Formosa Plastics®

Formolene® HDPE

Formolene® HP4401

High Density Polyethylene (HDPE) Resin for Pressure Pipe Extrusion Applications

Formolene® HP4401 is a high performance copolymer that is designed for the most demanding requirements of pressure pipe applications. It has good long-term hoop strength performance, very high melt strength, and outstanding toughness even at low temperatures.

Formolene® HP4401 meets all requirements of ASTM D4976 – PE 235.

When blended with the approved color concentrates, Formolene® HP4401 has a cell class of 345464C per ASTM D3350-05, is listed by PPI as a PE3608 material with HDB's of 1,600 psi @ 73°F and 800 psi @ 140°F and meets the requirements of NSF Standard 14/61 for use with potable water. Formolene® HP4401 also qualifies as a PE3408 material under the old ASTM D3350-02a and PPI standards. Formolene® HP4401 also qualifies as a PE80 material per ISO 9080.

Suggested Applications: Potable Water, Oil and Gas Gathering and Distribution, Chemical, Industrial and Mining, Sewer

Nominal Physical Properties:

PROPERTY* (Natural Resin)	ASTM TEST METHOD	English UNIT	English VALUE	SI UNIT	SI VALUE
Density (Natural)	D1505	g/cc	0.944	g/cc	0.944
(Black)			0.955		0.955
Melt Index,					
Condition E, 190ºC/2.16 kg (MI)	D1238	g/10 min.	0.11	g/10 min.	0.11
Condition F, 190ºC/21.6 kg (HLMI)		g/10 min.	12.0	g/10 min.	12.0
Environmental Stress Crack Resistance					
Condition A, B, C (100% Igepal), F_{50}	D1693	h	>1000	h	>1000
Tensile Yield Strength					
@ Yield	D638	psi.	3200	MPa	22
@ Break	Type IV	psi.	5000	MPa	34
2” (50 mm) per min.					
Ultimate Elongation	D638				
2” (50 mm) per min.	Type IV	%	>500	%	>500
Flexural Modulus	D3350	psi.	110,000	MPa	760
	D790	psi.	140,000	MPa	960
Brittleness Temperature,	D746	°F	<-130	°C	<-90
Pent Slow Crack Growth	F1473	h	150	h	150

* Physical properties reported herein were determined on compression molded specimens prepared in accordance with Procedure C of ASTM D4703, Annex A1.

The nominal properties reported herein are typical of the product but do not reflect normal testing variance and therefore should not be used for specification purposes.

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