Property Data

Envalior
Imagine the Future

ForTii® T11

PPA–GF30 FR(40)

30% Glass Fiber Reinforced, PA4T, Electro–friendly, Halogen free and free of red phosphorous, Certified V–0 at 0.2mm

Print Date: 2026–04–09

ForTii® T11 has optimal toughness and is the best solution for (automotive) electrical components in harsh environments to minimize the risk of cracking and to provide design freedom and product reliability in terms of thermal shock ageing >1000 cycles. T11 passes JEDEC MSL 1 reflow performance (for specified thickness), reaches CTI ≥800V for heavy duty components, is all–color VDE approved and has electrical RTI rating of 140°C at 0,75 mm.

PROPERTIES	TYPICAL DATA	UNIT	TEST METHOD
RHEOLOGICAL PROPERTIES	**DRY / COND**		
Molding shrinkage (parallel)	0.3 / *	%	ISO 294–4
Molding shrinkage (normal)	1.2 / *	%	ISO 294–4
MECHANICAL PROPERTIES	**DRY / COND**		
Tensile modulus	11500 / 12000	MPa	ISO 527–1/–2
Tensile modulus (–40°C)	12000 / –	MPa	ISO 527–1/–2
Tensile modulus (80°C)	10800 / 7600	MPa	ISO 527–1/–2
Tensile modulus (100°C)	10000 / –	MPa	ISO 527–1/–2
Tensile modulus (120°C)	8000 / –	MPa	ISO 527–1/–2
Tensile modulus (140°C)	5700	MPa	ISO 527–1/–2
Tensile modulus (160°C)	5000	MPa	ISO 527–1/–2
Stress at break	160 / 150	MPa	ISO 527–1/–2
Stress at break (–40°C)	180 / –	MPa	ISO 527–1/–2
Stress at break (80°C)	130 / 90	MPa	ISO 527–1/–2
Stress at break (100°C)	120 / –	MPa	ISO 527–1/–2
Stress at break (120°C)	105 / –	MPa	ISO 527–1/–2
Stress at break (140°C)	80	MPa	ISO 527–1/–2
Stress at break (160°C)	70	MPa	ISO 527–1/–2
Strain at break	2.2 / 2.1	%	ISO 527–1/–2

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Strain at break (–40°C)	2.3 / –	%	ISO 527–1/–2
Strain at break (80°C)	2.1 / 3.2	%	ISO 527–1/–2
Strain at break (100°C)	2.1 / –	%	ISO 527–1/–2
Strain at break (120°C)	2.9 / –	%	ISO 527–1/–2
Strain at break (140°C)	3.6	%	ISO 527–1/–2
Strain at break (160°C)	4.5	%	ISO 527–1/–2
Flexural modulus	11000 / 11500	MPa	ISO 178
Flexural strength	255 / 230	MPa	ISO 178
Flexural modulus (120°C)	8200	MPa	ISO 178
Flexural modulus (160°C)	5000	MPa	ISO 178
Charpy impact strength (+23°C)	60 / –	kJ/m²	ISO 179/1eU
Charpy notched impact strength (+23°C)	8 / –	kJ/m²	ISO 179/1eA

THERMAL PROPERTIES	DRY / COND		
Melting temperature (10°C/min)	325 / *	°C	ISO 11357–1/–3
Temp. of deflection under load (1.80 MPa)	305 / *	°C	ISO 75–1/–2
Coeff. of linear therm. expansion (parallel)	0.2 / *	E–4/°C	ISO 11359–1/–2
Coeff. of linear therm. expansion (normal)	0.6 / *	E–4/°C	ISO 11359–1/–2
Coeff. of linear therm. expansion (parallel)	0.3	E–4/°C	ASTM D696
Coeff. of linear therm. expansion (normal)	0.35	E–4/°C	ASTM D696
Burning Behav. at 1.5 mm nom. thickn.	V–0 / *	class	IEC 60695–11–10
Thickness tested	1.5 / *	mm	IEC 60695–11–10
UL recognition	Yes / *	–	–
Burning Behav. at 3.0 mm nom. thickn.	V–0 / *	class	IEC 60695–11–10
Thickness tested	V–0 / *	mm	IEC 60695–11–10
UL recognition	3 / *	–	–
Relative Temperature Index – electrical	140	°C	UL746B
RTI electrical (Thickness (1) tested)	0.35	mm	UL746B
Thermal Index 5000 hrs	170	°C	IEC 60216/ISO 527–1/–2

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ELECTRICAL PROPERTIES	**DRY / COND**		
Volume resistivity	>1E13 / >1E13	Ohm*m	IEC 62631-3-1
Electric strength	33 / 33	kV/mm	IEC 60243-1
Comparative tracking index	600 / -	V	IEC 60112
Comparative Tracking Index (above 600V)	≥800V	V	Sim. to IEC 60112
Relative permittivity (100Hz)	4.2 / 4.2	-	IEC 62631-2-1
Relative permittivity (1 MHz)	3.9 / 3.9	-	IEC 62631-2-1
Relative permittivity (1GHz)	3.8 / 3.9	-	IEC 61189-2-721
Relative permittivity (10GHz)	3.8 / 3.9	-	IEC 61189-2-721
OTHER PROPERTIES	**DRY / COND**		
Humidity absorption	1.6 / *	%	Sim. to ISO 62
Density	1460 / -	kg/m³	ISO 1183