

HDPE PE 4710 Technical Data Chart

Nominal HDPE Pipe Property ¹	ASTM Test Method	Unit	Required by ASTM D3350 cell class PE445574C	Required by AWWA C906 for PE4710	Typical Value
Cell Classification	D3350	-	PE 445574C	PE 445574C	PE 445574C
Density w/ Min 2% Carbon Black	D1505	g/cm ³	> 0.947	> 0.947	0.955 - 0.960
Melt Flow Index (190/2.16)	D1238	g/10 min	< 0.15*	< 0.15*	0.3
Hydrostatic Design Basis (HDB) @ 73°F (23°C)	D2837	psi	1,600	1,600	1,600
Hydrostatic Design Stress (HDB) @ 140°F (60°C)	D2837	psi	1,000	1,000	1,000
Color: UV Stabilizer [C]	D3350	-	> 2%	> 2%	2-3%
Hazen Williams C-Factor (Lifetime)	-	-	-	-	150-155
Manning's n Value	-	-	-	-	0.008 - 0.011
Nominal HDPE Material Property ²	ASTM Test Method	Unit	Required by ASTM D3350 cell class PE445574C	Required by AWWA C906 for PE4710	Typical Value
Tensile Strength at Yield	D638	psi	3,500 - < 4,000	> 3,200	3,500 - 4,000
Tensile Elongation at Break	D638	%	-	> 400%	> 400%
Slow Crack Growth (PENT)	F1473	hrs	> 500	> 500	> 500
Flexural Modulus	D790	psi	> 110,000 - 160,000	> 110,000 - 160,000	> 120,000
Modulus of Elasticity (Dynamic ³)	D638	psi	-	-	150,000
Vicant Temperature	D1525	°F	-	-	259
Brittleness Temperature	D746	°F	-	-	< -103
Hardness	D2240		-	-	64 Shore D
Coefficient of Thermal Expansion/Contraction	D696	in/in ·°F	-	-	8.0 x 10 ⁻⁵
Compressive Stress	-	psi	-	-	1,150
Thermal Conductivity		BTU ·in /hr ·sq. ft ·°F	-	-	3.1
Poisson's Ratio	-	-	-	-	0.45

¹The nominal pipe properties were determined on pipe extruded from a pellet blend of typical resin and an approved carbon black concentrate. ²The nominal properties reported are typical of the resin when blended with an approved color concentrate, except the density value which is representative of the natural resin, but do not reflect normal testing variance and therefore should not be used for specification purposes. Values are rounded. ³Ratio of stress to strain that occurs under instantaneous rate of increasing stress, such as can occur in a water-hammer reaction in a pipeline. This modulus is used as a parameter for the computing of a localized surge pressure that results from a water hammer event.

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