

HDPE

Physical Properties	Nominal Value	Test Method
Density / Specific Gravity		
--	0.940 to 24.7 g/cm ³	ASTM D792
Water Absorption		
24 hr	0.010 to 0.10 %	ASTM D570
Equilibrium	0.010 to 0.011 %	ASTM D570
Equilibrium, 23°C, 50% RH	0.010 to 0.012 %	ISO 62

Mechanical Properties	Nominal Value	Test Method
Tensile Modulus	270 to 2020 MPa	ASTM D638
Tensile Strength		
Yield	21.8 to 31.7 MPa	ASTM D638
Break	11.0 to 41.7 MPa	ASTM D638
Tensile Elongation		
Yield	1.0 to 33 %	ASTM D638
Break	2.7 to 1000 %	ASTM D638
Nominal Tensile Strain at Break	390 to 510 %	ISO 527-2
Tensile Creep Modulus		
1 hr	745 MPa	ISO 899-1
1000 hr	330 MPa	ISO 899-1
Apparent Bending Modulus	824 to 1090 MPa	ASTM D747
Flexural Modulus		
--	1.24 to 1740 MPa	ASTM D790
--	758 to 1540 MPa	ISO 178
Flexural Strength		
--	13.0 to 35.6 MPa	ASTM D790
--	14.0 to 32.0 MPa	ISO 178
Yield	26.1 to 30.1 MPa	ASTM D790
Coefficient of Friction	0.20 to 0.21	ASTM D1894

Impact Properties	Nominal Value	Test Method
Charpy Notched Impact Strength	1.2 to 29 kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	2.0 to 98 kJ/m ²	ISO 179
Notched Izod Impact		
--	1.0 to 510 J/m	ASTM D256
--	1.9 to 16 kJ/m ²	ISO 180
Notched Izod Impact (Area)	3.07 to 45.4 kJ/m ²	ASTM D256
Unnotched Izod Impact	7.0 to 1300 J/m	ASTM D4812
Tensile Impact Strength		
--	39.5 to 429 kJ/m ²	ASTM D1822

--	71.3 to 253 kJ/m ²	ISO 8256
Drop Impact Resistance	170 to 210 J/cm	ASTM D4226
Impact Strength	27 to 259 J	ARM

Thermal Properties	Nominal Value	Test Method
Deflection Temperature Under Load		
0.45 MPa, Unannealed	61.4 to 84.1 °C	ASTM D648
0.45 MPa, Unannealed	61.2 to 81.9 °C	ISO 75-2/B
1.8 MPa, Unannealed	36.7 to 70.0 °C	ASTM D648
1.8 MPa, Unannealed	40.0 to 68.2 °C	ISO 75-2/A
Brittleness Temperature		
--	-83.0 to -67.9 °C	ASTM D746
--	-76.0 to -40.0 °C	ISO 974
Vicat Softening Temperature		
--	118 to 133 °C	ASTM D1525
--	65.5 to 129 °C	ISO 306
Melting Temperature		
--	127 to 134 °C	DSC
--	129 to 130 °C	
--	125 to 135 °C	ISO 11357-3
--	129 to 135 °C	ASTM D3418
--	127 to 135 °C	ISO 3146
Specific Heat	1900 to 1910 J/kg/°C	ASTM C351
Thermal Conductivity		
--	0.48 to 0.49 W/m/K	ASTM C177
--	0.40 W/m/K	ISO 8302

Electrical Properties	Nominal Value	Test Method
Surface Resistivity	1.0E+2 to 2.5E+16 ohms	ASTM D257
Volume Resistivity	1.0 to 2.5E+18 ohms·cm	ASTM D257
Dielectric Strength	20 to 28 kV/mm	ASTM D149
Dielectric Constant	2.28 to 2.36	ASTM D150
Dissipation Factor	2.0E-5 to 5.2E-4	ASTM D150

The information provided in this datasheet is based upon average values and is intended for guidance purposed only. Vital Parts assumes no responsibility or liability for the accuracy of the information contained on this datasheet. Product samples are available for the to determine the suitability of the product for any application.