



**GEON® RESILIENCE®
FILLED & REINFORCED
POLYOLEFINS**

RESILIENCE®





GEON® RESILIENCE® FILLED & REINFORCED POLYOLEFINS

GEON® Performance Solutions manufactures a complete line of filled and reinforced polyolefins for injection and blow molding. Under the RESILIENCE® brand, standard grades are formulated with combinations of calcium carbonate, glass fiber, mica, talc and can include recycled content to provide a desired balance of properties, including stiffness, durability, impact and heat resistance. RESILIENCE polypropylene- and polyethylene-based products are an ideal performance-driven alternative to highly engineered polymers across a variety of industries, such as: Automotive, Appliance, Building & Construction, and Bottles & Packaging.

This product selection guide provides detailed information to help you choose the RESILIENCE product that's right for your application.

RESILIENCE®

INJECTION MOLDING POLYPROPYLENE

RESILIENCE Talc-Filled Homopolymer Polypropylene

Offers high levels of stiffness and heat deflection performance.

- UL approved
- FDA certifiable
- Natural, black or colors

- High flow grades
- UV stabilized
- Recycled content

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES			
Product Code	-	-	-	PP5113 B44	F5134T2-4	PP5130 B63	F5134T4-1
Filler Percentage	-	%	-	13	20	30	40
Tensile Strength	Yield	psi	ASTM D638	5000	4800	4600	4500
		MPa	ISO 527	33	33	32	31
Tensile Elongation	Yield	%	ASTM D638 ISO 527	6	4	3	2
	Break	%	ASTM D638 ISO 527	60	30	15	10
Flexural Modulus	73°F (23°C)	psi	ASTM D790	300,000	360,000	400,000	460,000
		MPa	ISO 178	2300	2450	2900	3300
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	0.65	0.60	0.55	0.50
		kJ/m ²	ISO 180	3.50	3.3	3.00	2.75
Heat Deflection	66 psi	°F	ASTM D648	230	240	260	275
		°C	ISO 75	110	116	127	135
	264 psi	°F	ASTM D648	130	140	150	175
		°C	ISO 75	54	60	66	79
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.99	1.04	1.15	1.25
Linear Shrinkage Range	1/8 in wall	%	-	1.2-1.6	1.0-1.4	0.8-1.2	0.6-1.0
	3.2 mm wall	%	-	1.2-1.6	1.0-1.4	0.8-1.2	0.6-1.0

RESILIENCE Talc-Filled Copolymer Polypropylene

Offers a moderate level of impact strength and improved stiffness and heat deflection performance.

- Scratch & mar resistant
- UL approved
- FDA certifiable

- Natural, black or colors
- High flow grades
- UV stabilized

Product Code	-	-	-	PP6113 A77-SM	PP6120 B16-2	PP6130 B11	PP6135 B40-UV
Filler Percentage	-	%	-	13	20	30	35
Tensile Strength	Yield	psi	ASTM D638	4350	3500	2600	3700
		MPa	ISO 527	30	24	18	26
Tensile Elongation	Yield	%	ASTM D638 ISO 527	5	4	7	6
	Break	%	ASTM D638 ISO 527	35	70	150	70
Flexural Modulus	73°F (23°C)	psi	ASTM D790	290,000	280,000	280,000	390,000
		MPa	ISO 178	2000	1950	1750	2700
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	0.7	2.7	4.5	0.65
		kJ/m ²	ISO 180	4.0	14	24	3.5
Heat Deflection	66 psi	°F	ASTM D648	239	215	225	250
		°C	ISO 75	115	102	107	123
	264 psi	°F	ASTM D648	140	125	130	150
		°C	ISO 75	60	52	54	60
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.99	1.05	1.15	1.18
Linear Shrinkage Range	1/8 in wall	%	-	1.1-1.5	.9-1.3	0.7-1.1	0.5-0.9
	3.2 mm wall	%	-	1.1-1.5	.9-1.3	0.7-1.1	0.5-0.9

INJECTION MOLDING POLYPROPYLENE

RESILIENCE Calcium Carbonate-Filled Homopolymer Polypropylene

Offers a moderate level of stiffness over the unfilled materials as well as improved drop impact strength.

