

LNPTM THERMOCOMPTM COMPOUND ZKC04

DESCRIPTION

LNP THERMOCOMP ZKC04 compound is based on Polyphenylene Ether / Polystyrene (PPE/PS) blend containing 20% minerals and impact modifier. Added features of this grade include: High Dielectric Constant (Dk), Extremely Low Dissipation Factor (Df), Good Ductility and Good Thermal Performance.

GENERAL INFORMATION	
Features	Dielectrics, Impact resistant, No PFAS intentionally added
Fillers	Mineral
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Interiors
Consumer	Personal Accessory
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL (1)			
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	51	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	9	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	34	%	ASTM D638
Tensile Modulus, 50 mm/min	2290	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	86	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	84	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2080	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	49	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	8.9	%	ISO 527
Tensile Strain, break, 50 mm/min	33	%	ISO 527
Tensile Modulus, 1 mm/min	2240	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	93	MPa	ISO 178
Flexural Stress, break, 2 mm/min	91	MPa	ISO 178
Flexural Modulus, 2 mm/min	2210	MPa	ISO 178
IMPACT (1)			
Izod Impact, notched, 23°C	720	J/m	ASTM D256
Izod Impact, notched, -20°C	135	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C	55	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -20°C	13	kJ/m²	ISO 180/1A



