

Generic PP Homopolymer

Polypropylene Homopolymer

Generic

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Technical Data

Product Description

This data represents typical values that have been calculated from all products classified as: Generic PP Homopolymer

This information is provided for comparative purposes only.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity			
--	0.892 to 0.932	0.890 to 0.930 g/cm ³	ASTM D792
--	0.891 to 0.963 g/cm ³	0.891 to 0.963 g/cm ³	ISO 1183
--	0.899 to 0.905 g/cm ³	0.899 to 0.905 g/cm ³	ASTM D1505
Apparent (Bulk) Density	0.52 to 0.53 g/cm ³	0.52 to 0.53 g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR)			
230°C/2.16 kg	0.30 to 58 g/10 min	0.30 to 58 g/10 min	ASTM D1238
230°C/2.16 kg	0.050 to 80 g/10 min	0.050 to 80 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (230°C/2.16 kg)	2.0 to 64 cm ³ /10min	2.0 to 64 cm ³ /10min	ISO 1133
Molding Shrinkage			
Flow	0.010 to 0.017 in/in	1.0 to 1.7 %	ASTM D955
Across Flow	0.010 to 0.017 in/in	1.0 to 1.7 %	ASTM D955
--	1.5 to 1.6 %	1.5 to 1.6 %	ISO 294-4
Water Absorption			
24 hr	0.019 to 0.031 %	0.019 to 0.031 %	ASTM D570
24 hr, 73°F (23°C)	0.010 to 0.11 %	0.010 to 0.11 %	ISO 62
Equilibrium, 73°F (23°C), 50% RH	0.010 to 0.16 %	0.010 to 0.16 %	ISO 62
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
--	203000 to 305000 psi	1400 to 2100 MPa	ASTM D638
--	159000 to 269000 psi	1100 to 1850 MPa	ISO 527-1
Tensile Strength			
Yield	4570 to 5610 psi	31.5 to 38.7 MPa	ASTM D638
Yield	4040 to 5730 psi	27.8 to 39.5 MPa	ISO 527-2
Break	2030 to 5450 psi	14.0 to 37.6 MPa	ASTM D638
Break	2560 to 4100 psi	17.6 to 28.3 MPa	ISO 527-2
--	3550 to 5670 psi	24.4 to 39.1 MPa	ASTM D638
--	3010 to 5350 psi	20.8 to 36.9 MPa	ISO 527-2
Tensile Elongation			
Yield	0.12 to 20 %	0.12 to 20 %	ASTM D638
Yield	7.4 to 11 %	7.4 to 11 %	ISO 527-2
Break	0.75 to 520 %	0.75 to 520 %	ASTM D638
Break	0.80 to 510 %	0.80 to 510 %	ISO 527-2
Nominal Tensile Strain at Break	14 to 500 %	14 to 500 %	ISO 527-2



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Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Flexural Modulus			
--	162000 to 276000 psi	1120 to 1900 MPa	ASTM D790
--	166000 to 270000 psi	1140 to 1860 MPa	ISO 178
Flexural Strength			
--	4490 to 7000 psi	31.0 to 48.3 MPa	ASTM D790
--	2470 to 7600 psi	17.0 to 52.4 MPa	ISO 178
Yield	5980 to 7500 psi	41.2 to 51.7 MPa	ASTM D790
Coefficient of Friction	0.17 to 1.0	0.17 to 1.0	ASTM D1894
Films	Nominal Value (English)	Nominal Value (SI)	Test Method
Film Thickness - Tested	0.74 to 3.1 mil	19 to 80 µm	
Secant Modulus			
MD	8300 to 305000 psi	57.2 to 2110 MPa	ASTM D882
TD	9900 to 558000 psi	68.3 to 3850 MPa	ASTM D882
--	62400 to 321000 psi	430 to 2210 MPa	ISO 527-3
Tensile Strength			
MD : Yield	2930 to 4180 psi	20.2 to 28.8 MPa	ASTM D882
TD : Yield	2800 to 3100 psi	19.3 to 21.4 MPa	ASTM D882
MD : Break	3710 to 22600 psi	25.6 to 156 MPa	ASTM D882
TD : Break	1280 to 38700 psi	8.83 to 267 MPa	ASTM D882
Break	5610 to 8300 psi	38.7 to 57.3 MPa	ISO 527-3
--	5080 to 6670 psi	35.0 to 46.0 MPa	ISO 527-3
Tensile Elongation			
MD : Break	73 to 850 %	73 to 850 %	ASTM D882
TD : Break	15 to 810 %	15 to 810 %	ASTM D882
Break	4.0 to 710 %	4.0 to 710 %	ISO 527-3
Dart Drop Impact	20 to 340 g	20 to 340 g	ASTM D1709
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength	0.19 to 3.1 ft·lb/in²	0.40 to 6.5 kJ/m²	ISO 179
Charpy Unnotched Impact Strength	1.2 to 93 ft·lb/in²	2.5 to 200 kJ/m²	ISO 179
Notched Izod Impact			
--	0.31 to 1.1 ft·lb/in	16 to 58 J/m	ASTM D256
--	0.48 to 3.2 ft·lb/in²	1.0 to 6.8 kJ/m²	ISO 180
Notched Izod Impact (Area)	1.10 to 1.92 ft·lb/in²	2.31 to 4.03 kJ/m²	ASTM D256
Unnotched Izod Impact			
--	0.22 to 1.7 ft·lb/in	12 to 91 J/m	ASTM D4812
--	3.2 to 29 ft·lb/in²	6.7 to 60 kJ/m²	ISO 180
Gardner Impact	6.00 to 73.3 in·lb	0.678 to 8.28 J	ASTM D5420
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness			
--	87 to 110	87 to 110	ASTM D785
--	89 to 110	89 to 110	ISO 2039-2
Durometer Hardness			
--	70 to 78	70 to 78	ASTM D2240
--	65 to 73	65 to 73	ISO 868
Ball Indentation Hardness	10000 to 13200 psi	69.1 to 91.2 MPa	ISO 2039-1



