



# Gravi-Tech™ GRV-NP-110-W-NAT

## Polyamide 12

### Key Characteristics

General			
Material Status	• Commercial: Active		
Regional Availability	• Africa & Middle East • Asia Pacific	• Europe • North America	• South 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 <sup>1</sup>

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Specific Gravity	11.0	11.0 g/cm <sup>3</sup>	ASTM D792
Molding Shrinkage - Flow	0.0040 to 0.0060 in/in	0.40 to 0.60 %	ASTM D955
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus <sup>2</sup>	1.20E+6 psi	8270 MPa	ASTM D638
Tensile Strength <sup>2</sup> (Yield)	3950 psi	27.2 MPa	ASTM D638
Tensile Elongation <sup>2</sup> (Break)	1.8 %	1.8 %	ASTM D638
Flexural Modulus	720000 psi	4960 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)	0.000035 in/in/°F	0.000063 cm/cm/°C	
140 to 212°F (60 to 100°C)	0.000056 in/in/°F	0.00010 cm/cm/°C	
CLTE - Transverse			ASTM E831
32 to 90°F (0 to 32°C)	0.000032 in/in/°F	0.000057 cm/cm/°C	
140 to 212°F (60 to 100°C)	0.000047 in/in/°F	0.000084 cm/cm/°C	
Thermal Conductivity <sup>3</sup>	24 Btu-in/hr/ft <sup>2</sup> /°F	3.5 W/m/K	ASTM C177

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## 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

<sup>1</sup> Typical values are not to be construed as specifications.

<sup>2</sup> Type I, 0.20 in/min (5.1 mm/min)

<sup>3</sup> The value listed as thermal conductivity, ASTM C177, was tested in accordance with ASTM E1461.

## CONTACT INFORMATION

## Americas

Mexico - Toluca  
+52 722 2790200

United States - Avon Lake  
+1 440 930 1000

## Asia

China - Shanghai  
+86 21 5080 1188

China - Shenzhen  
+86 755 2969 2888

China - Suzhou  
+86 512 6823 24 38

China - Tianjin  
+86 22 2532 8818

India - Navi Mumbai  
+91 22 27784426/22781218

Japan - Tokyo  
+81 369 129 102

Singapore - Singapore  
+65 6861 9325

Taiwan - Yonghe City,  
+886 9396 99740

## Europe

Germany - Gaggenau  
+49 7225 6802 0

Spain - Barbastro (Huesca)  
+34 974 310 314

Turkey - Basaksehir-Istanbul-Türkiye  
+90 212 549 2256



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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  
Please Call Assesse  
Belgium Phone Number +32  
83 660 211

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