THEMBAL 10	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
NOT, 0.45 MPa, 3.2 mm, unannealed 174 °C ASM D648 NOT, 1.28 MPa, 3.2 mm, unannealed 194 °C ASM D648 CTC, 40°C to 150°C, flow 68-813 1/°C ASM R831 CTC, 40°C to 150°C, flow 94-65 1/°C ASM R831 NOTZ, 1.5 MBR STANK 60°C 45 specificam 175 C 0575 j/l NOTZ, 1.5 MBR STANK 50°C 45 specificam 65 °C 01746 Relative Temp Index, Mech Wijnipact (**) 65 °C 01746 Relative Temp Index, Mech Wijnipact (**) 77-09 \$ 0.04 Mold Shrinkage, flow (**) 77-09 \$ 0.04 Mold Shrinkage, flow (**) 27-09 \$ 0.04 Mold Shrinkage, flow (**) 27-09 \$ 0.05 Melt Flow Rate, 300°C/5 okg 10 0.06 0.06 Melt Flow Rate, 300°C/5 okg 10 0.06 0.06 Melt Volume Rate, MVR at 300°C/5 okg 10 0.06 0.06 Melt Volume Rate, MVR at 300°C/5 okg 0.06 0.06 0.06 Dielectric Co	THEDMAI (1)			
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CFL. 40°Cto 150°C, rilow 58-808 1°C ASTM 883 1.0 CTE. 40°Cto 150°C, rilow 94-605 1°C ASTM 883 1.0 HDTSE 6.45 Mar Falsw 90°0'4 sp-64mm 155 C 50.75/k HDTJAL 1.8 MPa Plata w80°10'4 sp-64mm 65 C 10.74 Me Relative Temp Index, Rech "In place, Klech "In place, Klech wijnopate" 65 C U.74 Re Relative Temp Index, Mech wijnopate "In place, Klech wijnopate" 67 O.9 S 0.0 U.74 Re Relative Temp Index, Mech wijnopate "In place, Klech wijnopate" 0.7 - 0.9 \$ 0.0<				
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Dissipation Factor, 1.1 GHz0.0009- O.001ABIC methodDissipation Factor, 5 GHz0.0014- O.002ABIC methodDissipation Factor, 10 GHz0.002- O.002ABIC methodFAME CHARACTERISTICs Page 10 Mineral Class RatingE207780-102475263- O.002- O.002Ut Pellow Card LinkE207780-102475263- O.002- O.002Ut Recognized, 94HB Flame Class Rating105- O.002- O.002Diying Temperature105- O.002- O.002- O.002Drying Time3 − 5Hrs- O.002- O.002- O.002Melt Temperature299 − 320- O.002- O.002- O.002Dozzle Temperature290 − 320- O.002- O.002- O.002Tont - Zone 3 Temperature300 − 320- O.002- O.002- O.002Middle - Zone 2 Temperature290 − 310- O.002- O.002- O.002Rear - Zone 1 Temperature280 − 300- O.002- O.002- O.002Mold Temperature90 − 120- O.002- O.002- O.002- O.002Mold Temperature90 − 120- O.002- O.002- O.002- O.002Back Pressure90 − 120- O.002- O.002- O.002- O.002Back	Dielectric Constant, 5 GHz	3.06	-	SABIC method
Dissipation Factor, 1.9 GHz0.0011- CASABIC methodDissipation Factor, 5 GHz0.0014- CASABIC methodBisipation Factor, 10 GHz0.002- CASABIC methodFLAME CHARACTERISTICS (*)Ut Yellow Card LinkE207780-102475263- CA- CAUt Recognized, 94HB Flame Class Rating10mmU.94INJECTION MOLDING (*)Drying Temperature105C- CPrying Time3−5Hrs- CMelt Temperature295−320C- CNozzle Temperature290−320C- CFont - Zone 3 Temperature300−320C- CMiddle - Zone 2 Temperature290−310C- CMel Temperature280−300C- CBear - Zone 1 Temperature280−300C- CMold Temperature90−120C- CMold Temperature30−20MPa- C	Dielectric Constant, 10 GHz	3.06	-	SABIC method
Dissipation Factor, 5 GHz0.0014002SABIC methodDissipation Factor, 10 GHz0.002002SABIC methodFLAME CHARACTERISTICS (²)Ut Yellow Card LinkE207780-102475263002002Ut Recognized, 94HB Flame Class Rating1mmUt 94INJECTION MOLDING (4)Drying Temperature105CPrying Time3 - 5HrsMelt Temperature295 - 320CNozzle Temperature290 - 320CFront - Zone 3 Temperature300 - 320CMiddle - Zone 2 Temperature290 - 310CRear - Zone 1 Temperature280 - 300CMold Temperature90 - 120CMold Temperature90 - 120MPa	Dissipation Factor, 1.1 GHz	0.0009	-	SABIC method
Dissipation Factor, 10 GHz0.002- Canada (Paramateristrics)588 (Paramateristrics)Li Vellow Card LinkE207780-102475263- Canada (Paramateristrics)- U.94UL Recognized, 94HB Flame Class Rating1- Canada (Paramateristrics)- U.94Diving Temperature105- Canada (Paramateristrics)- Canada (Paramateristrics)Diving Time3-5Hris- Canada (Paramateristrics)Melt Temperature295-320- Canada (Paramateristrics)- Canada (Paramateristrics)Mozzle Temperature300-320- Canada (Paramateristrics)- Canada (Paramateristrics)Middle-Zone 2 Temperature290-310- Canada (Paramateristrics)- Canada (Paramateristrics)Mod Temperature90-120- Canada (Paramateristrics)	Dissipation Factor, 1.9 GHz	0.0011	-	SABIC method
FLAME CHARACTERISTICS ⁽²⁾ Ut Yellow Card Link	Dissipation Factor, 5 GHz	0.0014	-	SABIC method
UL Yellow Card Link UL Recognized, 94HB Flame Class Rating 105 Prying Temperature 105 Melt Temperature 205-320 Nozzle Temperature 209-320 Nozzle Temperature 209-320 Nozzle Temperature 300-320 Nozzle Tempera	Dissipation Factor, 10 GHz	0.002	-	SABIC method
UL Recognized, 94HB Flame Class Rating INECTION MOLDING (4) Drying Temperature Drying Time 3 - 5 Melt Temperature 295 - 320 Nozzle Temperature 290 - 320 C Front - Zone 3 Temperature 300 - 320 C Middle - Zone 2 Temperature 300 - 310 C Rear - Zone 1 Temperature 300 - 120 Mold Temperature 303 - 0.9 MPa	FLAME CHARACTERISTICS (2)			
INJECTION MOLDING (4)Drying Temperature105°CDrying Time3 – 5HrsMelt Temperature295 – 320°CNozzle Temperature290 – 320°CFront - Zone 3 Temperature300 – 320°CMiddle - Zone 2 Temperature290 – 310°CRear - Zone 1 Temperature280 – 300°CMold Temperature90 – 120°CBack Pressure0.3 – 0.9MPa	UL Yellow Card Link	E207780-102475263	-	-
Drying Temperature 105 °C Drying Time 3 – 5 Hrs Melt Temperature 295 – 320 °C Nozzle Temperature 290 – 320 °C Front - Zone 3 Temperature 300 – 320 °C Middle - Zone 2 Temperature 290 – 310 °C Rear - Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	UL Recognized, 94HB Flame Class Rating	1	mm	UL 94
Drying Temperature 105 °C Drying Time 3 – 5 Hrs Melt Temperature 295 – 320 °C Nozzle Temperature 290 – 320 °C Front - Zone 3 Temperature 300 – 320 °C Middle - Zone 2 Temperature 290 – 310 °C Rear - Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	INJECTION MOLDING (4)			
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Nozzle Temperature 290 – 320 °C Front - Zone 3 Temperature 300 – 320 °C Middle - Zone 2 Temperature 290 – 310 °C Rear - Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	Drying Time	3 – 5	Hrs	
Front - Zone 3 Temperature 300 – 320 °C Middle - Zone 2 Temperature 290 – 310 °C Rear - Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	Melt Temperature	295 – 320	°C	
Middle - Zone 2 Temperature 290 – 310 °C Rear - Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	Nozzle Temperature	290 – 320	°C	
Rear-Zone 1 Temperature 280 – 300 °C Mold Temperature 90 – 120 °C Back Pressure 0.3 – 0.9 MPa	Front - Zone 3 Temperature	300 – 320	°C	
Mold Temperature 90 − 120 °C Back Pressure 0.3 − 0.9 MPa	Middle - Zone 2 Temperature	290 – 310	°C	
Back Pressure 0.3 – 0.9 MPa	Rear - Zone 1 Temperature	280 – 300	°C	
	Mold Temperature	90 – 120	°C	
Screw Speed 50 – 150 rpm	Back Pressure	0.3 – 0.9	MPa	
	Screw Speed	50 – 150	rpm	



- (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.

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.

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