

Amilan™ CM1011G-45

Toray Industries, Inc. - Polyamide 6

General Information

Product Description	
Standard, GF45%	
General	
Filler / Reinforcement	• Glass Fiber, 45% Filler by Weight
Features	• Chemical Resistant • High Strength
Uses	<ul style="list-style-type: none"> • Appliance Components • Automotive Applications • Automotive Electronics • Automotive Under the Hood • Construction Applications • Electrical/Electronic Applications • Office Automation Equipment • Power/Other Tools • Sporting Goods • White Goods & Small Appliances
Processing Method	• Injection Molding
ISO Designation	• >PA6-GF45<

Properties ¹

Physical	Dry	Conditioned	Unit	Test Method
Density (73°F)	1.50	--	g/cm ³	ISO 1183
Spiral Flow ²	9.06	--	in	Internal Method
Molding Shrinkage ³				Internal Method
Across Flow : 0.118 in	0.40 to 0.60	--	%	
Flow : 0.118 in	0.10 to 0.30	--	%	
Water Absorption ⁴ (24 hr, 73°F)	0.90	--	%	ISO 62
Water Absorption ⁴				ISO 62
Saturation, 73°F	5.3	--	%	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Stress				ISO 527-2
-40°F	42100	36300	psi	
73°F	29700	18900	psi	
176°F	17400	12300	psi	
Tensile Strain				ISO 527-2
Break, -40°F	3.0	3.0	%	
Break, 73°F	3.0	3.0	%	
Break, 176°F	5.0	5.0	%	
Flexural Modulus				ISO 178
-40°F	2.34E+6	2.07E+6	psi	
73°F	2.00E+6	1.17E+6	psi	
176°F	1.03E+6	725000	psi	
Flexural Stress				ISO 178
-40°F	55800	47100	psi	
73°F	49300	30500	psi	
176°F	26800	18100	psi	
Compressive Stress				ISO 604
-40°F	37700	31900	psi	
73°F	27600	17400	psi	
176°F	14500	10200	psi	

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Mechanical	Dry	Conditioned	Unit	Test Method
Shear Strength (73°F)	13800	10900	psi	ASTM D732
Taber Abrasion Resistance				ISO 9352
1000 Cycles	30.0	--	mg	
Coefficient of Friction - vs. Metal ⁵	0.35	--		Suzuki Method
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-40°F	7.1	8.1	ft·lb/in ²	
73°F	8.8	11	ft·lb/in ²	
Charpy Unnotched Impact Strength				ISO 179
-40°F	43	45	ft·lb/in ²	
73°F	48	57	ft·lb/in ²	
Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness				ISO 2039-2
M-Scale, 73°F	95	--		
R-Scale, 73°F	121	--		
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				ISO 75-2/B
66 psi, Unannealed	437	--	°F	
Deflection Temperature Under Load				ISO 75-2/A
264 psi, Unannealed	419	--	°F	
Melting Temperature	437	--	°F	DSC
Specific Heat	0.335	--	Btu/lb/°F	
Thermal Conductivity	2.8	--	Btu·in/hr/ft ² /°F	
Coefficient of Linear Thermal Expansion	2.0 to 3.0	--	cm ³ /cm/°C	ISO 11359-2
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity	1.0E+15	1.0E+12	ohms·cm	IEC 60093
Electric Strength	480	380	V/mil	IEC 60243-1
Dielectric Constant				IEC 60250
73°F, 50 Hz	5.00	9.50		
73°F, 1 kHz	4.90	7.40		
73°F, 1 MHz	4.20	4.50		
Dissipation Factor				IEC 60250
73°F, 50 Hz	0.030	0.16		
73°F, 1 kHz	0.030	0.15		
73°F, 1 MHz	0.030	0.060		
Arc Resistance	104	109	sec	UL 746
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating (0.06 in)	HB	HB		UL 94

Additional Information

Dry Water Absorption Moisture Content 1.9%

Notes

- ¹ Typical properties: these are not to be construed as specifications.
- ² Melt Temperature: 500°F, Injection Pressure: 1.31E+4 psi, 0.0787 in
- ³ 80x80x3mm
- ⁴ in water
- ⁵ Without Lubrication