

# ForTii<sup>®</sup> MX15HR

## PPA–GF35

35% Glass Reinforced, PA4T, Electro–friendly, Enhanced Hydrolytic Stability, for Automotive applications

Print Date: 2024–09–17

ForTii<sup>®</sup> MX15HR exhibits enhanced hydrolytic stability towards aggressive coolants (water/glycol, 135°C) that are used in engine's thermal management systems. It has excellent mechanical performance and weld–line resistance.

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)	1.05 / *	%	ISO 294–4
<b>MECHANICAL PROPERTIES</b>			
	<b>DRY / COND</b>		
Tensile modulus	12500 / 12900	MPa	ISO 527–1/–2
Tensile modulus (–40°C)	12500 / –	MPa	ISO 527–1/–2
Tensile modulus (40°C)	12200 / –	MPa	ISO 527–1/–2
Tensile modulus (80°C)	11900 / –	MPa	ISO 527–1/–2
Tensile modulus (100°C)	11600 / 5000	MPa	ISO 527–1/–2
Tensile modulus (120°C)	11200 / 4600	MPa	ISO 527–1/–2
Tensile modulus (150°C)	5300	MPa	ISO 527–1/–2
Tensile modulus (160°C)	4600	MPa	ISO 527–1/–2
Tensile modulus (180°C)	4000	MPa	ISO 527–1/–2
Tensile modulus (200°C)	3700	MPa	ISO 527–1/–2
Stress at break	240 / 220	MPa	ISO 527–1/–2
Stress at break (–40°C)	260 / –	MPa	ISO 527–1/–2
Stress at break (40°C)	220 / –	MPa	ISO 527–1/–2
Stress at break (80°C)	190 / –	MPa	ISO 527–1/–2
Stress at break (100°C)	170 / 76	MPa	ISO 527–1/–2
Stress at break (120°C)	145 / 68	MPa	ISO 527–1/–2

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## Property Data

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<i>PROPERTIES</i>	<i>TYPICAL DATA</i>	<i>UNIT</i>	<i>TEST METHOD</i>
Stress at break (150°C)	80	MPa	ISO 527-1/-2
Stress at break (160°C)	78	MPa	ISO 527-1/-2
Stress at break (180°C)	63	MPa	ISO 527-1/-2
Stress at break (200°C)	55	MPa	ISO 527-1/-2
Strain at break	2.6 / 2.4	%	ISO 527-1/-2
Strain at break (-40°C)	2.7 / -	%	ISO 527-1/-2
Strain at break (40°C)	2.5 / -	%	ISO 527-1/-2
Strain at break (80°C)	2.6 / -	%	ISO 527-1/-2
Strain at break (100°C)	2.7 / 6.6	%	ISO 527-1/-2
Strain at break (120°C)	2.8 / 6.3	%	ISO 527-1/-2
Strain at break (150°C)	8	%	ISO 527-1/-2
Strain at break (160°C)	8	%	ISO 527-1/-2
Strain at break (180°C)	8	%	ISO 527-1/-2
Strain at break (200°C)	8	%	ISO 527-1/-2
Flexural modulus	12000 / 12500	MPa	ISO 178
Flexural strength	320 / 290	MPa	ISO 178
Flexural modulus (120°C)	10900	MPa	ISO 178
Flexural modulus (160°C)	4300	MPa	ISO 178
Flexural modulus (180°C)	3900	MPa	ISO 178
Flexural modulus (200°C)	3700	MPa	ISO 178
Charpy impact strength (+23°C)	76 / 65	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength (-30°C)	72 / 63	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength (+23°C)	12 / 10	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength (-30°C)	11 / 9	kJ/m <sup>2</sup>	ISO 179/1eA
<b><i>THERMAL PROPERTIES</i></b>	<b><i>DRY / COND</i></b>		
Melting temperature (10°C/min)	330 / *	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	300 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	0.16 / *	E-4/°C	ISO 11359-1/-2

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<i>PROPERTIES</i>	<i>TYPICAL DATA</i>	<i>UNIT</i>	<i>TEST METHOD</i>
Coeff. of linear therm. expansion (normal)	0.51 / *	E-4/°C	ISO 11359-1/-2
Burning Behav. at 3.0 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	3 / *	mm	IEC 60695-11-10
UL recognition	No / *	–	–
Thermal Index 5000 hrs	170	°C	IEC 60216/ISO 527-1/-2

### *ELECTRICAL PROPERTIES*

#### *DRY / COND*

Volume resistivity	>1E13 / >1E13	Ohm*m	IEC 62631-3-1
Electric strength	35 / 35	kV/mm	IEC 60243-1
Comparative tracking index	600 / –	V	IEC 60112

### *OTHER PROPERTIES*

#### *DRY / COND*

Humidity absorption	2 / *	%	Sim. to ISO 62
Density	1490 / –	kg/m <sup>3</sup>	ISO 1183

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