

Basic properties of typical HDPE pressure pipe extrusion raw materials and pipes

	ASTM Norm			ISO and Other Norms		
		Unit	Value			Value
Polymer Data						
Density	D 1505	g/cm³	0,941-0,955	1183	g/cm³	0,940-0,960
Melt flow	D 1238	g/10min 190/2,1	12	1133	g/10min 190/2,1	
	D 1238	g/10min 190/5	0,15-1,0	1133	g/10min 190/5	03.1,0
Viscosity number				1628-3	cm³/g	320
Pigment content on black compound				6964	%	2.3+/-0,33
Pigment dispersion				11420	rating	<3
Water content	D 4019	ppm	<300			
Mechanical Properties						
Yield stress	D 638	MPA	21	6259	MPA	21
Elongation at yield stress	D 638	%	8	6259	%	8
Elongation at yield break	D 638	%	>700	6259	%	>600
Modulus on elasticity	D 638	MPA	600-1000	527	MPA	600-1000
Tensile creep modulus				899	MPa at 1hr	640
Tensile creep modulus				899	MPa at 1000hrs	300
Flexural creep modulus	D 790	MPA	550-110			
Ball indentation hardness				2039	N/mm²	44 +/-4
Shore hardness	D 2240		58-65	868	3 sec	58-65
Tensile strength at yield	D 638	MPA	18-24	6259	MPA	18-24
Tensile strength at break	D 638	MPA	35			
Notched impact strength 23°C				179/1 e A	kJ/m²	24
Notched impact strength -30°C				179/1 e A	kJ/m²	8
Tensile impact strength				8256	kJ/m²	<130
Vicat softening temperature	D 1525	°F	255	306	°C	67
Thermal Properties						
Linear thermal expansion coef	D 696	In/in/°F	1,2x10x4	DIN 53752	m/m/K	1,4x10x4-2,0x10x4
Thermal conductivity	D 177	Btu ft2, h1°F1	2,7	DIN 52612	w/mxK at 20°C	0,4
Brittleness temperature	D 746	<-70				

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		Unit				
Electrical Properties						
Dielectric strength				VDE0303-21	kV/mm	20-50
Dielectric constant				DIN IEC 250	Ohmxcn	2.5
Volume resistivity				DIN IEC	Ohmxcn	>10x16
Surface resistivity				DIN IEC 167	Ohm	>10x14
Tracking resistance				DIN IEC 112	Volt	>600
Other Properties						
Hydrostatic strength	D2837	MPA	8,62-11,03	9080	MPA	8-11
Oxidation induction time At 210°C	D3895	min	20	10837	min	>30
ESC	D 1693-70	hrs	>600	6252	hrs	>100
ESC R Cond C	D 1693	F20,h	>3000			
ESCR Compressed Ring	F 1248	F20,h	>3000			
Resistance to rapid crack Propagation S4				13477	Bar at 20°C	>5
				13477	Bar at 20°C	>1.8
Resistance to slow crack propagation SCG	F 2136	At 2,4 MPA		EN 33479	hrs	>3000
Resistance to slow crack propagation notched NCLS				13479	hrs	>1000
Slow crack resistance FNCT				none	hrs	100-1000
Internal Pressure resistance				921	Hrs at 20°C at 10.00MPA	>100
				921	Hrs at 80°C at 4.6MPA	>165
				921	Hrs at 80°C at 4.0MPA	>1000
Chemical resistance	Results on request					
UV resistance	Results on request					
Gas permeability	Results on request					