04	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	3.6E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.6E-05	1/°C	ASTM E 831
CTE, 23°C to 80°C, flow	3.1E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.4E-04	1/°C	ISO 11359-2
CTE, -40°C to 40°C, flow	3.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.7E-05	1/°C	ISO 11359-2
Relative Temp Index, Elec (1)	75	°C	UL 746B
Relative Temp Index, Mech w/impact (1)	75	°C	UL 746B
Relative Temp Index, Mech w/o impact (1)	75	°C	UL 746B
PHYSICAL			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Density	1.28	g/cm³	ISO 1183
Melt Flow Rate, 275°C/5 kgf	20	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 275°C/5 kg	18	cm³/10 min	ISO 1133
Mold Shrinkage, flow	0.55	%	SABIC method
Mold Shrinkage, xflow	1.05	%	SABIC method
ELECTRICAL			
Dielectric Constant, 1.1 GHz	2.95	-	SABIC method
Dielectric Constant, 1.9 GHz	2.93	-	SABIC method
Dielectric Constant, 5 GHz	2.96	-	SABIC method
Dielectric Constant, 10 GHz	2.97	-	SABIC method
Dissipation Factor, 1.1 GHz	0.0092	-	SABIC method
Dissipation Factor, 1.9 GHz	0.0090	-	SABIC method
Dissipation Factor, 5 GHz	0.0079	-	SABIC method
Dissipation Factor, 10 GHz	0.0075	-	SABIC method
FLAME CHARACTERISTICS (1)			
UL Yellow Card Link	E207780-103831978	-	-
UL Recognized, 94HB Flame Class Rating	≥1	mm	UL 94
INJECTION MOLDING			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 4	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	265 – 285	°C	
Nozzle Temperature	265 – 285	°C	
Front - Zone 3 Temperature	265 – 285	°C	
Middle - Zone 2 Temperature	260 – 280	°C	
Rear - Zone 1 Temperature	250 – 270	°C	
Mold Temperature	100 – 160	°C	

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

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