

# ForTii® Ace MX51

## PPA-GF30

30% Glass Reinforced, PA4T, Heat Stabilized, for Automotive applications

Print Date: 2019-10-19

ForTii® Ace MX51 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)	0.4 / *	%	ISO 294-4
Molding shrinkage (normal)	1.1 / *	%	ISO 294-4
<b>Mechanical properties</b>	<b>dry / cond</b>		
Tensile modulus	11000 / 11000	MPa	ISO 527-1/-2
Tensile modulus (-40°C)	12000 / -	MPa	ISO 527-1/-2
Tensile modulus (40°C)	11000 / 11000	MPa	ISO 527-1/-2
Tensile modulus (80°C)	10500 / 10000	MPa	ISO 527-1/-2
Tensile modulus (100°C)	10300 / 6400	MPa	ISO 527-1/-2
Tensile modulus (120°C)	10000 / -	MPa	ISO 527-1/-2
Tensile modulus (150°C)	7500	MPa	ISO 527-1/-2
Tensile modulus (160°C)	6200	MPa	ISO 527-1/-2
Tensile modulus (180°C)	5000	MPa	ISO 527-1/-2
Tensile modulus (200°C)	4500	MPa	ISO 527-1/-2
Stress at break	170 / 170	MPa	ISO 527-1/-2
Stress at break (-40°C)	220 / -	MPa	ISO 527-1/-2
Stress at break (40°C)	165 / 170	MPa	ISO 527-1/-2
Stress at break (80°C)	155 / 130	MPa	ISO 527-1/-2
Stress at break (100°C)	150 / 95	MPa	ISO 527-1/-2
Stress at break (120°C)	140 / -	MPa	ISO 527-1/-2
Stress at break (150°C)	110	MPa	ISO 527-1/-2

Property Data (Provisional)

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Properties	Typical Data	Unit	Test Method
Stress at break (160°C)	97	MPa	ISO 527-1/-2
Stress at break (180°C)	85	MPa	ISO 527-1/-2
Stress at break (200°C)	75	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)	1.9 / 2.2	%	ISO 527-1/-2
Strain at break (80°C)	1.9 / 2.8	%	ISO 527-1/-2
Strain at break (100°C)	1.95 / 5.2	%	ISO 527-1/-2
Strain at break (120°C)	2.1 / -	%	ISO 527-1/-2
Strain at break (150°C)	3.5	%	ISO 527-1/-2
Strain at break (160°C)	4.5	%	ISO 527-1/-2
Strain at break (180°C)	5.7	%	ISO 527-1/-2
Strain at break (200°C)	6	%	ISO 527-1/-2
Flexural modulus	10500 / -	MPa	ISO 178
Flexural strength	270 / -	MPa	ISO 178
Charpy impact strength (+23°C)	45 / 45	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	40 / -	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	9 / 9	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	9 / -	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)	317 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	0.18 / *	E-4/°C	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	0.58 / *	E-4/°C	ISO 11359-1/-2
Coeff. of linear therm. expansion (parallel)	0.31	E-4/°C	ASTM D696
Coeff. of linear therm. expansion (normal)	0.42	E-4/°C	ASTM D696

## Other properties

dry / cond

Humidity absorption	1.8 / *	%	Sim. to ISO 62
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Properties	Typical Data	Unit	Test Method
Density	1450 / -	kg/m <sup>3</sup>	ISO 1183

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

