GSC ENERGY PRO

Typical Physical Properties for GSC Energy Pro 4710 Pipe Compound

GSC Energy Pro PE4710 pipe is manufactured from pressure rated PE4710 polyethylene compounds that meet or exceed ASTM D 3350 requirements and Cell Classification PE445574C. GSC Energy Pro PE4710 compound meets or exceed ASTM D3350 requirements and Cell Classification PE345464C and material code designations PE3608 and PE3408

GSC Energy Pro PE4710 polyethylene pipe compounds are Listed by PPI in TR-4 and are stress rated for pressure pipe with PPI HDS ratings for water at 73°F (23ºC) and PPI HDB ratings at 73°F (23°C) and 140°F (60ºC)

GSC Energy Pro PE4710 exceeds PPI TR-3 and ASTM D3350 SCG resistance requirements per ASTM F 1473 (PENT). GSC Energy Pro PE4710 ductility is substantiated with greater than 438,300 hours (50 years) at 73ºF (23ºC) before the onset of SCG.

For potable water service, GSC Energy Pro PE4710 black polyethylene compounds are certified to NSF- 61

Physical Property	***Test Method***	***Typical Value(1)***
Cell classification (black compound)	ASTM D3350	PE445574C
Melt Index (190/2.16)	ASTM D1238	0.1 g/10 min
High Load Melt Index(2)(190/21.6)	ASTM D1238	4 – 20 g/10 min
Density with 2% minimum carbon black (73°F/23°C)	ASTM D792	0.960 g/cm3
Tensile strength at yield (2 in/min; 73°F/23°C)	ASTM D638	3500 < 4000 psi
Tensile elongation (2 in/min; 73°F/23°C)	ASTM D638	>700%
Flexural modulus (73°F/23°C)	ASTM D790	110,000 < 160,000 psi
SCG Resistance, PENT (80°C, 2.4 MPa)	ASTM F1473	> 2500 h(4)
Thermal stability	ASTM D3350	>428ºF (> 220°C)
Brittleness temperature	ASTM D746	<-103°F (<-75ºC)
Thermal expansion coefficient	ASTM D696	9 x 10-5 in/in/°F
HDB(3) at 140°F (60ºC)	ASTM D2837/PPI TR-3	1000 psi (6.9 MPa)
HDS(3) for water at 73°F (23ºC)	ASTM D2837/PPI TR-3	1000 psi (6.9 MPa)(4)
HDS for water at 140ºF (60ºC)	ASTM D2837/PPI TR-3	630 psi (4.3 MPa)(4)
RCP Resistance, Critical Pressure at 32ºF (0ºC)	ISO 13477	>174 psi (>1.2 MPa)(5)
RCP Resistance, Critical Temp. at 72.5 psi (0.5 MPa)	ISO 13477	<2ºF (<-17ºC)(5)

Contact GSC Energy Pro Customer Service for availability. (1) Typical values determined from laboratory tests of samples of compounds (resins) prepared as plaque specimens in accordance with industry standard test methods. Values determined on samples prepared from pipe may vary. The typical values presented herein are for PE4710 polyethylene pipe compounds (resins) but do not constitute engineering properties for pipe. (2) Overall range of HLMI values for all compounds from all GSC Energy Pro compound suppliers; HLMI variation for an individual compound will be well within the overall range. (3) Listed HDB and HDS ratings in accordance with ASTM D 2837 and PPI TR-3 are published in PPI TR-4 by the compound manufacturer (independent listing) and by GSC Energy Pro (dependent listing). GSC Energy Pro dependent listing compounds are identified by a compound code for the supplier: D (Dow); E (Lyondell Basell); S (Ineos); T (Total); C (Chevron-Phillips). (4) SCG resistance for compound code C = >500 h; HDB at 140°F (60°C) for compound code C = 800 psi (6.9 MPa); HDS for water at 140°F (60°C) for compound code C = 500 psi (4.3 MPa). (5) RCP data not available for compound code C.

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