



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
Forms	• Pellets		
Processing Method	• Injection Molding		

Technical Properties ¹

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density / 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 73°F (23°C), 0.125 in (3.18 mm), Injection Molded	2.1 ft·lb/in	110 J/m	ASTM D256A
Unnotched Izod Impact 73°F (23°C), 0.125 in (3.18 mm), Injection Molded	7.0 ft·lb/in	370 J/m	ASTM D256
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Deflection Temperature Under Load 66 psi (0.45 MPa), Unannealed, 0.250 in (6.35 mm)	280 °F	138 °C	ASTM D648
Deflection Temperature Under Load 264 psi (1.8 MPa), Unannealed, 0.250 in (6.35 mm)	190 °F	87.8 °C	ASTM D648
CLTE - Flow 32 to 90°F (0 to 32°C) 140 to 212°F (60 to 100°C)	3.5E-5 in/in/°F 5.6E-5 in/in/°F	6.3E-5 cm/cm/°C 1.0E-4 cm/cm/°C	ASTM E831
CLTE - Transverse 32 to 90°F (0 to 32°C) 140 to 212°F (60 to 100°C)	3.2E-5 in/in/°F 4.7E-5 in/in/°F	5.7E-5 cm/cm/°C 8.4E-5 cm/cm/°C	ASTM E831
Thermal Conductivity	24 Btu·in/hr/ft ² /°F	3.5 W/m/K	ASTM E1461

Copyright © 2019 PolyOne Corporation. PolyOne makes no representations, guarantees, or warranties of any kind with respect to the Information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the Information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. Values reported as "typical" or stated without a range do not state minimum or maximum properties; consult your sales representative for property ranges and min/max specifications. Processing conditions can cause material properties to shift from the values stated in the Information. PolyOne makes no warranties or guarantees respecting suitability of either PolyOne's products or the Information for your process or end-use application. You have the responsibility to conduct full-scale end-product performance testing to determine suitability in your application, and you assume all risk and liability arising from your use of the Information and/or use or handling of any product. POLYONE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, either with respect to the Information or products reflected by the Information. This data sheet shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.

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	180 °F	82 °C
Drying Time	4.0 to 5.0 hr	4.0 to 5.0 hr
Suggested Max Moisture	0.080 to 0.15 %	0.080 to 0.15 %
Rear Temperature	425 to 465 °F	218 to 241 °C
Middle Temperature	430 to 480 °F	221 to 249 °C
Front Temperature	420 to 490 °F	216 to 254 °C
Nozzle Temperature	440 to 480 °F	227 to 249 °C
Mold Temperature	100 to 200 °F	38 to 93 °C

Notes

¹ Typical values are not to be construed as specifications.

² Type I, 0.20 in/min (5.1 mm/min)

CONTACT INFORMATION

Americas

United States - Avon Lake
+1 440 930 1000

United States - McHenry
+1 815 385 8500

Asia

China - Guangzhou

+86 20 8732 7260

China - Shenzhen

+86 755 2969 2888

China - Suzhou

+86 512 6823 24 38

China - Suzhou

+86 512 6265 2600

Hong Kong -

+852 2690 5332

Taiwan - Yonghe City,

+886 9396 99740, +886 2929 1849

Europe

Germany - Gaggenau

+49 7225 6802 0

Spain - Barbastró (Huesca)

+34 974 310 314



Beyond Polymers.

Better Business Solutions. SM

www.polyone.com

PolyOne Americas

33587 Walker Road
Avon Lake, Ohio 44012
United States
+1 440 930 1000
+1 866 POLYONE

PolyOne Asia

No. 88 Guoshoujing Road
Z.J Hi-tech Park, Pudong
Shanghai, 201203, China
+86 21 5080 1188

PolyOne Europe

6 Giällewee
+352 269 050 35

Copyright ©, 2019 PolyOne Corporation. PolyOne makes no representations, guarantees, or warranties of any kind with respect to the Information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the Information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. Values reported as "typical" or stated without a range do not state minimum or maximum properties; consult your sales representative for property ranges and min/max specifications. Processing conditions can cause material properties to shift from the values stated in the Information. PolyOne makes no warranties or guarantees respecting suitability of either PolyOne's products or the Information for your process or end-use application. You have the responsibility to conduct full-scale end-product performance testing to determine suitability in your application, and you assume all risk and liability arising from your use of the Information and/or use or handling of any product. POLYONE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, either with respect to the Information or products reflected by the Information. This data sheet shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.