ForTii® MX1

DSM Engineering Plastics - Polyphthalamide

Tuesday, January 21, 2020

General Information

Product Description			
30% Glass Reinforced, PA4T, Heat Stabilized, for Automotive applications			
General			
Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Glass Fiber, 30% Filler by Weight		
Additive	• Heat Stabilizer		
Features	• Heat Stabilized		
Uses	• Automotive Applications		
Processing Method	• Injection Molding		
Resin ID (ISO 1043)	• PPA-GF30		

ASTM & ISO Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density	1.45	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow	1.1	--	%	
Flow	0.40	--	%	
Water Absorption				ISO 62
Equilibrium, 23°C, 50% RH	2.0	--	%	
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus				ISO 527-2
--	11000	11000	MPa	
-40°C	11000	--	MPa	
40°C	10700	--	MPa	
80°C	10500	--	MPa	
100°C	10000	--	MPa	
120°C	7500	--	MPa	
150°C	5100	--	MPa	
160°C	4800	--	MPa	
180°C	4400	--	MPa	
200°C	4200	--	MPa	

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Stress				ISO 527-2
Break	200	180	MPa	
Break, -40°C	210	--	MPa	
Break, 40°C	190	--	MPa	
Break, 80°C	180	--	MPa	
Break, 100°C	160	--	MPa	
Break, 120°C	130	--	MPa	
Break, 150°C	96.0	--	MPa	
Break, 160°C	90.0	--	MPa	
Break, 180°C	80.0	--	MPa	
Break, 200°C	74.0	--	MPa	
Tensile Strain				ISO 527-2
Break	2.1	2.0	%	
Break, -40°C	2.2	--	%	
Break, 40°C	2.2	--	%	
Break, 80°C	2.7	--	%	
Break, 100°C	3.3	--	%	
Break, 120°C	5.0	--	%	
Break, 150°C	7.5	--	%	
Break, 160°C	8.0	--	%	
Break, 180°C	8.0	--	%	
Break, 200°C	8.0	--	%	
Flexural Modulus				ISO 178
--	11000	--	MPa	
120°C	9500	--	MPa	
160°C	4500	--	MPa	
Flexural Stress	300	--	MPa	ISO 178

Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	9.0	7.0	kJ/m²	
23°C	9.0	7.0	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	45	40	kJ/m²	
23°C	55	45	kJ/m²	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				ISO 75-2/A
1.8 MPa, Unannealed	303	--	°C	
Melting Temperature [2]	325	--	°C	ISO 11357-3
CLTE - Flow	3.3E-5	--	cm/cm/°C	ASTM D696
CLTE - Transverse	4.0E-5	--	cm/cm/°C	ASTM D696
Thermal Index - 5000 hr	180	--	°C	IEC 60216

Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity	> 1.0E+15	> 1.0E+15	ohms·cm	IEC 60093
Relative Permittivity				IEC 60250
100 Hz	4.70	5.60		
1 MHz	4.40	4.60		

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Notes

[1] Typical properties: these are not to be construed as specifications.

[2] 10°C/min