- UL approved
- FDA certifiable
- Natural, black or colors

- High flow grades
- UV stabilized
- Recycled content

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES			
Product Code	-	-	-	PP5210 A111	PP5220F A1	PP5230F B1	PP5240 A111
Filler Percentage	-	%	-	10	20	30	40
Tensile Strength	Yield	psi	ASTM D638	4600	4300	3900	3500
		MPa	ISO 527	32	30	27	24
Tensile Elongation	Yield	%	ASTM D638 ISO 527	7.0	6.0	5.5	5.0
	Break	%	ASTM D638 ISO 527	125	115	100	70
Flexural Modulus	73°F (23°C)	psi	ASTM D790	250,000	285,000	310,000	340,000
		MPa	ISO 180	1600	1900	2100	2300
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	0.70	0.70	0.70	0.70
		kJ/m ²	ISO 180	3.85	3.85	3.85	3.85
Heat Deflection	66 psi	°F	ASTM D648	190	210	225	240
		°C	ISO 75	88	99	107	116
	264 psi	°F	ASTM D648	120	125	130	133
		°C	ISO 75	49	52	54	56
Specific Gravity	73°F (23°C)	-	ASTM D792	0.96	1.04	1.15	1.25
Linear Shrinkage Range	1/8 in wall	%	-	1.3–1.7	1.1–1.5	0.9–1.3	0.7–1.1
	3.2 mm wall	%	-	1.3–1.7	1.1–1.5	0.9–1.3	0.7–1.1

RESILIENCE Calcium Carbonate-Filled Copolymer Polypropylene

Offers improved stiffness over unfilled materials as well as substantial improvement in drop weight impact and notched izod impact.

- Scratch & mar resistant
- UL approved
- FDA certifiable

- Natural, black or colors
- High flow grades
- UV stabilized

Product Code	-	-	-	PP6210 A11	PP7220 A614	PP6230F A1	PP6240 A44
Filler Percentage	-	%	-	10	20	30	40
Tensile Strength	Yield	psi	ASTM D638	3200	3400	2800	2550
		MPa	ISO 527	22	24	19	18
Tensile Elongation	Yield	%	ASTM D638 ISO 527	14.0	10.0	8.0	7.0
	Break	%	ASTM D638 ISO 527	>400	>400	>400	200
Flexural Modulus	73°F (23°C)	psi	ASTM D790	160,000	185,000	250,000	225,000
		MPa	ISO 178	1100	1300	1750	1550
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	>10.0	>10.0	8	8.0
		kJ/m ²	ISO 180	55.0	55.0	44.0	14.0
Heat Deflection	66 psi	°F	ASTM D648	160	170	198	200
		°C	ISO 75	71	77	92	93
	264 psi	°F	ASTM D648	100	105	108	112
		°C	ISO 75	38	41	42	44
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.96	1.04	1.15	1.25
Linear Shrinkage Range	1/8 in wall	%	-	1.2–1.6	1.0–1.4	0.8–1.2	0.6–1.0
	3.2 mm wall	%	-	1.2–1.6	1.0–1.4	0.8–1.2	0.6–1.0

INJECTION MOLDING POLYPROPYLENE

RESILIENCE Glass Fiber-Reinforced Homopolymer Polypropylene

Provides the maximum strength and heat resistance among polypropylene compounds.

- Chemically coupled
- UL approved
- FDA certifiable

- Natural, black or colors
- High flow grades
- Recycled content

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES			
Product Code	-	-	-	PP5410 B1	PP5420 B1	PP5430 B5	PP5440 B1
Reinforcement %	-	-	-	10	20	30	40
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.96	1.05	1.14	1.23
Tensile Strength	Yield	psi MPa	ASTM D638 ISO 527	8000 55	10000 69	11500 79	13000 90
Tensile Elongation	Break	%	ASTM D638 ISO 527	8	2	2	2
Flexural Modulus	73°F (23°C)	psi MPa	ASTM D790 ISO 178	525,000 3600	795,000 5450	850,000 5800	1,000,000 7550
Notched Izod Impact	73°F (23°C)	ft-lb/in kJ/m ²	ASTM D256 ISO 180	1.10 6.00	1.30 7.25	1.50 8.25	1.60 8.50
Heat Deflection	66 psi	°F	ASTM D648	280	305	310	315
		°C	ISO 75	138	152	154	157
	264 psi	°F	ASTM D648	250	280	290	300
		°C	ISO 75	121	138	143	149
Linear Shrinkage Range	1/8 in wall	%	-	0.4-0.7	0.3-0.6	0.3-0.6	0.2-0.5
	3.2 mm wall	%	-	0.4-0.7	0.3-0.6	0.3-0.6	0.2-0.5

RESILIENCE Glass Fiber-Reinforced Copolymer Polypropylene

Offers a high level of stiffness and heat resistance as well as excellent impact resistance.