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Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed	182 to 253 °F	83.4 to 123 °C	ASTM D648
66 psi (0.45 MPa), Unannealed	172 to 230 °F	77.5 to 110 °C	ISO 75-2/B
66 psi (0.45 MPa), Annealed	220 to 272 °F	104 to 133 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	122 to 234 °F	50.0 to 112 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	120 to 142 °F	49.0 to 61.0 °C	ISO 75-2/A
Vicat Softening Temperature			
--	300 to 313 °F	149 to 156 °C	ASTM D1525
--	191 to 315 °F	88.5 to 157 °C	ISO 306
Melting Temperature			
--	321 to 334 °F	161 to 168 °C	DSC
--	325 to 330 °F	163 to 166 °C	
--	320 to 338 °F	160 to 170 °C	
--	324 to 326 °F	162 to 163 °C	
--	325 to 329 °F	163 to 165 °C	
Peak Crystallization Temperature (DSC)	235 to 325 °F	113 to 163 °C	ASTM D3418
CLTE - Flow			
--	3.6E-5 to 1.6E-4 in/in/°F	6.5E-5 to 2.9E-4 cm/cm/°C	ASTM D696
--	2.1E-5 to 8.6E-5 in/in/°F	3.8E-5 to 1.6E-4 cm/cm/°C	ISO 11359-2
Accelerated Oven Ageing	430 hr	430 hr	ISO 4577
RTI Elec	149 to 152 °F	65.0 to 66.6 °C	UL 746B
RTI Imp	149 to 152 °F	65.0 to 66.6 °C	UL 746B
RTI Str	149 to 152 °F	65.0 to 66.6 °C	UL 746B
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity			
--	1.0E+2 to 1.0E+14 ohms	1.0E+2 to 1.0E+14 ohms	ASTM D257
--	9.8E+14 to 1.0E ₊₁₅ ohms	9.8E+14 to 1.0E ₊₁₅ ohms	IEC 60093
Volume Resistivity			
--	1.0E+14 to 1.0E ₊₁₅ ohms·cm	1.0E+14 to 1.0E ₊₁₅ ohms·cm	IEC 60093
--	8.4E+11 to 1.0E ₊₁₃ ohms·m	8.4E+11 to 1.0E ₊₁₃ ohms·m	IEC 62631-3-1
Electric Strength	1000 to 1100 V/mil	40 to 45 kV/mm	IEC 60243-1
Dielectric Constant	2.25 to 2.41	2.25 to 2.41	IEC 60250
Comparative Tracking Index	594 to 600 V	594 to 600 V	IEC 60112
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Burning Rate	0.0 to 4.0 in/min	0.0 to 100 mm/min	ISO 3795
Glow Wire Flammability Index	1750 to 1760 °F	955 to 960 °C	IEC 60695-2-12
Glow Wire Ignition Temperature	1380 to 1760 °F	749 to 960 °C	IEC 60695-2-13
Oxygen Index			
--	25 to 26 %	25 to 26 %	ASTM D2863
--	26 to 37 %	26 to 37 %	ISO 4589-2



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Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Gloss	64 to 155	64 to 155	ASTM D2457
Haze	0.100 to 4.20 %	0.100 to 4.20 %	ASTM D1003
Yellowness Index	3.9 to 4.0 YI	3.9 to 4.0 YI	ASTM D1925

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	174 to 197 °F	79 to 91 °C
Drying Time	1.9 to 3.0 hr	1.9 to 3.0 hr
Suggested Max Moisture	0.044 to 0.21 %	0.044 to 0.21 %
Hopper Temperature	122 to 324 °F	50 to 162 °C
Rear Temperature	353 to 433 °F	178 to 223 °C
Middle Temperature	365 to 484 °F	185 to 251 °C
Front Temperature	374 to 502 °F	190 to 261 °C
Nozzle Temperature	370 to 486 °F	188 to 252 °C
Processing (Melt) Temp	368 to 470 °F	187 to 243 °C
Mold Temperature	81 to 159 °F	27 to 70 °C
Injection Pressure	950 to 14500 psi	6.55 to 100 MPa
Holding Pressure	5040 to 9430 psi	34.8 to 65.0 MPa
Back Pressure	35.0 to 1100 psi	0.241 to 7.61 MPa
Screw Speed	47 to 400 rpm	47 to 400 rpm

Injection Notes

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Extrusion	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	167 to 212 °F	75 to 100 °C
Drying Time	3.0 hr	3.0 hr
Hopper Temperature	122 to 129 °F	50 to 54 °C
Cylinder Zone 1 Temp.	372 to 483 °F	189 to 251 °C
Cylinder Zone 2 Temp.	383 to 502 °F	195 to 261 °C
Cylinder Zone 3 Temp.	383 to 502 °F	195 to 261 °C
Cylinder Zone 4 Temp.	383 to 520 °F	195 to 271 °C
Cylinder Zone 5 Temp.	383 to 503 °F	195 to 262 °C
Melt Temperature	374 to 484 °F	190 to 251 °C
Die Temperature	392 to 485 °F	200 to 252 °C

Extrusion Notes

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Notes

¹ Typical properties: these are not to be construed as specifications.

