LNP™ ELCRIN™ WFB16NiQ

DESCRIPTION

LNP ELCRIN WFB16NiQ (experimental grade name as ER010895) is an iQ PBT/glass fiber compound for nano-molding technology (NMT) application. Added features of this material include: >20% PCR content, balanced low Dk and high modulus, good metal bonding force, high impact strength, and good chemical resistance.

GENERAL INFORMATION	
Applications	Displays, Electrical Components & Infrastructure, Electrical
Features	Chemical Resistance, Sustainable (Advanced Recycling), Nano molding technology, High stiffness/Strength, Impact resistant, No PFAS intentionally added
Fillers	Glass Fiber
Polymer Types	Polybutylene Terephthalate (PBT)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Personal Accessory

TYPICAL PROPERTY VALUES

Revision 20241212

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, brk, Type I, 5 mm/min	110	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3.1	%	ASTM D638
Tensile Modulus, 5 mm/min	9000	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	172	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	7550	MPa	ASTM D790
Tensile Stress, break, 5 mm/min	114	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3.1	%	ISO 527
Tensile Modulus, 1 mm/min	9300	MPa	ISO 527
Flexural Strength, 2 mm/min	171	MPa	ISO 178
Flexural Modulus, 2 mm/min	7600	MPa	ISO 178
Bonding Strength ("T" treatment, shear type)	32	MPa	ISO 19095
IMPACT [1]			
Izod Impact, notched, 23°C	130	J/m	ASTM D256
Izod Impact, notched, -20°C	110	J/m	ASTM D256
Izod Impact, unnotched, 23°C	1000	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	13	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -20°C	11	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	58	kJ/m²	ISO 180/1U
Charpy Impact, notched, 23°C	12	kJ/m²	ISO 179/2C
Charpy Impact, notched, -20°C	10	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, 23°C	61	kJ/m²	ISO 179/2C
THERMAL [1]			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT, 0.45 MPa, 3.2 mm, unannealed	213	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	196	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	212	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	195	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	2.6E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.7E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	2.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.6E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	1.7E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, xflow	1.6E-04	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	1.9E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.7E-04	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	196	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	194	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	195	°C	ISO 306
Vicat Softening Temp, Rate B/120	193	°C	ISO 306
Relative Temp Index, Elec [2]	75	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	75	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	75	°C	UL 746B
PHYSICAL [1]			
Density	1.39	g/cm³	ISO 1183
Water Absorption, (23°C/24hrs)	0.04	%	ISO 62-1
Moisture Absorption, (23°C/50% RH/24hrs)	0.01	%	ISO 62-4
Melt Flow Rate, 275°C/5 kgf	12	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 275°C/5 kg	10	cm³/10 min	ISO 1133
Mold Shrinkage, flow [3]	0.48	%	SABIC method
Mold Shrinkage, xflow [3]	0.76	%	SABIC method
ELECTRICAL [1]			
Dielectric Constant, 1.1 GHz	3.08	-	SABIC method
Dissipation Factor, 1.1 GHz	0.0086	-	SABIC method
Dielectric Constant, 1.9 GHz	3.14	-	SABIC method
Dissipation Factor, 1.9 GHz	0.0078	-	SABIC method
Dielectric Constant, 5 GHz	3.16	-	SABIC method
Dissipation Factor, 5 GHz	0.0063	-	SABIC method
Dielectric Constant, 10 GHz	3.14	-	SABIC method
Dissipation Factor, 10 GHz	0.0066	-	SABIC method
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104690119	-	-
UL Recognized, 94HB Flame Class Rating	≥0.8	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Hopper Temperature	40 – 60	°C	
Melt Temperature	260 – 280	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Nozzle Temperature	250 – 275	°C	
Front - Zone 3 Temperature	250 – 275	°C	
Middle - Zone 2 Temperature	250 – 275	°C	
Rear - Zone 1 Temperature	240 – 265	°C	
Mold Temperature [5]	100 – 150	°C	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.
(2) 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.
(3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.
(5) Suggest to use narrow mold temperature 140°C~150°C for NMT application.

ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

DISCLAIMER