- Chemically coupled
- UL approved
- FDA certifiable

- Natural, black or colors
- High flow grades
- UV stabilized

Product Code	-	-	-	PP7410 A241	PP7420 B77	PP6430 A206-UV	PP6435 B1
Reinforcement %	-	-	-	10	20	30	35
Specific Gravity	Yield	-	ASTM D792 ISO 1183	0.98	1.05	1.14	1.17
Tensile Strength	Yield	psi MPa	ASTM D638 ISO 527	5300 37	9200 64	9000 62	13300 92
Tensile Elongation	Break	%	ASTM D638 ISO 527	8	4	4	4
Flexural Modulus	73°F (23°C)	psi MPa	ASTM D790 ISO 178	240,000 1650	420,000 2900	695,000 4800	810,000 5600
Notched Izod Impact	73°F (23°C)	ft-lb/in kJ/m ²	ASTM D256 ISO 180	5.0 27.5	1.60 9.00	1.60 9.00	2.50 14.00
Heat Deflection	66 psi	°F	ASTM D648	298	313	297	300
		°C	ISO 75	144	156	152	149
	264 psi	°F	ASTM D648	210	272	265	288
		°C	ISO 75	92	133	128	142
Linear Shrinkage Range	1/8 in wall	%	-	0.4-0.7	0.3-0.6	0.3-0.6	0.2-0.5
	3.2 mm wall	%	-	0.4-0.7	0.3-0.6	0.3-0.6	0.2-0.5

INJECTION MOLDING POLYPROPYLENE

RESILIENCE Mica-Reinforced Polypropylene

Offers improved stiffness and heat deflection as well as outstanding dimensional stability.

- Chemically coupled
- Natural or black

- High flow grades
- Recycled content

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES		
Product Code	-	-	-	PP5312 B1	PP5320 A285	PP5340 B2
Reinforcement %	-	%	-	12	20	40
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.99	1.05	1.24
Tensile Strength	Yield	psi	ASTM D638	4800	4400	4900
		MPa	ISO 527	31	30	38
Tensile Elongation	Yield	%	ASTM D638 ISO 527	5	4	3
	Break	%	ASTM D638 ISO 527	20	15	10
Flexural Modulus	73°F (23°C)	psi	ASTM D790	285,000	380,000	460,000
		MPa	ISO 178	1950	2600	3200
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	0.6	0.55	0.60
		kJ/m2	ISO 180	3.30	3.00	3.30
Heat Deflection	66 psi	°F	ASTM D648	235	255	280
		°C	ISO 75	113	124	138
	264 psi	°F	ASTM D648	135	156	180
		°C	ISO 75	57	69	82
Linear Shrinkage Range	1/8 in wall	%	-	1.4-1.9	1.0-1.4	0.6-1.0
	3.2 mm wall	%	-	1.4-1.9	1.0-1.4	0.6-1.0

RESILIENCE Glass-/Mineral-Reinforced Polypropylene

Offers a high level of stiffness and heat deflection as well as reduced warpage and increased dimensional stability.

- Chemically coupled
- Impact modified
- Natural or black

- High flow grades
- Recycled content

Product Code	-	-	-	PP5920 B10	PP5935 B1	PP5940 B131	PP5950 B10
Reinforcement Type	-	-	-	Glass/Mica	Glass/Mica	Glass/Mica	Glass/Mica
Reinforcement %	-	%	-	20	35	40	50
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	1.05	1.17	1.25	1.34
Tensile Strength	Yield	psi	ASTM D638	7000	9000	10,000	12,800
		MPa	ISO 527				
Tensile Elongation	Break	%	ASTM D638 ISO 527	6	5	5	2
Flexural Modulus	73°F (23°C)	psi	ASTM D790	550,000	780,000	870,000	1,300,000
		MPa	ISO 178	3900	5500	5800	9000
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	0.7	0.9	1.3	1.5
		kJ/m²	ISO 180	4.0	5.0	7.0	8.0
Heat Deflection	66 psi	°F	ASTM D648	304	315	310	315
		°C	ISO 75	151	157	154	157
	264 psi	°F	ASTM D648	225	298	290	310
		°C	ISO 75	107	148	143	154

