

Generic PS (GPPS)

General Purpose Polystyrene

Generic

Message:

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This information is provided for comparative purposes only.

General Information			
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.03 - 1.06	g/cm ³	ASTM D792
23°C	1.04 - 1.05	g/cm ³	ISO 1183
--	1050	kg/m ³	ISO 1183 ¹
--	1.04 - 1.05	g/cm ³	ASTM D1505
Apparent Density	0.60 - 0.65	g/cm ³	ISO 60
Melt Mass-Flow Rate (MFR)			
200°C/5.0 kg	0.60 - 21	g/10 min	ASTM D1238
200°C/5.0 kg	0.20 - 11	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)			
200°C/5.0 kg	1.50 - 15.4	cm ³ /10min	ISO 1133
--	3.25	cm ³ /10min	ISO 1133 ²
Molding Shrinkage			
Flow: 23°C	0.45 - 0.60	%	ASTM D955
23°C	0.35 - 0.56	%	ISO 294-4
Water Absorption			
23°C, 24 hr	0.030 - 0.10	%	ASTM D570
23°C, 24 hr	0.10	%	ISO 62
Saturated, 23°C	0.099 - 0.10	%	ASTM D570
Saturation	0.050	%	ISO 62 ³
Equilibrium, 23°C, 50% RH	0.098 - 0.11	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			
23°C	58 - 108		ASTM D785
23°C	70 - 105		ISO 2039-2
Durometer Hardness (23°C)	73 - 99		ISO 868
Ball Indentation Hardness	150	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
23°C	2330 - 3390	MPa	ASTM D638
23°C	1980 - 3400	MPa	ISO 527-2

--	3230	MPa	ISO 527-2 ⁴
Tensile Strength			
Yield, 23°C	18.7 - 55.9	MPa	ASTM D638
Yield, 23°C	19.8 - 56.3	MPa	ISO 527-2
Fracture, 23°C	24.8 - 52.6	MPa	ASTM D638
Fracture, 23°C	15.0 - 55.0	MPa	ISO 527-2
23°C	20.3 - 53.9	MPa	ASTM D638
Tensile Elongation			
Yield, 23°C	1.2 - 41	%	ASTM D638
Yield, 23°C	1.5 - 3.1	%	ISO 527-2
Fracture, 23°C	1.0 - 4.0	%	ASTM D638
Fracture, 23°C	1.0 - 5.0	%	ISO 527-2
Flexural Modulus			
23°C	1990 - 3470	MPa	ASTM D790
23°C	1750 - 3600	MPa	ISO 178
Flexural Strength			
23°C	37.1 - 102	MPa	ASTM D790
23°C	38.1 - 106	MPa	ISO 178
Yield, 23°C	42.9 - 98.4	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	1.9 - 10	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength (23°C)	7.1 - 26	kJ/m ²	ISO 179
Notched Izod Impact			
23°C	11 - 24	J/m	ASTM D256
23°C	1.5 - 11	kJ/m ²	ISO 180
Unnotched Izod Impact			
23°C	16 - 800	J/m	ASTM D256
23°C	5.8 - 36	kJ/m ²	ISO 180
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, not annealed	78.0 - 98.0	°C	ASTM D648
0.45 MPa, not annealed	78.4 - 84.4	°C	ISO 75-2/B
0.45 MPa, annealed	93.3 - 100	°C	ASTM D648
0.45 MPa, annealed	92.8 - 100	°C	ISO 75-2/B
1.8 MPa, not annealed	70.3 - 101	°C	ASTM D648
1.8 MPa, not annealed	71.9 - 95.0	°C	ISO 75-2/A
1.8 MPa, annealed	81.9 - 95.3	°C	ASTM D648
1.8 MPa, annealed	81.6 - 99.0	°C	ISO 75-2/A
1.8 MPa	83.0	°C	ISO 75-2 ⁵
Vicat Softening Temperature			
--	82.1 - 111	°C	ASTM D1525
--	82.0 - 107	°C	ISO 306

50°C/h, B (50N)	96.1	°C	ISO 306 ⁶
Ball Indentation Temperature	72.5 - 72.7	°C	IEC 60598-1
Linear thermal expansion coefficient			
Flow	7.0E-5 - 9.1E-5	cm/cm/°C	ASTM D696
Flow	7.1E-5 - 8.0E-5	cm/cm/°C	ISO 11359-2
Lateral	7.0E-5	cm/cm/°C	ISO 11359-2 ⁷
Thermal Conductivity (23°C)	0.16 - 0.17	W/m/K	ISO 8302
RTI Elec	50.0 - 50.5	°C	UL 746
RTI Imp	50.0 - 50.5	°C	UL 746
RTI	50.0 - 50.5	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity			
--	1.0E+4 - 1.0E+15	ohms	ASTM D257
--	1.0E+3 - 1.5E+15	ohms	IEC 60093
--	1.0E+13 - 1.0E+14	ohms	IEC 60093 ⁸
Volume Resistivity			
23°C	1.0E+2 - 1.0E+17	ohms·cm	ASTM D257
23°C	1.0E+2 - 1.0E+18	ohms·cm	IEC 60093
Dielectric Strength			
23°C	18 - 150	kV/mm	ASTM D149
23°C	70 - 140	kV/mm	IEC 60243-1
Dielectric Constant (23°C)	2.50 - 2.60		ASTM D150
Dissipation Factor			
23°C	6.0E-5 - 5.0E-4		ASTM D150
23°C	5.0E-5 - 4.0E-4		IEC 60250
Comparative Tracking Index	348 - 550	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Glow Wire Flammability Index	750 - 960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature	642 - 751	°C	IEC 60695-2-13
Optical	Nominal Value	Unit	Test Method
Transmittance	88.0 - 90.0	%	ASTM D1003
Haze	0.35 - 1.1	%	ASTM D1003
Injection	Nominal Value	Unit	
Drying Temperature	69.3 - 82.2	°C	
Drying Time	1.0 - 3.0	hr	
Suggested Max Moisture	0.073 - 0.075	%	
Suggested Max Regrind	25	%	
Rear Temperature	169 - 238	°C	
Middle Temperature	190 - 249	°C	
Front Temperature	190 - 239	°C	
Nozzle Temperature	199 - 238	°C	
Processing (Melt) Temp	198 - 230	°C	

Mold Temperature	32.0 - 56.0	°C
Injection Pressure	86.2 - 155	MPa
Back Pressure	0.259 - 7.94	MPa
Cushion	5.00 - 6.35	mm

Injection instructions

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Extrusion	Nominal Value	Unit
Drying Temperature	70.0 - 70.3	°C
Drying Time	1.5 - 1.6	hr
Cylinder Zone 1 Temp.	180 - 185	°C
Cylinder Zone 2 Temp.	193 - 201	°C
Cylinder Zone 3 Temp.	198 - 220	°C
Cylinder Zone 4 Temp.	208 - 221	°C
Cylinder Zone 5 Temp.	212 - 213	°C
Adapter Temperature	213	°C
Melt Temperature	195 - 225	°C
Die Temperature	205 - 216	°C

Extrusion instructions

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NOTE

1.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
2.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
3.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
4.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
5.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
6.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
7.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???
8.	?????,?? ISO 10350 ??? 23°C/50%r.h. ???

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