Gravi-Tech™ GRV-NP-110-W-NAT

Polyamide 12

Key Characteristics

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Impact Modifier		
Features	• High Density	• Impact Modified	• Non-Toxic
Uses	• Industrial Applications • Medical/Healthcare Applications	• Projectiles • Radiation Shielding	• Sporting Goods • Weighting & Balancing
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

Technical Properties [1]

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Specific Gravity	11.0	11.0	ASTM D792
Molding Shrinkage - Flow	4.0E-3 to 6.0E-3 in/in	0.40 to 0.60 %	ASTM D955
Mechanical	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Tensile Modulus [2]	1.20E+6 psi	8270 MPa	ASTM D638
Tensile Strength [2] (Yield)	3950 psi	27.2 MPa	ASTM D638
Tensile Elongation [2] (Break)	1.8 %	1.8 %	ASTM D638
Flexural Modulus	800000 psi	5520 MPa	ASTM D790
Flexural Strength	7000 psi	48.3 MPa	ASTM D790
Poisson's Ratio	0.35	0.35	ASTM E132
Impact	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Notched Izod Impact			ASTM D256A
73°F (23°C), 0.125 in (3.18 mm), Injection Molded	2.1 ft·lb/in	110 J/m	
Unnotched Izod Impact			ASTM D256
73°F (23°C), 0.125 in (3.18 mm), Injection Molded	7.0 ft·lb/in	370 J/m	
Thermal	**Typical Value (English)**	**Typical Value (SI)**	**Test Method**
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 0.250 in (6.35 mm)	280 °F	138 °C	
Deflection Temperature Under Load			ASTM D648
264 psi (1.8 MPa), Unannealed, 0.250 in (6.35 mm)	190 °F	87.8 °C	
CLTE - Flow			ASTM E831
32 to 90°F (0 to 32°C)	3.5E-5 in/in/°F	6.3E-5 cm/cm/°C	
140 to 212°F (60 to 100°C)	5.6E-5 in/in/°F	1.0E-4 cm/cm/°C	
CLTE - Transverse			ASTM E831
32 to 90°F (0 to 32°C)	3.2E-5 in/in/°F	5.7E-5 cm/cm/°C	
140 to 212°F (60 to 100°C)	4.7E-5 in/in/°F	8.4E-5 cm/cm/°C	
Thermal Conductivity [3]	24 Btu·in/hr/ft²/°F	3.5 W/m/K	ASTM C177

Electrical	Typical Value (English)	Typical Value (SI)	Test Method
Surface Resistivity (0.125 in (3.18 mm))	10 to 1.0E+3 ohms	10 to 1.0E+3 ohms	ASTM D257
Volume Resistivity (0.125 in (3.18 mm))	10 to 1.0E+3 ohms·cm	10 to 1.0E+3 ohms·cm	ASTM D257

Processing Information

Injection	Typical Value (English)	Typical Value (SI)
Drying Temperature	175 °F	79.4 °C
Drying Time	4.0 hr	4.0 hr
Processing (Melt) Temp	500 to 550 °F	260 to 288 °C
Mold Temperature	180 to 300 °F	82.2 to 149 °C

Notes

[1] Typical values are not to be construed as specifications.

[2] Type I, 0.20 in/min (5.1 mm/min)

[3] The value listed as thermal conductivity, ASTM C177, was tested in accordance with ASTM E1461.

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