INJECTION MOLDING POLYPROPYLENE

RESILIENCE TPO
Thermoplastic Olefins
(TPO)

Offers exceptional stiffness to impact balance including excellent cold temperature impact resistance.

- Scratch & mar resistant
- Natural, black or colors
- High flow grades
- UV stabilized

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES				
Product Code	-	-	-	TP9000 A3	TP9110 A701-SM	TP9120 B397	TP9120 A525-SM	TP9130 A954
Reinforcement Type	-	-	-	Talc	Talc	Talc	Talc	Talc
Reinforcement %	-	%	-	5	11	18	20	30
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.94	0.97	1.01	1.04	1.12
Tensile Strength	Yield	psi MPa	ASTM D638 ISO 527	2400 18	3000 22	2750 19	3600 25	3450 24
	Yield	%	ASTM D638 ISO 527	12	6	5	4	8
Tensile Elongation	Break	%	ASTM D638 ISO 527	>400	100	170	30	250
Flexural Modulus	73°F (23°C)	psi MPa	ASTM D790 ISO 178	140,000 1100	260,000 1800	235,000 1620	300,000 2000	325,000 2250
Notched Izod Impact	73°F (23°C)	ft-lb/in kJ/m²	ASTM D256 ISO 180	No Break 68.0	6 36.0	10 53.0	2 11.0	2.2 12.0
	-30°C	ft-lb/in kJ/m²	ASTM D256 ISO 180	1.5 8.5	1.2 6.0	1.3 7.0	0.7 3.9	0.8 4.0
Heat Deflection	66 psi	°F	ASTM D648	160	208	205	220	218
		°C	ISO 75	83	98	96	110	105
	264 psi	°F	ASTM D648	100	143	140	160	160
		°C	ISO 75	50	62	57	70	71
Multiaxial Impact @ 6.6 m/s	0°C		ASTM D3763	100% Ductile	100% Ductile	100% Ductile		
	-30°C		ASTM D3763	100% Ductile		100% Ductile		



INJECTION MOLDING POLYPROPYLENE

RESILIENCE HST-Filled Polypropylene with High Strength and Stiffness

Reinforced grades that provide exceptional levels of strength and stiffness.
Lightweight solution for parts typically manufactured in metal, long glass
fiber polypropylene or reinforced engineered plastics.

- Chemically coupled
- Natural or black
- High flow grades

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES			
Product Code	-	-	-	PX5430 B1	PX5435 B1	PX5440 B1	PX5450 B1
Reinforcement Type	-	-	-	Glass	Glass	Glass	Glass
Reinforcement %	-	%	-	30	35	40	50
Specific Gravity	73°F (23°C)	-	ISO 1183	1.13	1.18	1.23	1.35
Tensile Strength	Yield	MPa	ISO 527	102	105	113	130
Flexural Modulus	73°F (23°C)	MPa	ISO 178	6500	8000	9400	11,500
Notched Izod Impact	73°F (23°C)	kJ/m ²	ISO 180	9.4	9.3	11.0	12.0
Heat Deflection	264 psi	°C	ISO 75	152	152	153	154

RESILIENCE LO Low Odor Talc-Filled Polypropylene

Formulated for underhood automotive
HVAC use to minimize unwanted odor while
reducing VOC emissions.

