

# ForTii® Ace MX53

## PPA-GF50

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

Print Date: 2019-10-22

ForTii® Ace MX53 combines excellent chemical resistance (transmission/mineral oil, battery acid, water/glycol) with high part stiffness at 100-150°C.

Properties	Typical Data	Unit	Test Method
<b>Rheological properties</b>	<b>dry / cond</b>		
Molding shrinkage (parallel)	0.35 / *	%	ISO 294-4
Molding shrinkage (normal)	0.9 / *	%	ISO 294-4
<b>Mechanical properties</b>	<b>dry / cond</b>		
Tensile modulus	18000 / 18000	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	250 / 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
Stress at break (150°C)	130	MPa	ISO 527-1/-2

Property Data (Provisional)

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Properties	Typical Data	Unit	Test Method
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 / 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	17200 / -	MPa	ISO 178
Flexural strength	370 / -	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 / 80	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	75 / -	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	12 / 12	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	13 / -	kJ/m <sup>2</sup>	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
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

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Properties	Typical Data	Unit	Test Method
Coeff. of linear therm. expansion (normal)	0.3	E-4/°C	ASTM D696
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.75 / *	mm	IEC 60695-11-10
UL recognition	Yes / *	-	-

## Other properties

dry / cond

Humidity absorption	1.3 / *	%	Sim. to ISO 62
Density	1660 / -	kg/m <sup>3</sup>	ISO 1183

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

