Property Data

Envalior
Imagine the Future

ForTii® Ace MX53

PPA–GF50

50% Glass Reinforced, PA4T, Heat Stabilized, for Automotive applications

Print Date: 2024–03–27

ForTii® Ace MX53 is a PPA with unique fatigue performance and chemical resistance. The high aromatic content and high Tg lead to excellent part stiffness and low creep, even up to 150°C. Moisture uptake occurs slowly with very limited impact on dimensions.

PROPERTIES	TYPICAL DATA	UNIT	TEST METHOD
RHEOLOGICAL PROPERTIES	DRY / COND		
Molding shrinkage (parallel)	0.35 / *	%	ISO 294–4
Molding shrinkage (normal)	0.9 / *	%	ISO 294–4
MECHANICAL PROPERTIES	DRY / COND		
Tensile modulus	18000 / 18900	MPa	ISO 527–1/–2
Tensile modulus (–40°C)	18500 / –	MPa	ISO 527–1/–2
Tensile modulus (40°C)	17500 / 17500	MPa	ISO 527–1/–2
Tensile modulus (80°C)	17300 / 16000	MPa	ISO 527–1/–2
Tensile modulus (100°C)	17000 / 11000	MPa	ISO 527–1/–2
Tensile modulus (120°C)	16000 / –	MPa	ISO 527–1/–2
Tensile modulus (150°C)	11500	MPa	ISO 527–1/–2
Tensile modulus (160°C)	10000	MPa	ISO 527–1/–2
Tensile modulus (180°C)	8000	MPa	ISO 527–1/–2
Tensile modulus (200°C)	7200	MPa	ISO 527–1/–2
Stress at break	260 / 250	MPa	ISO 527–1/–2
Stress at break (–40°C)	300 / –	MPa	ISO 527–1/–2
Stress at break (40°C)	235 / 220	MPa	ISO 527–1/–2
Stress at break (80°C)	205 / 160	MPa	ISO 527–1/–2
Stress at break (100°C)	190 / 125	MPa	ISO 527–1/–2
Stress at break (120°C)	170 / –	MPa	ISO 527–1/–2

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Stress at break (150°C)	130	MPa	ISO 527–1/–2
Stress at break (160°C)	120	MPa	ISO 527–1/–2
Stress at break (180°C)	100	MPa	ISO 527–1/–2
Stress at break (200°C)	85	MPa	ISO 527–1/–2
Strain at break	2.1 / 2	%	ISO 527–1/–2
Strain at break (–40°C)	2.3 / –	%	ISO 527–1/–2
Strain at break (40°C)	2 / 2	%	ISO 527–1/–2
Strain at break (80°C)	2 / 2.6	%	ISO 527–1/–2
Strain at break (100°C)	2.05 / 3.4	%	ISO 527–1/–2
Strain at break (120°C)	2.1 / –	%	ISO 527–1/–2
Strain at break (150°C)	3.4	%	ISO 527–1/–2
Strain at break (160°C)	4.1	%	ISO 527–1/–2
Strain at break (180°C)	4.9	%	ISO 527–1/–2
Strain at break (200°C)	5	%	ISO 527–1/–2
Flexural modulus	17000 / 17800	MPa	ISO 178
Flexural strength	380 / 360	MPa	ISO 178
Flexural modulus (120°C)	15700	MPa	ISO 178
Flexural modulus (160°C)	10000	MPa	ISO 178
Flexural modulus (180°C)	8000	MPa	ISO 178
Flexural modulus (200°C)	7400	MPa	ISO 178
Charpy impact strength (+23°C)	80 / 75	kJ/m²	ISO 179/1eU
Charpy impact strength (–30°C)	70 / 65	kJ/m²	ISO 179/1eU
Charpy notched impact strength (+23°C)	12 / 11	kJ/m²	ISO 179/1eA
Charpy notched impact strength (–30°C)	12 / 11	kJ/m²	ISO 179/1eA

THERMAL PROPERTIES	DRY / COND		
Melting temperature (10°C/min)	335 / *	°C	ISO 11357–1/–3
Temp. of deflection under load (1.80 MPa)	320 / *	°C	ISO 75–1/–2
Coeff. of linear therm. expansion (parallel)	0.15 / *	E–4/°C	ISO 11359–1/–2

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PROPERTIES	TYPICAL DATA	UNIT	TEST METHOD
Coeff. of linear therm. expansion (normal)	0.5 / *	E–4/°C	ISO 11359–1/–2
Coeff. of linear therm. expansion (parallel)	0.27	E–4/°C	ASTM D696
Coeff. of linear therm. expansion (normal)	0.3	E–4/°C	ASTM D696
Burning Behav. at 3.0 mm nom. thickn.	HB / *	class	IEC 60695–11–10
Thickness tested	3 / *	mm	IEC 60695–11–10
UL recognition	Yes / *	–	–
Thermal Index 5000 hrs	188	°C	IEC 60216/ISO 527–1/–2

OTHER PROPERTIES	DRY / COND		
Humidity absorption	1.4 / *	%	Sim. to ISO 62
Density	1660 / –	kg/m³	ISO 1183

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Tens. fatigue 8Hz, T, R=0.1 , dry