- Provides heat stabilization
- Excellent balance of properties
- Natural, black or custom colors

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES
Product Code	-	-	-	PP5120 B270-LO
MFR		g/10 min	ISO 1133	12
Tensile Modulus		MPa	ISO 527	3320
Tensile Stress	Yield	MPa	ISO 527	32
Tensile Elongation	Yield	%	ISO 527	4.6
Tensile Elongation	Break	%	ISO 527	17
Flexural Modulus		MPa	ISO 178	3000
Charpy Impact	73°F (23°C)	kJ/m ²	ISO 179/1eU	38
Heat Aging	150°C	h	VW 44045	700 hr
VOC		µg/g	VDA 278	23.5
Fog		µg/g	VDA 278	30.5
Carbon Emissions		µgC/g	VDA 277	18
Odor		Grade	VDA 270 B3	3

EXTRUSION & BLOW MOLDING POLYPROPYLENE

RESILIENCE Filled
& Reinforced
Polypropylene

A range of melt flows to process well in sheet extrusion, thermoforming, profile extrusion and blow molding operations.

- FDA certifiable
- Scratch & mar resistant
- Impact modified

- Natural, black or colors
- UV stabilized
- Chemically coupled

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES				
Product Code	-	-	-	EP6713 B1	EP6130 B10	EP6430 B1	EP5240 B145	EP7920 B1
Reinforcement Type	-	-	-	Talc	Mineral	Glass	CaCO3	Glass/ Mineral
Reinforcement %	-	%	-	13	30	30	40	20
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	0.99	1.12	1.12	1.25	1.05
Tensile Strength	Yield	psi	ASTM D638	4800	4200	10,000	3600	6500
		MPa	ISO 527	31	29	69	35	45
Tensile Elongation	Yield	%	ASTM D638 ISO 527	6	8	2	5	6
	Break	%	ASTM D638 ISO 527	100	110	5	70	100
Flexural Modulus	73°F (23°C)	psi	ASTM D790	325,000	360,000	850,000	350,000	400,000
		MPa	ISO 178	2250	2400	5800	2400	2750
Notched Izod Impact	73°F (23°C)	ft-lb/in	ASTM D256	4.0	1.5	4.3	1.1	2.4
		kJ/m ²	ISO 180	20.0	8.0	24.0	6.0	13.0
Heat Deflection	66 psi	°F	ASTM D648	230	242	315	240	293
		°C	ISO 75	110	115	157	116	145
	264 psi	°F	ASTM D648	130	158	270	140	212
		°C	ISO 75	54	68	132	60	100



EXTRUSION & BLOW MOLDING POLYPROPYLENE

RESILIENCE Filled & Reinforced High- Density Polyethylene

Specifically designed for blow molding and sheet extrusion/thermoforming of structural parts. These materials offer an excellent balance of stiffness, impact resistance and dimensional stability.

- FDA certifiable
- Natural, black or colors
- UV stabilized

PROPERTY	CONDITION	UNITS	METHOD	PRODUCT EXAMPLES
Product Code	-	-	-	PE4125 B1
Reinforcement Type	-	-	-	Talc
Reinforcement %	-	%	-	25
Specific Gravity	73°F (23°C)	-	ASTM D792 ISO 1183	1.15
Tensile Strength	Yield	psi MPa	ASTM D638 ISO 527	4050 28
Tensile Elongation	Yield	%	ASTM D638 ISO 527	10
	Break	%	ASTM D638 ISO 527	40
Flexural Modulus	73°F (23°C)	psi MPa	ASTM D790 ISO 178	270,000 1850
Notched Izod Impact	73°F (23°C)	ft-lb/in kJ/m ²	ASTM D256 ISO 180	3.5 20.0
Heat Deflection	66 psi	°F	ASTM D648	190
		°C	ISO 75	88
	264 psi	°F	ASTM D648	115
		°C	ISO 75	46

At GEON, we pride ourselves on our material science expertise, processing knowledge and creative design capabilities.

Focused on sustainable growth platforms, we support you with:

- Twin-screw compounding, drum tumbler mixing, injection molding and compression molding
- Full physical, analytical, weathering and burn testing capabilities designed to shorten the time to market for new products and applications
- State-of-the-art innovation centers complete with customer meeting space for real time analysis and collaboration

Our global experience in developing filled or fiber reinforced formulations provides unmatched value for you!

RESILIENCE®



GEONsales@GEON.COM • 1-800-GET-GEON • GEON.COM

Copyright © 2021, GEON Performance Solutions. GEON 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. GEON makes no warranties or guarantees respecting suitability of either GEON'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. GEON 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 literature shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.

GEON[®]
Performance Solutions

RESILIENCE[®]